DISCUSSION TWO

Prior to beginning work on this discussion forum, be certain to have read all the required resources for this week.

The collaborative practice of clinicians across disciplines requires a shared language, appreciation of diagnostic and therapeutic paradigms, and recognition of appropriate roles within the health care team. This collaborative environment is at the heart of a health care system that utilizes the skills and expertise of all its team members in appropriate and extended roles. This model of care delivery is often called integrated care (IC) or collaborative care (CC). Although this model is endorsed by many professional societies and agencies, the CC/IC care delivery model can fail due to multiple factors.

In your initial post, consider the clinical partnerships that result within the CC/IC delivery model. Integrating concepts developed from different content domains in psychology, address the following questions.

- How might health care teams achieve therapeutic goals for individual clients?
- How does this support health literacy?
- What factors might lead to the failure of the CC/IC delivery model?
- How might lack of acceptance of the value or viability of the CC/IC model by stakeholders, lack of awareness of the clinical competencies of various members of the team, barriers to financial reimbursement for services, and lack of integration of support services within the practice cause a breakdown in efficacy?
- What supportive interventions within the CC/IC model address such issues?

In addition, consider how successful health care models assume an understanding of each profession's competencies and responsibilities. For example, primary care providers (PCPs) are sometimes unaware of the abilities and practice scope of psychology professionals.

- Identify methods of targeted intervention and education for PCPs that might alleviate potential issues for the CC/IC model.
- Explain how the APA Ethical Code of Conduct can be used to guide decisions in these complex situations.
- Evaluate and comment on the potential work settings where you might find the CC/IC model. In what ways might this model provide more job satisfaction?

(DISCUSSION 2)
Sources

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Integrating Behavioral Health Services Into a University Health Center: Patient and Provider Satisfaction

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The goals of this study were to (a) describe an Integrated Behavioral Health Care (IBHC) program within a university health center and (b) assess provider and patient acceptability and satisfaction with the IBHC program, including behavioral health screening and clinical services of integrated behavioral health providers (BHPs). Fifteen providers (nine primary care providers and six nurses) and 79 patients (75% female, 65% Caucasian) completed program ratings in 2010. Providers completed an anonymous web-based questionnaire that assessed satisfaction with and acceptability of behavioral health screening and the IBHC program featuring integrated BHPs. Patients completed an anonymous web-based questionnaire that assessed program satisfaction and comfort with BHPs. Providers reported that behavioral health screening stimulated new conversations about behavioral health concerns, the BHPs provided clinically useful services, and patients benefited from the IBHC program. Patients reported satisfaction with behavioral health services and reported a willingness to meet again with BHPs. Providers and patients found the IBHC program beneficial to clinical care. Use of integrated BHPs can help university health centers support regular screening for mental and behavioral health issues. Care integration increases access to needed mental health treatment.

Keywords: integrated behavioral health care, integrated primary care, mental health care

Integrated behavioral health care (IBHC), in which primary care providers (PCPs) and behavioral health providers (BHPs) collaborate to provide coordinated care, is an emerging model of patient care. Over the past decade, research has identified IBHC as a clinically effective and cost-effective method for improving clinical outcomes within primary care settings (Blount et al., 2007; Bryan, Morrow, & Appolonio, 2009; Cigrang, Dobmeyer, Becknell, Roa-Navarrete, & Yerian, 2006; Goodie, Isler, Hunger, & Peterson, 2009). Typically, this research has focused on integrating mental and behavioral health care within adult primary care set-

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tings, such as private family medicine practices, academic medical center primary care clinics, and primary care services offered within the Veterans Health Administration or Federal Qualified Centers. However, there is little research examining IBHC in university health clinics.

University health centers share many features with standard primary care settings. For example, university health centers tend to offer ambulatory care and other basic medical services to a wide range of patients (Christmas, 1995). These clinics tend to be students' first option when seeking medical care in nonemergency situations. University health centers may coordinate referrals to off-campus specialists as necessary. Thus, in terms of services offered and general approach to care, university health centers and primary care clinics are quite similar. Nevertheless, compared with typical primary care practices, university health clinics are somewhat unique in that they generally serve a restricted age range (i.e., 18–24 years of age) for a limited period of time (i.e., academic semesters) that has predictable elevations in stress/illness as a result of the increased workload that occurs toward the end of the semester. In addition, a majority of students are developmentally just beginning to take care of themselves while continuing to maintain significant ties to their parents, sometimes limiting their financial resources and ability to travel off campus for additional specialty services. Another caveat is that most university health clinics provide services to students using a general health fee that is wrapped into their tuition, eliminating difficulties with insurance claims (Mills, Gold, & Curran, 1996).

The lack of research examining the integration of mental health services into university health clinics is surprising because of the alarming rates of mental health issues on college campuses (American College Health Association [ACHA], 2010a; Mowbray et al., 2006) and the fact that most college students with clinically significant psychological distress do not receive mental health treatment (Rosenthal & Wilson, 2008). For instance, only 15% of students with moderately severe to severe depression or past-month suicidal ideation received any mental health care (Garlow et al., 2008). A recent ACHA white paper (2010b) argued for the integration of campus medical and counseling clinics, given the great potential for integrated care to increase treatment access, enhance clinical outcomes, and improve patient satisfaction.

Similar to other primary care settings, IBHC in university health centers can provide an avenue to address many of the obstacles to treatment access for college students. For instance, a higher proportion of students use campus health clinics than campus mental health clinics (79% vs. 10% in one recent study; Eisenberg, Golberstein & Gollust, 2007), and many students feel more comfortable seeing PCPs than therapists (ACHA, 2010b). Moreover, because many mental health issues cause physical symptoms, many students seek evaluation at health clinics first (ACHA, 2010b). The few studies examining IBHC within university health settings have reported numerous benefits, including increased accessibility of mental/behavioral health care, increased referral follow-through, and higher quality patient care (Masters, Stillman, Browning & Davis, 2005; Tucker, Sloan, Vance, & Brownson, 2008; Westheimer & Steinley-Bumgarner, 2008).

Besides clinical outcomes, another vital component in the process of evaluating a new program of service, and whether others should consider implementing such a program within college health, is obtaining feedback from the "consumers" involved in the program (Gallo et al., 2004; Reiss-Brennan, Briot, Daumit, & Ford, 2006; Runyan, Fonseca, & Hunter, 2003). For IBHC, primary consumers include PCPs and patients. A lack of acceptability and/or satisfaction among the PCPs with the various components of the IBHC program would ultimately sabotage the program because of (a) the pivotal role PCPs have within IBHC (i.e., referring patients to BHPs) and (b) the focus all IBHC programs have on increasing collaboration between PCPs and BHPs. Similarly, it is extremely important that the patients are satisfied with clinical services provided by a new program, otherwise patients may not remain engaged or comply with treatment recommendations, which could compromise treatment success. Patient satisfaction is an important outcome measure that identifies problems with health care (Sitzia & Wood, 1997) and is associated with treatment adherence and provider/program selection (Fitzpatrick, 1991).

Preliminary studies have begun to examine patient and provider opinions about IBHC within the college health setting. Tucker et al. (2008) examined an international student's experience of the Integrated Health Program at the University of Texas at Austin using a case study design and found his overall experience to be positive. Westheimer and Steinley-Bumgarner (2008) examined provider behaviors, opinions, and experiences during the integration process of IBHC within the same university and found PCPs ascribed a high level of value to the collaborative effort integrated BHPs could provide in helping with a diverse number of conditions. However, neither of these studies provided a sound understanding of patient or provider satisfaction with the IBHC program and its various components.

Two studies have examined the use of screening questionnaires designed to increase discussion of mental and behavioral health issues during university health center visits. In a pilot study, Cowan and Morewitz (1995) found that use of a screening questionnaire prompted discussion of psychosocial concerns that may not have otherwise come up. However, this study did not use a validated screening measure or examine provider or patient satisfaction with use of the screening measure. Alschuler, Hoodin, and Byrd (2008) examined provider and patient satisfaction with the integration of a screening questionnaire for behavioral health issues in a college health center. They found that patients who were randomly assigned to fill out the screening questionnaire reported it helped them discuss concerns with their providers and they would like its use to continue in the future. The providers reported that they also found the screening questionnaire helpful and would be happy to collaborate with integrated BHPs on-site. Although this study provided preliminary evidence toward patient and provider satisfaction with IBHC, it focused on integrating the screening measure and it did not involve the actual integration of BHPs, which is a fundamental component of IBHC programs.

In sum, IBHC is an emerging approach to health care that can increase access to mental and behavioral health care while reducing the burden on PCPs and specialty mental health centers. University health centers are an opportune setting in which to implement the IBHC model. However, despite the importance of ensuring provider and patient acceptability and satisfaction when implementing new clinical programs, little research has examined these factors with respect to IBHC in university health centers. Therefore, the purpose of this study was to collect feedback from PCPs and patients to assess the acceptability and satisfaction with all aspects of integrating an IBHC program at Syracuse University, which included the implementation of a behavioral health screening questionnaire as well as the integration of several BHPs. It was expected that PCPs and patients would indicate a high level of satisfaction and acceptability with all aspects of the program.

Method

Our Integrated Behavioral Health Primary Care Program

We developed our IBHC program by adapting a common model of integrated health care called the Primary Mental Health Care model described by Strosahl (1998). Syracuse University Health Services (SUHS), which serves approximately 9,038 patients per year, collaborated with the Syracuse University doctoral program in clinical psychology to integrate three to five advanced doctoral students as BHPs per academic year (for additional information regarding this type of collaborative effort, see Masters et al., 2005). The BHPs provided clinical services 20–35 hours per week as part of an Advanced Practicum course. Working under the supervision of a licensed psychologist and an onsite medical provider, the BHPs saw approximately 152 students per semester for various presenting problems (e.g., insomnia, depressive symptoms). BHPs acted as consultants to the PCPs, seeing patients for brief sessions (i.e., one to three sessions lasting approximately 15–30 minutes each; Strosahl, 1998). The average number of sessions per patient was 1.43 (SD = 0.83, range 1–5) for the Spring, 2010 semester and 1.61 (SD = 0.97, range 1–6) for the Fall, 2010 semester.

In this IBHC model, the PCP ultimately maintains responsibility for patient management throughout the course of treatment. Nonetheless, the PCPs can utilize the BHPs in several ways: (a) to conduct further assessment of behavioral health issues; (b) to provide brief in-

terventions for patients reporting mild-moderate mental health symptomatology, behavioral health issues (e.g., sleep problems), or symptoms associated with chronic disease; (c) to triage patients reporting more severe mental health symptoms to more specialized services; and (d) to provide crisis assessment. BHPs maintain an open access schedule, keeping at least 15 minutes free between half-hour appointments to allow PCPs to walk patients down for same-day visits. Assessments and patient progress notes are shared among the team via verbal and/or written communications within the electronic medical record. Therefore, this IBHC model is strikingly different from the colocation of specialty mental health services within a university health clinic, which often continues to maintain separate medical records, provide more intensive treatment (i.e., a higher number of sessions, longer sessions), see patients for more severe symptomatology, and is often unable to accommodate same-day noncrisis appointments.

To help facilitate referrals and to follow national recommendations regarding screening for depression and at-risk alcohol use among young adults (American Academy of Pediatrics, 2001; Nimalasuriya, Compton, Guillory & Prevention Practice Committee of the American College of Preventive Medicine, 2009; U.S. Preventive Services Task Force, 2009), we implemented a screening tool as part of our IBHC program. Specifically, all students seen by PCPs for any reason were screened for the following symptoms: (a) depression and suicidal ideation with the Patient Health Questionnaire-9 (PHQ-9; Spitzer, Kroenke & Williams, 1999); (b) at-risk alcohol use with the Alcohol Use Disorders Identification Test-Consumption (AUDIT-C; Saunders, Aasland, Babor, de la Fuente & Grant, 1993); (c) sleep problems with two items from the Insomnia Severity Index (ISI; Bastien, Vallières & Morin, 2002); and (d) tobacco use with three items to assess smoking habits. Students were given the screening tool by nurses as they waited for the medical providers following the nurse obtaining vital signs. The screening tool clearly describes the purpose of the questionnaire, the confidentiality of the information, and that the items ask about symptoms unrelated to any current acute illness (e.g., cold, flu).

Procedure

This study was approved by the Syracuse University Institutional Review Board. To obtain the provider satisfaction data, we sent three recruitment emails, one week apart, to all PCPs and nurses working at the university health clinic over a 4-week period during the Spring semester of 2010. The email provided a brief description of the study and linked the provider to an anonymous web-based questionnaire. After providing informed consent, participants provided information on whether they were a PCP (MD, NP) or nurse and filled out a provider satisfaction survey. Providers were not given any compensation for participation.

To obtain the patient satisfaction data, we obtained a list of all students who had at least one session with an integrated BHP during the Spring (i.e., January 15 to May 15, 2010) or Fall semester in 2010 (i.e., August 15 to December 15, 2010) by pulling a list of all patients who were included in the electronic medical record as having the specific encounter code used only by the BHPs to identify behavioral health visits. Then, email addresses were located using the publicly available student email address directory. In addition, basic demographics of all IBHC patients were obtained from a tracking database maintained by the BHPs. We sent three recruitment emails, approximately 3–4 weeks apart, to each identified patient at the end of each semester to their university-provided email address to ask them to participate in an anonymous web-based patient satisfaction survey. After completing informed consent, participants completed the questionnaire. As an incentive, participants were offered a chance to win one of 12 $25 gift cards to an online retailer.

Participants

All PCPs (n = 9, two physician and seven nurse practitioners) and nurses (n = 10) working in the university health clinic were eligible to complete the provider satisfaction questionnaire. Fifteen participants (nine PCPs and six nurses) did so, yielding a 79% (100% for PCPs and 60% for nurses) response rate. Because of the small number of providers at the clinic and the need to maintain their anonymity to encourage higher response rates and candid respond-

ing, we did not collect demographics from the participants.

A total of 303 (175 Spring semester, 128 Fall semester) unique IBHC patients were identified using the electronic medical record. A total of 27 (23 from Spring semester and four from Fall semester) had recruitment emails returned because of a nonexistent address error likely resulting from the fact that the student left the university for some reason (e.g., graduation). Of the remaining participants who were eligible (n = 276), 79 participants (32 Spring semester, 47 Fall semester) completed the patient satisfaction survey, resulting in an overall 29% response rate (n = 152, 21% for Spring semester and n = 124, 38% for Fall semester). The majority of the participants were female (n = 59, 75%), white (n = 51, 65%), and not Hispanic or Latino (n = 72, 91%). To understand the representativeness of our sample, Table 1 presents the demographics for those who participated in the study and for the total sample of patients (n = 303) who saw a BHP during the Spring and Fall semesters of 2010. Because the patient satisfaction survey was anonymous, we were unable to test for demographic differences between responders and nonresponders.

Measures

Provider satisfaction questionnaire. Participants rated their level of agreement with 18 statements about the acceptability and usefulness of each component of the IBHC program on a Likert scale that ranged from *strongly disagree* (1) to *neutral* (3) to *strongly agree* (5). The 18 items (see Table 2) were generated by the first and fourth author and focused on each element of the IBHC program implemented. For several items, the participant could choose "not applicable" because of the lack of relevance of the statement to nurses versus PCPs and vice versa. Cronbach's alpha for the scale was .80.

Patient satisfaction questionnaire. Participants answered five demographic questions (i.e., age, sex, race, ethnicity, and class in school), and three yes/no questions (i.e., whether they remembered filling out the screening measure, whether their PCP discussed one of the topics on the screening measure with them, and whether they met with an integrated BHP). Those who remembered filling out the screening measure and meeting with the integrated BHP completed an additional six statements (see Table 3) which asked participants to rate their level of satisfaction, comfort, or willingness on a Likert scale that ranged from (1) *extremely unsatisfied/uncomfortable/unwilling* to (3) *neutral* to (5) *extremely satisfied/comfortable/willing* on a variety of elements associated with the IBHC program. These items were generated by the first and fourth author. For those participants who completed the Likert portion of the questionnaire, Cronbach's alpha for those six items was .75.

Table 1
Demographics of Survey Participants and All IBHC Patients

	Participant Demographics				All IBHC Patients			
	M	*SD*	*n*	%	*M*	*SD*	*n*	%
Age	30.0	3.8	79		21.7	4.1	303	
Males			20	25.3			121	40.0
Hispanic or Latino			7	8.9			22	7.3
Race[a]								
White			51	64.6			201	66.3
Black			7	8.9			34	11.2
Asian			10	12.7			24	7.9
Other			10	12.7			44	14.5
Class[b]								
Freshman			4	5.1			55	18.2
Sophomore			22	27.8			55	18.2
Junior			17	21.5			47	15.5
Senior			9	11.4			67	22.1
Graduate Student			27	34.2			75	24.8

[a] One participant left race unknown. [b] Four patients' class was unknown.

Table 2
Provider Ratings of IBHC Acceptability and Satisfaction

Item	PCPs			Nurses		
	n	*M* (*SD*)	Range	*n*	*M* (*SD*)	Range
Rate your level of agreement with the implementation of regular screening at SUHS for						
a) Depression	9	4.7 (0.5)	4–5	6	4.7 (0.5)	4–5
b) Sleep problems	9	4.3 (1.0)	2–5	6	4.7 (0.5)	4–5
c) Tobacco use	9	4.2 (0.7)	3–5	6	4.6 (0.5)	4–5
d) Alcohol misuse	9	4.7 (0.5)	4–5	6	4.7 (0.5)	4–5
The items that assessed the problem below were useful in my clinical practice						
a) Depressed mood	9	4.4 (0.5)	4–5	2	4.0 (1.4)	3–5
b) Sleep problems	9	3.9 (0.9)	2–5	1	5.0 (0.0)	5
c) Tobacco use	9	3.4 (0.7)	3–5	1	5.0 (0.0)	5
d) Alcohol consumption	9	3.8 (1.0)	2–5	2	4.5 (0.7)	4–5
The screening measure						
Took too much time away from clinical duties	9	2.9 (0.8)	2–4	6	2.5 (0.8)	1–3
Was difficult to score and interpret	9	2.6 (1.2)	1–4	5	3.0 (0.7)	2–4
Helped stimulate discussion of topics that would not have come up during patient visits	9	4.3 (0.7)	3–5	1	5.0 (0.0)	5
A majority of my patients felt comfortable answering the questions on the screening measure	9	4.3 (1.0)	2–5	6	3.8 (0.8)	3–5
The BHPs						
Were useful within my clinical practice	9	4.7 (0.5)	4–5	3	4.7 (0.6)	4–5
Became part of our primary care team	9	4.1 (0.6)	3–5	6	3.8 (1.0)	3–5
Benefited my patients	9	4.8 (0.4)	4–5	2	5.0 (0.0)	5
Helped my patients receive treatment more quickly	9	4.8 (0.4)	4–5	6	5.0 (0.0)	5
I would recommend this service to other colleagues	9	4.4 (0.7)	3–5	6	4.1 (1.0)	3–5
I would like the integrated behavioral health service to continue	9	4.7 (0.5)	4–5	6	4.7 (0.5)	4–5

Note. The *n*s vary because some providers chose "Not Applicable" for a response.

Data Analytic Plan

Because of the descriptive nature of the objectives of this study, our data analytic plan focused primarily on examining distributions and calculating the frequencies, modes, means, and standard deviations of individual survey items.

Results

Provider Satisfaction

As shown in Table 2, both PCPs and nurses reported a high level of support for regular implementation of the screening measure across all four screening domains and reported that patients were comfortable answering the questions on the screening measure. Providers strongly agreed that the screening measure helped stimulate discussion on topics that would not have come up during the visit otherwise. There was a greater level of variability yielding average (i.e., means ranging from 2.5–3.0) and modal responses within the neutral range for the two items assessing whether the screening measure took too much time away from other clinical duties and was difficult to score and interpret.

PCPs and nurses considered the integrated BHPs a part of the primary care team and felt the IBHC program helped patients receive treatment more quickly. PCPs perceived that pa-

Table 3
Patient Ratings of IBHC Satisfaction and Acceptability

Item	*n*	Mode	*M*	*SD*	Range
Rate your overall level of satisfaction with the visit(s) you had at University Health Service	79	4.0	3.4	1.1	1–5
Rate your level of comfort filling out the screening questionnaire during your visit	66	4.0	3.5	1.1	1–5
Rate your level of satisfaction with the service you were provided during the visits with the integrated behavioral health provider	52	4.0	3.4	1.2	1–5
Rate your level of willingness meet with one of those providers again if something else or that issue continued	52	4.0	3.4	1.4	1–5
Rate your level of comfort meeting with them at University Health Service rather than some other location on campus (e.g., SU Counseling Center)	52	3.0	3.6	1.0	2–5
Rate your level of comfort with the length of the meetings (i.e., typically less than 40 minutes) with the integrated behavioral health provider	52	4.0	3.7	0.9	2–5

tients benefited from seeing the BHPs. Both PCPs and nurses would recommend this service to other colleagues within college health and would like IBHC to continue in the future.

Patient Satisfaction

Results of the satisfaction assessment indicate that a majority of the sample of patients were satisfied with their overall care at SUHS (see Table 3). A number of students did not remember filling out the screening questionnaire (n = 13, 17%) or meeting with a BHP (n = 26, 33%), so they did not rate their satisfaction or report on those elements of the IBHC program in Table 3. Of those who remembered completing the questionnaire, the majority reported that they talked to the medical provider about a topic on the screening measure (n = 57, 86%). Of those who remembered meeting with a BHP, the majority reported that they felt that the BHP helped them with the topic that they discussed (n = 38, 73%).

As shown in Table 3, overall participants reported a general level of comfort filling out the screening measure, were satisfied with the service provided by the integrated BHP, and would be willing to seek help from the BHP again if necessary. Although the average response was within a level of agreement (M = 3.6), there was a greater level of variability when it came to having the service within the university health setting as compared with a specialty mental health clinic on campus, with a mode of 3.0 indicating a neutral response.

Discussion

As expected, this study found that PCPs, nurses, and patients reported positive experiences with the two major components of the IBHC program: the implementation of a behavioral health screening assessment and the integration of BHPs into the university health center. The results provide further evidence that this model of care can be used on college campuses with success in terms of provider and patient satisfaction.

Similar to past research (Alschuler et al., 2008; Cowan & Morewitz, 1995), this study found that providers indicated that having brief screening items to assess sleep problems, depression, alcohol use, and tobacco use was helpful to their clinical practice. In addition, the assessment items reportedly helped stimulate discussions with patients about topics that would not have otherwise been discussed. Alschuler and colleagues (2008) found a similar result such that those providers whose patients

were randomly assigned to fill out a mental health questionnaire discussed those issues with their patients more than those providers whose patients were not assigned to fill out the questionnaire. Not only did providers perceive the screening questionnaire as having a high level of utility within their clinical practice, but the patients also reportedly were comfortable with filling out the questionnaire during their appointments.

Our findings highlight the importance of selecting an appropriate screening questionnaire that can be completed and scored quickly. A common concern among providers when discussing the implementation of regular screening for mental health issues is the time involved in integrating the screen within the clinical appointment (Thomas, Waxmonsky, McGinnis, & Barry, 2006). Within this study, a majority of the providers and nurses reported responses within the neutral range when asked about whether the screening measure took time away from other clinical duties. This is not surprising as the questionnaire obviously does add time to the patient visit, as noted in prior research (Alschuler et al., 2008). The typical patient appointment at this clinic is only 15 minutes, so allocating 1–2 minutes to review the screen with the patient would reduce the time left to focus on the patient's presenting complaint. The fact that providers endorsed a modal response within the neutral range suggests that the screening can be incorporated without a significant negative impact. One study on behavioral health screening found that using a measure that includes areas specific to college students (e.g., academic stress, risky sexual behavior) improved detection of students struggling with adjustment issues compared to a more general screening measure (Alschuler, Hoodin, & Byrd, 2009). However, the benefit of added sensitivity from a college-specific screening measure may not offset the cost of greater administration and scoring time. As completion time increases, the rate of compliance with screening may decrease.

Another element that was identified within this study was the importance of not only designing the screening questionnaire to be easily comprehended by patients but to make sure it is easily scored and interpreted by providers. Most providers did not indicate difficulty scoring or interpreting the screen. However, anecdotally there were some problems with patients incorrectly self-scoring the PHQ-9; this may have led to some confusion or the need for providers to double-check or recalculate scores. The screening tool was later modified to discourage patients from totaling their own scores. To maximize screening coverage and efficiency, it is important to select brief, user-friendly, validated measures that are easy to score and interpret (Kirkcaldy & Tynes, 2006).

As university health centers work toward improving the identification and treatment of mental health issues as well as implementing recommended screening guidelines for depression, suicidal ideation, tobacco use, and alcohol misuse, this study suggests that an IBHC program may be one way to effectively accomplish this while maintaining provider and patient satisfaction. A previous study of behavioral health screening in university health centers found that screening increased discussion of behavioral health issues among patients and PCPs (Alschuler et al., 2008). However, PCPs reported that they did not have the time or the expertise to adequately address behavioral health issues with patients, but they were open to collaborating with BHPs. Likewise, our results suggest high willingness to refer patients to BHPs to improve attention to behavioral health issues. Thus, the IBHC program can help PCPs deal with positive screens by providing the integrated BHPs, who are trained to assess mental health issues and provide brief treatment on-site or facilitate a referral to a specialty mental health clinic.

Regarding the integrated BHPs component of the IBHC program, PCPs also strongly indicated that their patients benefited from the services provided by the BHPs. The providers felt that having the integrated BHPs helped patients receive treatment faster (compared to referring them to specialty mental health) and that the BHPs functioned as part of the overall care team. All of the providers reported that they would strongly recommend the IBHC to other colleagues working in college health. Taken together, these results indicate satisfaction among the medical providers, which is essential for the success of IBHC. Strong buy-in on the part of PCPs is needed to sustain the implementation of a new clinical program like IBHC, which requires procedural changes and additional effort (i.e., reviewing screens, referring

patients to BHPs). Acceptability among the nurses is also important, as they were the ones responsible for offering patients the behavioral health screens in our IBHC program.

Similarly, satisfaction and acceptability were high among patients. Patients who were seen by BHPs reported feeling comfortable with the services received and were willing to be seen again should the service be needed in the future. These results corroborate Westheimer and Steinley-Bumgarner's (2008) finding that patients were accepting of referrals to BHPs. Patients may like the convenience of being seen quickly by BHPs in health centers. In the case of BHPs having open access schedules, patients can be seen immediately after their PCP visit, which eliminates the need for scheduling another appointment or returning to the health center; in contrast, specialty mental health centers may have long (e.g., up to 2–3 weeks) wait times (Mowbray et al., 2006). Also, health centers carry less stigma compared with specialty mental health settings. On average, the patients were comfortable seeking services at the university health center, but there was a greater level of variability suggesting some individual differences as to the comfort of seeking those services at a specialty mental health clinic.

Limitations

Interpretation of the findings should take into account the limitations of the study. First, although slightly higher than that found in other research using similar methodology (Shih & Fan, 2009), our response rate for the patient satisfaction survey was 29%. The response rate may be improved by contacting patients soon after their final IBHC visit instead of at the end of each semester, which is generally a busy time for students. Second, a significant proportion of the patients did not remember completing the screening questionnaire or meeting with a BHP. Patients may not have remembered completing the screening questionnaire because it was a brief (i.e., 2–3 minutes) activity and/or because their health center visit was up to four months before completing the satisfaction survey. It is possible that the students who did not remember meeting with a BHP had a more neutral experience than the students who remembered the program. Thus, the satisfaction ratings could be artificially elevated because of this lack of data. It is also possible, however, that these students did not remember the meeting with the BHP because they simply considered the components of the IBHC part of standard medical care. Authors have noted that primary care has become the "de facto mental health care system" (Kessler & Stafford, 2008, p. 9), so these students may have expected to discuss behavioral health problems during their visit and may not have perceived the BHP as different from a regular medical provider.

Third, patient data were obtained via anonymous self-report. Though this method of data collection was necessary because of the scope of this study, it prohibited collection of identifying information, including diagnostic information. The ability to compare satisfaction across diagnostic categories would have provided beneficial information, including whether patients with more severe diagnoses (e.g., major depressive disorder vs. adjustment disorder with depressed mood) had equally positive experiences with the program. In addition, the satisfaction ratings are limited to only those patients who were seen by an integrated BHP. Future research should compare satisfaction between patients seen within IBHC and patients seen within standard care (i.e., the PCP provides any treatment for behavioral health concerns or makes a referral to specialty mental health). Fourth, the provider and patient satisfaction measures were created specifically for this study. The limited range of response options (1–5) may contribute to restricted range/variability and ceiling effects. These limitations should not be ignored when considering the generalizability of the study.

Finally, the scope of this study did not allow us to obtain information on the clinical outcomes associated with the IBHC program. Although providers reported that patients benefitted from meeting with BHPs, their perceptions were based solely on behavioral observations of and/or self-report from patients, not on clinical outcome data. Future research should evaluate the clinical effectiveness of interventions delivered by integrated BHPs. From an IBHC perspective, other markers of success that are worthy of future study include increased access to mental/behavioral health services, improved identification of mental/behavioral health issues through screening, increased referral uptake (i.e., BHPs referral attendance compared to spe-

cialty mental health referral attendance) attributable to colocation and "warm hand-offs," improved provider communication (e.g., between BHPs and PCPs), reduced burden on specialty mental health centers from patients with subthreshold or mild symptoms, and reduced burden on PCPs from repeat visits because of psychosocial issues.

Conclusions

In summary, providers and patients indicated a high level of satisfaction with this IBHC program. Accordingly, providers are likely to refer patients to BHPs, and patients are likely to engage in brief treatment within the IBHC program. Given the increasing demand on university primary care clinics to address the mental health needs of students, IBHC offers a promising method whereby to address this need. Particularly in light of data that indicate that most college students do not seek needed mental health treatment (Rosenthal & Wilson, 2008), the finding that IBHC patients would feel comfortable seeing a BHP again in the future is a positive step toward making mental health care more accessible to patients who need treatment.

References

Alschuler, K., Hoodin, F., & Byrd, M. (2008). The need for integrating behavioral care in a college health center. *Health Psychology, 27,* 388–393. doi:10.1037/0278-6133.27.3.388

Alschuler, K. N., Hoodin, F., & Byrd, M. R. (2009). Rapid assessment for psychopathology in a college health clinic: Utility of college student specific questions. *Journal of American College Health, 58,* 177–179. doi:10.1080/07448480903221210

American Academy of Pediatrics. (2001). Alcohol use and abuse: A pediatric concern. *Pediatrics, 108,* 185–189. doi:10.1542/peds.108.1.185

American College Health Association. (2010a). *American College Health Association National College Health Assessment II: Reference Group Executive Summary Spring 2010.* Linthicum, MD: Author.

American College Health Association. (2010b). Considerations for integration of counseling and health services on college and university campuses. *Journal of American College Health, 58,* 583–596. doi:10.1080/07448481.2010.482436

Bastien, C. H., Vallières, A., & Morin, C. M. (2002). Validation of the Insomnia Severity Index as an outcome measure for insomnia research. *Sleep Medicine, 2,* 297–307. doi:10.1016/S1389-9457(00)00065-4

Blount, A., Schoenbaum, M., Kathol, R., Rollman, B. L., Thomas, M., O'Donohue, W., & Peek, C. J. (2007). The economics of behavioral health services in medical settings: A summary of the evidence. *Professional Psychology: Research and Practice, 38,* 290–297. doi:10.1037/0735-7028.38.3.290

Bryan, C. J., Morrow, C., & Appolonio, K. K. (2009). Impact of behavioral health consultant interventions on patient symptoms and functioning in an integrated family medicine clinic. *Journal of Clinical Psychology, 65,* 281–293. doi:10.1002/jclp.20539

Christmas, W. A. (1995). The evolution of medical services for students at colleges and universities in the United States. *Journal of American College Health, 43,* 241–246. doi:10.1080/07448481.1995.9940897

Cigrang, J. A., Dobmeyer, A. C., Becknell, M. E., Roa-Navarrete, R. A., & Yerian, S. R. (2006). Evaluation of a collaborative mental health program in primary care: Effects on patient distress and health care utilization. *Primary Care & Community Psychiatry, 11,* 121–127. doi:10.1185/135525706X121192

Cowan, P. F., & Morewitz, S. J. (1995). Encouraging discussion of psychosocial issues at student health visits. *Journal of American College Health, 43,* 197–200. doi:10.1080/07448481.1995.9940476

Eisenberg, D., Golberstein, E., & Gollust, S. E. (2007). Help-seeking and access to mental health care in a university student population. *Medical Care, 45,* 594–601. doi:10.1097/MLR.0b013e31803bb4c1

Fitzpatrick, R. (1991). Surveys of patient satisfaction: I—Important general considerations. *British Medical Journal, 302,* 887–889. doi:10.1136/bmj.302.6781.887

Gallo, J. J., Zubritsky, C., Maxwell, J., Nazar, M., Bogner, H. R., Quijano, L. M., . . . Levkoff, S. E., & the PRISM-E investigators (2004). Primary care clinicians evaluate integrated and referral models of behavioral health care for older adults: Results from a multisite effectiveness trial (PRISM-E). *Annals of Family Medicine, 2,* 305–309. doi:10.1370/afm.116

Garlow, S. J., Rosenberg, J., Moore, J. D., Haas, A. P., Koestner, B., Hendin, H., & Nemeroff, C. B. (2008). Depression, desperation, and suicidal ideation in college students: Results from the American Foundation for Suicide Prevention College Screening Project at Emory University. *Depression and Anxiety, 25,* 482–488. doi:10.1002/da.20321

Goodie, J. L., Isler, W. C., Hunter, C., & Peterson,

A. L. (2009). Using behavioral health consultants to treat insomnia in primary care: A clinical case series. *Journal of Clinical Psychology, 65,* 294–304. doi:10.1002/jclp.20548

Kessler, R., & Stafford, D. (2008). Primary care is the de facto mental health system. In R. Kessler & D. Stafford (Eds.), *Collaborative medicine case studies: Evidence in practice* (pp. 9–21). New York: Springer. doi:10.1007/978-0-387-76894-6_2

Kirkcaldy, R. D., & Tynes, L. L. (2006). Depression screening in a VA primary care clinic. *Psychiatric Services, 57,* 1694–1696. doi:10.1176/appi.ps.57.12.1694

Masters, K. M., Stillman, A. M., Browning, A. D., & Davis, J. W. (2005). Primary care psychology training on campus: Collaboration within a student health center. *Professional Psychology: Research and Practice, 36,* 144–150. doi:10.1037/0735-7028.36.2.144

Mills, D., Gold, R., & Curran, M. (1996). Healthcare reform: A survey of college health services. *Journal of American College Health, 45,* 106–117. doi:10.1080/07448481.1996.9936870

Mowbray, C. T., Megivern, D., Mandiberg, J. M., Strauss, S., Stein, C. H., Collins, K., . . . Lett, R. (2006). Campus mental health services: Recommendations for change. *American Journal of Orthopsychiatry, 76,* 226–237. doi:10.1037/0002-9432.76.2.226

Nimalasuriya, K., Compton, M. T., Guillory, V. J., & Prevention Practice Committee of the American College of Preventive Medicine. (2009). Screening adults for depression in primary care: A position statement of the American College of Preventive Medicine. *Journal of Family Practice, 58,* 535–538.

Reiss-Brennan, B., Briot, P., Daumit, G., & Ford, D. (2006). Evaluation of "depression in primary care" innovations. *Administration and Policy in Mental Health and Mental Health Services Research, 33,* 86–91. doi:10.1007/s10488-005-4239-x

Rosenthal, B., & Wilson, W. C. (2008). Mental health services: Use and disparity among diverse college students. *Journal of American College Health, 57,* 61–68. doi:10.3200/JACH.57.1.61-68

Runyan, C. N., Fonseca, V. P., & Hunter, C. (2003). Integrating consultive behavioral healthcare into the Air Force Medical System. In W. T. O'Donohue, K. E. Ferguson, & N. A. Cummings (Eds.), *Behavioral health as primary care: Beyond efficacy to effectiveness* (pp. 145–163). Reno, NV: Context Press.

Saunders, J. B., Aasland, O. G., Babor, T. F., de la Fuente, J. R., & Grant, M. (1993). Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption, II. *Addiction, 88,* 791–804. doi:10.1111/j.1360-0443.1993.tb02093.x

Shih, T., & Fan, X. (2009). Comparing response rates in e-mail and paper surveys: A meta-analysis. *Educational Research Review, 4,* 26–40. doi:10.1016/j.edurev.2008.01.003

Sitzia, J., & Wood, N. (1997). Patient satisfaction: A review of issues and concepts. *Social Science & Medicine, 45,* 1829–1843. doi:10.1016/S0277-9536(97)00128-7

Spitzer, R. L., Kroenke, K., & Williams, J. B. W. (1999). Validation and utility of a self-report version of PRIME-MD: The PHQ primary care study. *JAMA: Journal of the American Medical Association, 282,* 1737–1744. doi:10.1001/jama.282.18.1737

Strosahl, K. (1998). Integrating behavioral health and primary care services: The primary mental health care model. In: A. Blount (Ed.), *Integrated primary care: The future of medical and mental health collaboration* (pp. 139–166). New York, NY: Norton & Co.

Thomas, M. R., Waxmonsky, J. A., McGinnis, G. F., & Barry, C. L. (2006). Realigning clinical and economic incentives to support depression management within a Medicaid population: The Colorado Access Experience. *Administration and Policy in Mental Health and Mental Health Services Research, 33,* 26–33. doi:10.1007/s10488-005-4229-z

Tucker, C., Sloan, S. K., Vance, M., & Brownson, C. (2008). Integrated care in college health: A case study. *Journal of College Counseling, 11,* 173–183. doi:10.1002/j.2161-1882.2008.tb00033.x

U.S. Preventive Services Task Force. (2009). Screening for depression in adults: U.S. Preventive Services Task Force recommendation statement. *Annals of Internal Medicine, 151,* 784–792.

Westheimer, J. M., & Steinley-Bumgarner, M. (2008). Primary care providers' perceptions of and experiences with an integrated healthcare model. *Journal of American College Health, 57,* 101–108. doi:10.3200/JACH.57.1.101-108

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Integrated Health Care and Professional Psychology: Is the Setting Right for You?

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Over the last decade, integrated care models have increased in both public and private sectors. This trend is especially apparent in primary care settings. Integrated care is designed to offer comprehensive and coordinated health services while addressing the economic realities and failures of the current health care system. Proposed integrated care models such as Accountable Care Organizations and Patient Centered Medical Homes include marked changes in health care delivery, financing, and reimbursement, which are designed to create a more cost-effective health system. This article provides an overview of integrated care to help practicing psychologists develop a better understanding of interprofessional health care and evaluate their interest in and readiness to provide professional services in health care. The advantages and challenges associated with integrated care will be provided.

Keywords: clinical health psychology, integrated care, collaboration with physicians, professional issues, primary care

The use of integrated care models has dramatically increased over the last decade in both public and private health care sectors. This trend is especially apparent in primary care settings, such as family practice and internal medicine, pediatrics, and women's health (Trivedi & Grebla, 2011; Weisfeld, 2009), although integrated teams routinely provide care in specialty practices as well. This article will provide an overview of integrated care to help practicing psychologists develop a better understanding of interprofessional health care and evaluate their interest in and readiness to provide professional services in health care.

Integrated care is in marked contrast to the more traditional and often fragmented approach to patient care, where providers across the health disciplines operate on their own with consultative relationships. Under this traditional silo approach, patient care is often compromised and usually costly. According to the Department of Health and Human Services, since the late 1990s, United States' spending on health care increased at a faster rate of growth than the gross domestic product (GDP) and inflation (http://aspe.hhs.gov/health/costgrowth, 2005). In 2004, a survey of American CEOs indicated that employee health care costs was the most prominent concern (Business Roundtable, 2004), and that many employers responded by requiring employees to increase their contribution or provided different forms of coverage. These changes consequently reduced the amount of household income available. Efforts to reform the American health care delivery system reflect the importance of improving the quality of care and reducing high costs associated with providing fragmented services (Amadeo, 2011; Patient Centered Primary Care Collaborative [PCPCC], 2011).

In addition to financial costs, there is significant and important research on the human cost of the traditional health care approach. In the United States, it is estimated that over 130 million people have chronic health conditions and that 70% of all deaths are related to the chronic diseases (Loeppke, 2008). Effectively addressing the challenges of increasing rates and disability associated with chronic conditions requires greater emphasis on the full continuum of prevention and basic primary care (Pelletier, Herman, Metz, & Nelson, 2009).

The Institute of Medicine (2001) defines integrated care as health care that is comprehensive, continuous, coordinated, and culturally competent and consumer centered.

The organization, delivery, and management of services are brought together for the purpose of improving diagnosis, patient care, rehabilitation, and health promotion (Gröne & Garcia-Barbero, 2002). It is assumed that when services are integrated, there will be improved quality and efficiency of services. Kodner and Spreeuwenberg (2002) view the integration model as a step in

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the process of the health care delivery *becoming* more complete and comprehensive.

Integrated care models are routinely used in a host of public and private health delivery systems. The Department of Veterans Affairs and the Department of Defense are national leaders in integrated care consultation and treatment models, team communication, outcomes evaluation, and training (Trivedi & Grebla, 2011). In addition, Federally Qualified Health Centers in urban and rural communities and the Indian Health System have increasingly implemented integrated care models. Academic health centers routinely employ psychologists in primary and specialty care departments (Association of Psychologists in Academic Health Centers, 2011). Kaiser Permanente and the Mayo Clinic are the two largest health care companies in the private sector that embrace the integrated model to patient care (Lawrence, 2005). Other managed care organizations as well as private insurance companies such as Blue Cross Blue Shield and Aetna appear to be actively positioning their network providers to embrace this approach as well (Collaborative Family Healthcare Association, 2011; Patient Centered Primary Care Collaborative, 2011).

There is a growing body of knowledge that supports the clinical efficacy of integrative care practices. Research has evaluated physical and mental health outcomes, as well as health care utilization (Pelletier, Herman, Metz, & Nelson, 2009). The Patient Centered Primary Care Collaborative (2011) provides an excellent summary of the clinical and financial benefits of integrating behavioral health in Patient Centered Medical Homes (PCMHs; see www.pcpcc.net).

There are a broad range of benefits associated with integrating behavioral health care in primary care and specialty settings related to decreasing the complexity of care while improving both access and satisfaction. First, mental health issues are routinely treated in primary care and specialty settings (Bray, Frank, McDaniel, & Heldring, 2004; James & Folen, 2005). In addition, in our busy world with competing responsibilities, "one stop" care is quite convenient for many women and men (Coons, Morgenstern, Hoffman, Striepe, & Buch, 2004). One coordinated and efficient visit, for example, can readily include a routine check-up and HbA1C blood test for diabetes, a follow-up visit with the nutritionist to address appropriate food choices, and a brief session with a psychologist to identify strategies to improve adherence to medications and exercise.

Individuals across ethnic groups and class are often reluctant to seek mental health treatment (Gary, 2005). However, when a patient is introduced to a psychologist as a "member of the team" by a provider with whom they already have a trusting relationship, they may be more receptive to a consultation in this setting compared with making an appointment with an unknown mental health provider at an unfamiliar location. When mental health, substance abuse and health psychology services are delivered in an integrated care setting, patients can consequently avoid the stigma all too often associated with traditional outpatient mental health/psychiatric settings. Furthermore, integration of these services minimizes the lack of parity in insurance coverage for mental versus physical health services. When integrated health care teams are in the same community as patients, there are also often fewer geographic, cultural and linguistic barriers which further reduce health disparities in receiving mental health care (Coons et al., 2004).

Differences Between Integrated Care and Multidisciplinary Care

Historically, health care settings have used multidisciplinary models in contrast to integrated care teams. Multidisciplinary health settings are characterized by individuals from diverse health professions (e.g., psychologists, physicians, nurses, and physical therapists) who all bring their own expertise to patient care, collaborate and communicate in a consultative model, but they may not necessarily work as a cohesive team. For example, multidisciplinary pain management programs often include pain management physicians such as anesthesiologists and physiatrists, physical therapists, and psychologists working at the same facility. All the disciplines are present but they do not necessarily integrate their care. In contrast, integrated care models are characterized by interprofessional team collaboration and communication in all aspects of patient care, coordination, outcome evaluation, health profession training, and so forth. For excellent discussions of core team competencies for primary and behavioral health integration, see Interprofessional Education Collaborative Expert Panel (2011) and Team-Based Competencies Conference Proceedings (2011), as well as the books listed in Table 1.

Table 1
Useful Books On Psychologists in Integrated Primary Care Settings

The Primary Care Toolkit: Practical Resources for the Integrated Behavioral Care Provider. Larry C. James, PhD
Primary Care Psychology. Robert G. Frank, PhD, Susan H. McDaniel, PhD, James H. Bray, PhD, & Margaret Heldering, PhD
Handbook of Primary Care Psychology. Leonard J. Haas, PhD
Clinical Health Psychology and Primary Care: Practical Advice and Clinical Guidance for Successful Collaboration. Robert J. Gatchel, PhD, & Mark S. Oordt, PhD
The Primary Care Consultant: The Next Frontier for Psychologists in Hospitals and Clinics. Larry C. James, PhD, & Raymond A. Folen, PhD
Clinical Health Psychology in Medical Settings: A Practitioner's Guidebook. Cynthia D. Belar, PhD, & William W. Deardorff, PhD
Integrated Behavioral Health in Primary Care: Step-by-Step Guidance for Assessment and Intervention. Christopher L. Hunter, PhD, Jeffrey L. Goodie, PhD, Mark S. Oordt, PhD, & Anne C. Dobmeyer, PhD
Health Care Ethics for Psychologists: A Casebook. Stephanie L. Hanson, PhD, Thomas R. Kerkhoff, PhD, & Shane S. Bush, PhD
The Collaborative Psychotherapist: Creating Reciprocal Relationships with Medical Professionals. Nancy Breen Ruddy, PhD, Dorothy A. Borresen, PhD, & William B. Gunn, PhD
Handbook of Cognitive Behavioral Approaches in Primary Care. Robert A. DiTomasso, PhD, Barbara A. Golden, PsyD, & Harry Morris, DO, MPH.
Models of Collaboration. David B. Seaburn, Alan D. Lorenz, William B. Gunn, Jr., Barbara A. Gawinski, & Larry B. Mauksch.

Differences Between Integrated Primary Care and Integrated Specialty Care

The difference between primary and specialty care relates to the focus, time, and the scope of services provided. Delivering all the available evidence-based services can be a challenge to the primary care provider, especially when the patients have severe, chronic, and persistent disorders. These patients will likely require consultation with the specialist (Wilson, 2008). Typically, in an environment where the provision of services are integrated, the primary care providers serve as the gatekeepers and are responsible for the allocation of resources and controlling costs (Grumbach & Bodenheimer, 2002). The more the care is commingled between primary care clinicians and the specialists, there will be more of a need to develop strategies to coordinate the care (Peikes, Chen, Schore, & Brown, 2009; Schappert & Rechtsteiner, 2008). An example is a study conducted by Liss et al. (2011). They concluded that the high use of specialty care could adversely affect the ability of primary care providers to effectively coordinate care. They noted that the future studies should look at care coordination interventions that would allow for appropriate referrals for specialty care without diminishing primary care providers' ability to manage overall patient care.

Accountable Care Organizations (ACOs) and PCMHs

ACOs and PCMHs are examples of current efforts to greatly expand the use of integrated care models in the U.S. health care delivery system. These settings are designed to provide comprehensive, patient-centered primary care services to patients, facilitate partnerships between patients and providers and involve families if appropriate, improve access to health care, ensure seamless coordination of clinical services with the continuum of care on site or through referrals assess health outcomes and care quality, and increase satisfaction and reduce costs (Allred, Wooten, & Kong, 2007; Berenson, Devers, & Burton, 2011; Homer, Klatka, & Romm, 2008; Schoen et al., 2007).

Underlying the development of PCMHs and ACOs is the belief that more effective health care could be delivered if the intervention is better organized and coordinated (Betbeze, 2010). According to the Centers for Medicare and Medicaid Services (2011), Accountable Care Organizations (ACOs) are groups of doctors, hospitals, and other health care providers who come together voluntarily to give coordinated high-quality care to the Medicare patients they serve. Coordinated care helps ensure that patients, especially the chronically ill, get the right care at the right time, with the goal of avoiding unnecessary duplication of services and preventing medical errors. When an ACO succeeds in both delivering high-quality care and spending health care dollars more wisely, it will share in the savings it achieves for the Medicare program (para 1).

ACO programs offered by Medicare include Medicare Shared Savings Program, a fee for service program, Advance Payment Initiative and the Pioneer ACO Model which is a population based payment initiative for experienced providers. ACO are currently written into Federal Health Care legislation (i.e., the Affordable Care Act) with entirely different financial and reimbursement structures compared with the traditional fee for service currently used by Medicare and Medicaid (Centers for Medicare and Medicaid Services, 2011). The entity or organization, not the individual providers, receives a capitation or a fee to take care of patients' health care needs and functions under a pay for performance model, which includes financial penalties and rewards. The premise is that the capitated system provides economic incentives to keep people healthy, as opposed to the fee-for-service model that needs to keep providing services for the ill to benefit economically.

There are some concerns about this model of health care, including the fee schedule, which provides lower reimbursement than for traditional care (Mathews, 2012). It is not clear how psychology as a profession will fit into this model. While private insurance companies are developing and piloting PCMHs, many do not include psychologists in their new health delivery models. There are possible promising components of ACOs for psychologists. For example, psychologists trained in integrated care are well trained to provide behavioral services and outcome evaluation in ACOs and PCMHs that have organizational structures and financial arrangements that emphasize prevention and maintenance care.

PCMHs and ACOs reflect a dramatic paradigm shift in health care delivery, financing, and reimbursement. While it is not known what the time frame will be for full implementation of these models, health care will increasingly be delivered in integrated care settings in the public and private sector. Psychologists will need the fund of knowledge and clinical competencies to provide a host of psychological services within an interprofessional team under a different reimbursement structure (Coons, 2011; Rozensky, 2011, 2012).

Levels of Collaboration and Integration in Health Settings

According to Doherty, McDaniel, and Baird (1996), while the goal of integrated care is ultimately to provide effective, seamless, coordinated care to patients across the life span and their families, levels of collaboration and integration in health settings vary greatly among psychologists and other health care providers. They describe five levels of collaboration and integration from none to off-site collaboration, colocation with collaboration but not integrated into the system, to fully integrated with systematic support. Most psychologists in independent or group practice have not been colocated or integrated into health settings, and often have little to no routine communication with referring health care providers (Ruddy, Borresen, & Gunn, 2008). Off-site collaboration with health providers involved in the care of mutual patients may include routine communication via phone, consult letter, and/or e-mail. More recently, psychologists in independent practice have started to colocate in medical settings in the private sector, although their services and roles are rarely fully integrated into the system (Coons & Gabis, 2010; Ruddy et al., 2008; Wender, Day, DiCaprio, & Un, 2011). Finally, psychologists may be fully integrated into the interprofessional team for patient assessment and treatment; communication during onsite patient encounters and through both electronic medical records (EMRs) and team meetings; program development and outcomes evaluation; health professional education; organizational leadership; and a host of other roles and responsibilities (James & Folen, 2005). Table 2 summarizes the common roles and respon-

Table 2
Comparison of Integrated Behavioral Health Care (IBHC) and Traditional, Nonintegrated Psychological Services

	Integrated behavioral health care (IBHC)	Traditional, nonintegrated psychological services
Level of collaboration	Work collaboratively as a team	Limited or no collaboration with referring health care provider
Communication	Communication during onsite patient encounters, through paper or electronic medical records, and team meetings	• Vary from communication via phone to consultation letters and emails • Usually do not share records or send periodic updates
Physical environment	• Located within primary care setting • Multiple health care providers on site • Space designed and overseen by practice, hospital or health system • Fast paced	• Independent or group practice located away from medical setting • Solo or group practice • May design on space
Assessment and Treatment	• Provide assessment and treatment while patient is on site • Often use 5 A's model to care: assess, advise, agree, assist, and arrange • SBIRT approach to care: screen, brief intervention, refer to treatment • Rapid assessment: Brief, problem focused • 15- to 30-min sessions • Number of sessions often limited • Treatment to be evidence based • Treatment and prevention focus • Curbside consults with providers across health disciplines • Crisis management sessions • Refer for longer term care	• Patient is given appointment based on opening on provider's schedule • Patient seen for psychological evaluation, usually consisting of intake interview and testing. • Recommendations are based on evaluation results and the patient is scheduled for follow-up appointments • 45- to 50-min sessions • Treatment may or may not be evidence based
Clinical skills	• Competencies in health psychology and primary care work • Competencies to assess and treat patients from biopsychosocial perspective • Competencies to work on interprofessional team • Competencies in brief psychotherapy sessions aimed at treatment and prevention • Knowledge of psychopharmacology and medication issues • Knowledge in crisis management	• Expertise in health psychology preferred but not required • Knowledge in psychopharmacology and medication issues • Knowledge in crisis management • Supervision skills

sibilities of psychologists in integrated health care settings and provides a comparison with traditional psychological services.

Collaboration and Communication in Integrated Care Settings

The models of mental health and behavioral health care in integrated care settings are quite different than traditional psychotherapy in outpatient or inpatient settings (James & Folen, 2005). Differences are apparent in the way referrals are made; approaches to assessment; the choice, implementation, and length of treatment modalities; communication with other providers on the team; documentation options and details; and confidentiality among other issues (Hunter, Goodie, Oordt, & Dobmeyer, 2009). In integrated care settings, referrals and shared evaluation and treatment may take place with any member of the health care team. Referrals may come directly from physicians, nurse practitioners, physicians' assistants, nurses, nutritionists, genetic counselors, physical therapists, social workers, medical assistants, and so forth. In some integrated settings, all patients are routinely seen by the psychologist as part of a comprehensive physical and psychosocial assessment. In Departments of Surgery, psychologists may see all patients who are candidates for organ transplants or bariatric procedures. In Reproductive Endocrinology, psychologists may see any woman who wants to be an ovum (egg) donor. In other integrated practices, referrals are made on an "as needed" basis. Colleagues on the team may see the patient, couple or family with the psychologist, provide a brief introduction and do a "warm hand off" so that the psychologist continues the evaluation and immediately initiates treatment. For example, in integrated primary care, the physician or nurse practitioner, physician's assistant or another provider may introduce a patient with stress related symptoms (e.g., headaches, gastrointestinal problems, initial and middle insomnia), and the psychologist would most likely immediately provide an initial assessment and start treatment instead of waiting to schedule another appointment (Hunter et al., 2009; James & O'Donohue, 2009).

In many integrated care settings, patients are routinely screened with validated assessment tools such as the Patient Health Questionnaire (PHQ; Kroenke, Spitzer, & Williams, 2001) to assess for depression and anxiety disorders; alcohol screening tools such as the Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, de la Fuente, & Grant, 1993), and numerous other evidenced-based, problem-specific measures to screen for behav-

ioral health issues and track clinical outcomes (Hunter et al., 2009; James & O'Donohue, 2009).

While patients are routinely seen for the 45- to 50-min hour in traditional mental health settings, in integrated care settings, the treatment model is quite different. Often times, the teams use the 5A's model to care or the Screen, Brief Intervention, and Refer for Treatment (SBIRT) approach to care. The 5A's refer to assess, advise, agree, assist, and arrange. These models emphasize rapid assessment; brief, problem-focused psychological intervention; and referral as necessary (SAMHSA, 2012). Assessment and treatment sessions may last only 15 to 30 min for 3–5 sessions or just when the patient returns to follow-up with another member of the interprofessional team. In addition, other members of the team may conduct and document the follow-up.

It has been estimated that primary care physicians prescribe 60% of psychotropic medications (Mark, Levit, & Buck, 2009; McGrath & Sammons, 2011), and 43% of patients that psychologists treat take psychotropic medications (VandenBos & Williams, 2000). Psychologists are increasingly being consulted by primary care physicians on psychotropic medications, and it is believed that with increased training in psychopharmacology, psychologists will be of even greater value to the treatment team (McGrath, 2010; McGrath & Sammons, 2011).

Integrated care settings frequently involve increased use of technology such as EMRs to facilitate clear and effective communication with other members of the treatment team as well as outside collaborating providers. Psychologists in traditional practice settings have been less likely to implement EMRs in general or with interoperability for several reasons, including the high cost associated with setting up the system. In addition, psychologists have not been included in the Medicare incentive program that would provide benefits to implement EMRs. The APA Practice Organization has been addressing this issue because of its importance to the profession.

ACOs and PCMHs emphasized in health care reform focus on interprofessional teams, prevention of disease, as well as outcome evaluation, such as improvement in health status, screening and prevention rates, patient satisfaction ratings and reduced costs. Consequently, psychologists in integrated care settings will have the opportunity to take leadership roles in team development; design, implementation, and evaluation of evidenced-based prevention programs; as well as outcome evaluation and health systems research.

Is Integrated Health Care a Good Professional Fit?

If you are considering applying for a position as a psychologist in integrated care settings, engage in a careful self-assessment and self-study to make sure the professional setting is right for you and that you have the competencies to function effectively in a team-based health practice (Ruddy et al., 2008). Are you comfortable with differences in the culture of clinical medicine; differences in communication and confidentiality; shorter, problem-focused assessment and treatment; less control over when and where you see patients, couples. and families, and so forth? How will you feel if you are the only psychologist on site? Are you ready to work under a different payment structure? Do you have the clinical competencies necessary to work as a clinical health psychologist in integrated primary care or specialty health settings (Belar & Deardorff, 2009; Frank, McDaniel, Bray, & Heldring, 2004)?

Culture and Language of Integrated Care Settings

It is important to ask yourself whether you will enjoy a patient care setting that is problem focused with concrete, goal-driven recommendations. For example, when patients come with stress-related headaches and neck pain, assessment and treatment focuses on reducing symptoms (Arena & Blanchard, 2005; James & Folen, 2005; James & O'Donohue, 2009). Specific, action-oriented recommendations are made, such as medications, cognitive–behavioral techniques, relaxation or mindfulness training, and/or a referral to physical therapy, and so forth. Discussion may or may not focus on underlying factors contributing to stress, and the patient may be referred to an outside mental health provider for ongoing treatment of complex psychosocial issues such as trauma, domestic violence, and ongoing caregiving challenges. Furthermore, treatment and communication are problem focused to rapidly reduce symptoms and improve well-being.

The language of health settings is also remarkably different from mental health settings (Ruddy & Schroeder, 2004). Providers across disciplines typically speak to each other using technical words in a succinct manner with abbreviations and rapid communication to the team and outside providers via the phone, e-mail, EMR, or dictations that are quickly disseminated (the same day or within a few days). Examples include using abbreviations such as "PRN" for "as-needed" and "po" for "by mouth." In addition, communication with patients tends to be rather problem specific with concrete recommendations.

Physical Environment in Integrated Care Settings

It is important to ask whether you have a strong need to have control over your professional environment when working with patients. In addition, are you comfortable working with children and adults across the life span with acute, chronic, life threatening, and end stage physical conditions, including infectious diseases?

In integrated health settings, you may see patients in examination rooms instead of consultation rooms. You may have minimal input into how the office is set up or decorated, how treatments rooms will look, and so forth. Furthermore, health settings are fast paced and may be fairly noisy, depending on the practice location. Inpatient integrated care settings typically have bright lights, with routine messages on overhead speakers. In pediatric settings, you may hear children crying. These fast-paced environments are exciting for many, but can be stressful for other psychologists.

Do You Have the Clinical Skills to Work in Integrated Health Settings?

Working effectively in integrated care settings requires the fund of knowledge and clinical competencies necessary to provide high-quality, evidenced-based assessment, treatment, and prevention interventions within an interprofessional team (McDaniel, Hargrove, Belar, Schroeder, & Freeman, 2004). Core training in clinical health psychology; supervised experience in the specific integrated site; highly developed communication skills to work as

part of an interactive team with providers from varied disciplines; health and mental health outcomes assessment, and so forth are, at a minimum, essential as core training (Belar, 2011). It is also essential for psychologists to have the cultural competence necessary to work in both public and private integrated care settings. While core competencies in clinical health psychology are available, many professional organizations developed competencies for interprofessional practice (Interprofessional Education Collaborative, 2011) and workforce development in primary and behavioral health care integration (American Psychological Association, 2011; SAMHSA-HRSA Center for Integrated Health Solutions, 2011).

An increasing number of doctoral candidates participate in practicum and internships in integrated health settings. The Council of Clinical Health Psychology Training Programs (CCHPTP) has been providing opportunities to Directors of Clinical Training Programs to learn about curriculum in both clinical health psychology and integrated primary care. In contrast, psychologists in independent practice have fewer formal options to develop the competencies to provide services in integrated settings. Some individuals will choose to apply to a one or two year fellowship in integrated settings such as family practice, obstetrics and gynecology, pediatrics, neuropsychology, oncology, and so forth. While attending day-long continuing education workshops on integrated care are excellent opportunities for introductory training, they do not provide sufficient depth or onsite training to effectively work in these settings (Linton & Coons, 2011). While the certificate programs on integrated primary care do not typically require clinical supervision in the practice settings, some psychologists have arranged to shadow colleagues on a limited or regular basis to learn about brief models of assessment and treatment, interprofessional team communication, and documentation, among other roles and responsibilities. Bray (2004) and Bray et al. (2004) provide comprehensive information on training opportunities in integrated and primary care. In addition, students can check the Association of Psychology Postdoctoral and Internship Centers (APPIC) directory to locate internships and postdoctoral programs with primary care experiences.

Making the Transition to Integrated Health Settings

Psychologists who are serious about making the transition to integrated settings are encouraged to engage in a formal self-assessment (Ruddy & Schroeder, 2004) and self-study over a year or two to obtain the necessary competencies to function effectively and contribute to interprofessional team care in this practice environment. If you are new to the health setting, you will likely need to establish competencies in both clinical health psychology and integrated primary or specialty care so that you can deliver evidenced-based services as part of an interprofessional team (Belar & Deardorff, 2009). Day-long continuing education workshops and ongoing certificate programs in integrated primary care are available in person and on line (Blount, 2011). In addition, contact colleagues in integrated health settings to discuss the possibility of shadowing them (Linton & Coons, 2011), and perhaps establishing a formal supervisory relationship for six months to a year.

If you are considering colocation or integrating your work in a health setting, establish a formal contract with the medical practice or parent organization (Coons & Gabis, 2010). Psychologists have established various agreements with providers and/or organizations. For example, some individuals become formal employees of the practice while others are independent contractors. In both of these employment models, integration is more likely with shared use of patient records, fee schedule and billing of services. A number of psychologists have been paid by foundation grants to provide services on site. Some early career psychologists are also employed by and serve on integrated care teams in Federally Qualified Health Centers and receive loan repayment (Graduate Psychology Education Program, 2012).

A small but growing number of psychologists are colocating in primary care settings but are self-employed or work for a mental health group (Coons, 2011; Ruddy et al., 2008; Wender et al., 2011). Irrespective of the employment or independent model, it is essential to clarify expectations of the providers and administrative staff, secure a contract, and collaboratively develop the agreement. At the very minimum, the contract should address the following: roles and responsibilities; the time frame spent on site; where patients will be seen; whether you will be able to chart in the practice's paper or EMR; who will do billing; access to computers, Internet and copy machines; property and malpractice insurance; details related to signage, public relations/advertising and proprietary issues; and the terms of the agreement (Coons & Gabis, 2010). Furthermore, if you are colocating but are either self-employed or employed by another organization (but not the medical practice), the contract should include formal lease arrangements and cost of the space, as well as all the issues listed above. In addition, the contract should include grievances processes and the quality assurance or evaluative requirements.

It is important to note that contractual and payment issues for psychologists working on integrated care teams in ACOs and PCMHs will differ from the arrangements for psychologists who are integrated or colocated in health settings with different fiscal structures. ACOs and PCMHs will have different financing and reimbursement structures because care for individuals is capitated. States also differ in regards to whether psychologists can partner with physicians to contractually establish interprofessional practices. For example, in Washington State, psychologists may establish practice entities with physician partners while in other states, this arrangement is illegal (Anton, 2012). Obtaining legal counsel from a health law attorney is essential if you are considering the colocation model or partnership in an integrated care practice.

Ethical Considerations

Integrated care is an exciting and rewarding environment to provide evidence-based professional services to diverse children and adults with complicated and interacting physical, mental health and psychosocial issues. Core competencies also include understanding the complex ethical issues which can emerge in health settings when caring for patients as part of an interprofessional team, including providers from a range of health disciplines. In addition to understanding the often complex ethical issues in integrated care settings, the psychologist must know how to address these matters in practice with other providers.

First and foremost, the psychologist must have knowledge and training in clinical health psychology and in integrated care. According to Principle 2.01 of the APA Ethics Code (American Psychological Association [APA], 2010), psychologists should

only provide services "within the boundaries of their competence, based on education, training, supervised experience, consultation, study or personal experience" (p. 5). If they plan to work within this new area, they must obtain the necessary training, consultation, or supervised experience. As discussed earlier in this article, the psychologist should consider in depth continuing education and supervised experience in health care settings, especially in integrated primary and specialty care. The training should also include working with interprofessional teams and knowledge of psychopharmacology. Psychologists in integrated health care settings are routinely approached about various medications, in particular psychotropic medications. Unless the psychologist is practicing in a state with prescription privileges or within the Department of Defense areas that allow psychologists to prescribe, they should acknowledge the limits of their practice (Haas & DeGruy, 2004; Papas, Belar, & Rozensky, 2004; Tovian, 2006).

For our psychology workforce to be fully prepared to respond to changes in health care delivery, training in integrated primary care needs to be part of the core training in graduate programs, internships and during the postdoctoral fellowships. In addition, credentialing in the health setting will become increasing important as ACOs and PCMHs focus on providing evidenced based care with measurable outcomes. Psychologists should consequently seriously consider board certification (Kaslow, Graves, & Smith, 2012) in clinical health psychology (Tovian, Rozensky, & Sweet, 2003), and possibly in the future, in integrated primary care (Coons, 2011).

Another key ethical consideration in integrated care settings involves confidentiality. Providers across the health professions have different expectations and experiences around private health and mental health information (Ruddy & Schroeder, 2004). It is well known that there is not the same degree of confidentiality when working in a medical facility as one would have in an independent practice facility (Robinson & Baker, 2006). Numerous health care providers will have access to the health records, including physicians, nurses, and office staff. This is even more evident now with the use of EMRs. Furthermore, in some health systems, patient portals allow adults to access portions of their own health records (University of Pennsylvania Health System, 2011). Psychologists should strive to adhere to the APA Record Keeping Guidelines (American Psychological Association, 2007), which also addresses EMRs. According to the Guidelines, electronic records should be created and maintained in a way that will protect their security and confidentiality, as well as appropriate access, and they should be compliant with ethical and legal requirements. Psychologists need to become aware of the unique aspects of electronic record keeping in their particular integrated practice settings. The possible limits of confidentiality, methods of handling release of information requests, charting or electronic data storage practices, consultation, and team meeting practices should be presented to the patient at the outset of treatment, and ideally, should be presented in written and oral form.

Another ethical consideration relates to informed consent and patient autonomy. Specifically, there may be situations when a patient is required to be evaluated or treated by a psychologist before they receive certain forms of medical care, such as medications and certain procedures. For example, adults requesting bariatric surgery or the spinal cord stimulator device typically undergo a required psychological evaluation. The patient may be resistant to participate in such services but feels they are being forced to do so in order to receive the desired treatment (Taylor, 2001). Not only does this create an ethical dilemma for psychologists in integrated care settings, but it also can impact psychological intervention. According to Code 3.10 of the APA Code of Ethical Principles (American Psychological Association, 2010), it will be important for the clinician to obtain the informed consent of the patient using language that the patient can understand, and the consent needs to be appropriately documented.

The principle of beneficence requires that a psychological component is offered if it is deemed to be an appropriate and positive treatment for the patient, but when a patient feels coercion to treatment, it can violate patient autonomy. The psychologist working in the integrated care setting needs to work cooperatively and jointly with members of the treatment team to ensure autonomous consent. In addition, the psychologist should explore these possible concerns with patients.

Finally, termination of services may pose a challenge in integrated care settings. There may be times when termination of services is a decision that is influenced by factors outside of the psychologist's control, such as when the physician may decide to no longer treat the patient because of adherence related issues (e.g., repeated no shows for appointments). Code 10.10 of the APA code of Ethical Principles notes that "Except where precluded by the actions of clients/patients or third party payers, prior to termination psychologists provide pretermination counseling and suggests alternative service providers as appropriate" (American Psychological Association, 2010, p. 13). If this situation were to arise, psychologists in integrated care settings need to work with their interprofessional team to ensure that patients or families have appropriate referrals for mental health, substance abuse and/or health psychology services.

Summary

As health care reforms are implemented across both public and private health systems, and the integrated care model becomes more common for the delivery of mental health, substance abuse, and health psychology services, the future of traditional small and independent mental health practice becomes unclear (Coons, 2011). Some psychologists will no doubt continue to provide fee-for-service mental health care to some sectors of the population. In addition, psychologists with specialty practices (e.g., forensic psychology and executive coaching, etc.) are likely to continue to work in their private models, although others, such as some sports psychologists, may be employed by orthopedics/sports medicine settings (Hays, 2012).

Working in an integrated care setting can be an extremely satisfying professional and personal experience. In both primary care and specialty settings, psychologists typically provide consultation and treatment on an impressive range of physical, mental health, substance abuse, psychosocial, health behavior, and other complex issues. Often times, problems are interacting, and require careful differential diagnostic skills and flexible, multimodal treatment approaches. In addition, care may be focused on children, teens, and adults across the life span, and diverse families coping with a host of challenges. Evaluation, consultation, and brief treatment are also provided in the context of the interprofessional care team. The fast-paced work setting consequently allows for

rapid intervention and is far less isolating than traditional psychology practices. Integrated settings are defined by the diverse range of health providers with the shared goals of evidenced based, collaborative and effective care.

With proposed Federal and State changes in the delivery, financing, and payment of health care, as well as private and public sector shifts to comprehensive care models, more children and adults will be receiving their care in integrated settings. A portion of psychologists are already well positioned in these practices as key members of effective and efficient interprofessional health care teams. We need, however, to greatly expand our workforce credentialed for work in primary care (Belar, 2011; Rozensky, 2011) and specialty settings, as well as our advocacy efforts at the Federal, State, local, and private insurance company level to ensure that we are included in the broad range of integrated medical practices for the decades to come. Although there may be challenges associated with the integrated care model to health care, it clearly has numerous advantages, such as providing a more coordinated and less fragmented approach to patient care. The data underscore that this practice approach is being embraced by public and private organizations. It is up to the individual practitioner to determine if it is the right approach and professional home for them.

References

Allred, N. J., Wooten, K. G., & Kong, Y. (2007). The association of health insurance and continuous primary care in the medical home on vaccination coverage for 19- to 35-month-old children. *Pediatrics, 119,* S4–11. doi:10.1542/peds.2006-2089C.PMID 17272584

Amadeo, K. (2011). Why reform health care: How health care reform affects the economy. Retrieved from http://useconomy.about.com/od/fiscalpolicy/a/healthcare_reform.htm

American Psychological Association. (2007). Record keeping guidelines. *American Psychologist, 62,* 993–1004. doi:10.1037/0003-066X.62.9.993

American Psychological Association. (2010). Ethical principles of psychologists and code of conduct (2002, Amended June 1, 2010). Retrieved from http://www.apa.org/ethics/code/index.aspx

American Psychological Association. (2011). *Educational Leadership Conference on Interprofessional Education.* Washington, DC: Author.

Anton, B. (2012, March). *Innovative practice: different paths to collaboration and quality care.* Paper presented at the State Leadership Conference of the American Psychological Association. Washington, DC.

Arena, J. G., & Blanchard, E. B. (2005). Assessment and treatment of chronic benign headaches in the primary care setting. In W. T. O'Donohue, M. R. Byrd, N. A. Cummings & D. A. Henderson (Eds.), *Behavioral integrative care: Treatments that work in primary care settings.* New York, NY: Brunner-Routledge.

Association of Psychologists in Academic Health Centers. (2011). Retrieved from http://www.div12.org/section8/index.html

Belar, C. D. (2011, October). *Psychology workforce development for primary care.* Paper presented at the Collaborative Family Healthcare Association annual conference, Philadelphia, PA.

Belar, C. D., & Deardorff, W. W. (2009). *Clinical health psychology in medical settings: A practitioner's guidebook.* Washington, DC: American Psychological Association. doi:10.1037/11852-000

Berenson, R. A., Devers, K. J., & Burton, R. A. (2011). Will the patient centered medical home transform the delivery of health care? Timely analysis of immediate health policy issues. Retrieved from http://www.urban.org/uploadedpdf/412373-will-patient-centered-medical-home-transform-delivery-health-care.pdf

Betbeze, P. (2010). The physician's place in the ACO. *Health Leaders Media.* Retrieved from http://www.healthleadersmedia.com/page-1/MAG-258879/The-Physicians-Place-in-the-ACO

Blount, A. (2011). *Certificate program in primary care behavioral health.* Worchester, MA: University of Massachusetts Medical School.

Bray, J. H. (2004). Training primary care psychologists. *Journal of Clinical Psychology in Medical Settings, 11,* 101–107. doi:10.1023/B:JOCS.0000025721.17763.d7

Bray, J. H. Frank, R. G. McDaniel, S. H., & Heldring, M. (2004). Education, practice, and research opportunities for psychologists in primary care. In R. G. Frank, S. H. McDaniel, J. H. Bray, & M. Heldring (Eds.), *Primary care psychology.* Washington DC: American Psychological Association.

Business Roundtable. (2004). *CEO Economic Outlook Survey.* Retrieved from http://www.businessroundtable.org/newsroom/Document.aspx?qs=5866BF807822B0F1AD7468422FB51711FCF50C8

Centers for Medicare and Medicaid Services. (2011). Accountable care organizations. Retrieved from https://www.cms.gov/ACO/

Collaborative Family Healthcare Association. (2011). Retrieved from http://www.cfha.net/

Coons, H. L. (2011, November). *Models of integrated primary care and ensuring quality in the private sector.* Presentation to the Board of Professional Affairs Retreat on Implications of Integrated Care for Psychology, Washington, D.C.

Coons, H. L., & Gabis, J. E. (2010). Contractual issues for independent psychologists practicing in health care settings: Practical tips for establishing the agreement. *Independent Practitioner, 30,* 181–183.

Coons, H. L., Morgenstern, D., Hoffman, E. M., Striepe, M. I., & Buch, C. (2004). Psychologists in women's primary care and obstetrics and gynecology: Consultation and treatment issues. In R. Frank, S. H. McDaniel, J. H. Bray, & M. Heldring (Eds.), *Primary care psychology.* Washington, DC: American Psychological Association Publications. doi:10.1037/10651-011

Doherty, W. J., McDaniel, S. H., & Baird, M. A. (1996). Five levels of primary care/behavioral healthcare collaboration. *Behavioral Healthcare Tomorrow, 5,* 25–28.

Frank, R., McDaniel, S. H., Bray, J. H., & Heldring, M. (Eds). (2004). *Primary care psychology.* Washington, DC: American Psychological Association Publications. doi:doi:10.1037/10651-000

Gary, F. (2005). Stigma: Barrier to mental health care among ethnic minorities. *Issues in Mental Health Nursing, 26,* 979–999. doi:10.1080/01612840500280638

Graduate Psychology Education Program. (2012). Retrieved from http://www.aapnet.org/pdf/educ_gpe.pdf

Gröne, O., & Garcia-Barbero, M. (2002). Trends in integrated care: Reflections on conceptual issues. World Health Organization, Copenhagen, EUR/02/5037864. Retrieved from www.euro.who.int/document/ihb/Trendicreflconissue.pdf

Grumbach, K., & Bodenheimer, T. (2002). A primary care home for Americans: Putting the house in order. *Journal of the American Medical Association, 288,* 889–893. doi:10.1001/jama.288.7.889

Haas, L. J., & DeGruy, F. V. (2004). Primary care, psychology, and primary care psychology. In L. J. Hass (Ed.), *Handbook of primary care psychology* (pp. 5–20). New York, NY: Oxford.

Hays, K. F. (2012, August). *Integrating sport psychology into a sports medicine clinic.* Accepted for presentation, American Psychological Association, Orlando.

Homer, C. J., Klatka, K., & Romm, D. (2008). A review of the evidence for the medical home for children with special health care needs. *Pediatrics, 122,* 922–37. doi:10.1542/peds.2007-3762.PMID 18829788

Hunter, C. L., Goodie, J. L., Oordt, M. S., & Dobmeyer, A. C. (2009). *Integrated behavioral health in primary care: Step by step guidance for assessment and intervention.* Washington, DC: American Psychological Association. doi:10.1037/11871-000

Institute of Medicine. (2001). *Crossing the quality chasm: A new health system for the 21st Century*. Washington, DC: National Academies Press.

Interprofessional Education Collaborative Conference Proceedings. (2011). *Team-based competencies: Building a shared foundation for education and clinical practice: Conference proceedings*. Washington, DC: Interprofessional Education Collaborative.

Interprofessional Education Collaborative Expert Panel. (2011). *Core competencies for interprofessional collaborative practice: Report of an expert panel*. Washington, DC: Interprofessional Education Collaborative.

James, L. C., & Folen, R. A. (2005). *The primary care consultant: The next frontier for psychologists in hospitals and clinics*. Washington, DC: American Psychological Association. doi:10.1037/10962-000

James, L. C., & O'Donohue, W. T. (2009). *The primary care toolkit: Practical resources for the integrated behavioral care provider*. New York, NY: Springer.

Kaslow, N. J., Graves, C. C., & Smith, C. O. (2012). Specialization in psychology and health care reform. *Journal of Clinical Psychology in Medical Settings, 19,* 12–21. doi:10.1007/s10880-011-9273-0

Kodner, D. L., & Spreeuwenberg, C. (2002). Integrated care: Meaning, logic, applications, and implications: A discussion paper. *International Journal of Integrated Care, 2,* 1–6.

Kroenke, K., Spitzer, R., & Williams, W. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine, 16,* 606–616. doi:10.1046/j.1525-1497.2001.016009606.x

Lawrence, D. (2005). *Building a better delivery system: A new engineering/health care partnership—Bridging the quality chasm* (p. 99). Washington, DC: National Academy of Sciences.

Linton, J., & Coons, H. L. (2011, August). *Life long learning in primary care*. Paper presented at the annual meeting of the American Psychological Association, Washington, DC.

Liss, D. T., Chubak, J., Anderson, M. L., Saunders, K. W., Tuzzio, L., & Reid, R. J. (2011). Patient-reported care coordination: Associations with primary care continuity and specialty care use. *Annals of Family Medicine, 9,* 323–329. doi:10.1370/afm.1278

Loeppke, R. (2008). The value of health and the power of prevention. *International Journal of Health Plan Management, 1,* 95323–108.

Mark, T. L., Levit, K. R., & Buck, J. A. (2009). Psychotropic drug prescriptions by medical specialty. *Psychiatric Services, 60,* 1167. doi:10.1176/appi.ps.60.9.1167

Mathews, A. W. (2012, January 23). *Can accountable-care organizations improve health care while reducing costs. The Wall Street Journal.* Retrieved from http://online.wsj.com/article/SB10001424052970204720204577128901714576054.html

McDaniel, S. H., Hargrove, D. S., Belar, C. D., Schroeder, C. S., & Freeman, E. L. (2004). Recommendations for education and training in primary care psychology. In R. Frank, S. H. McDaniel, J. H. Bray, & M. Heldring (Eds.), *Primary care psychology*. Washington, DC: American Psychological Association Publications. doi:10.1037/10651-004

McGrath, R. E. (2010). Prescriptive authority for psychologists. *Annual Review of Clinical Psychology, 6,* 21–47. doi:10.1146/annurev-clinpsy-090209-151448

McGrath, R. E., & Sammons, M. (2011). Prescribing and primary care psychology: Complementary paths for professional psychology. *Professional Psychology: Research and Practice, 42,* 113–120. doi:10.1037/a0022649

Papas, R. K., Belar, C. D., & Rozensky, R. H. (2004). The practice of clinical health psychology: Professional issues. In T. J. Boll, R. G. Frank, A. Baum, & J. Wallander (Eds.), *Handbook of clinical health psychology: Vol. 3. Models and perspectives in health psychology* (pp. 293–319). Washington, DC: American Psychological Association.

Patient Centered Primary Care Collaborative. (2011). Retrieved from http://www.pcpcc.net

Peikes, D., Chen, A., Schore, J., & Brown, R. (2009). Effects of care coordination on hospitalization, quality of care, and health care expenditures among Medicare beneficiaries: 15 randomized trials. *Journal of the American Medical Association, 301,* 603–618. doi:10.1001/jama.2009.126

Pelletier, K. R., Herman, P. M., Metz, R. D., & Nelson, C. F. (2009, February). *Health and medical economics: Applications to integrative medicine*. Commissioned for the IOM Summit on Integrative Medicine and the Health of the Public.

Robinson, J. D., & Baker, J. (2006). Psychological consultation and services in a general medical hospital. *Professional Psychology: Research and Practice, 37,* 264–267. doi:10.1037/0735-7028.37.3.264

Rozensky, R. H. (2011). *Overview of integrated primary care for psychology*. Paper presented at the Board of Professional Affairs Retreat on Implications of Integrated Care for Psychology, Washington, DC.

Rozensky, R. H. (2012). Health care reform: Preparing the psychology workforce. *Journal of Clinical Psychology in Medical Settings, 19,* 5–11. doi:10.1007/s10880-011-9287-7

Ruddy, N. B., Borresen, D. A., & Gunn, W. B. (2008). *The collaborative psychotherapist: Creating reciprocal relationships with medical professionals*. Washington, DCs: American Psychological Association. doi:10.1037/11754-000

Ruddy, N. D., & Schroeder, C. S. (2004). Making it the real world: Diverse models of collaboration in primary care. In R. Frank, S. H. McDaniel, J. H. Bray, & M. Heldring (Eds.), *Primary care psychology*. Washington, DC: American Psychological Association Publications. doi:10.1037/10651-008

SAMHSA. (2012). Screening, brief intervention, and referral to treatment. Retrieved from http://www.samhsa.gov/prevention/sbirt/

SAMHSA-HRSA Center for Integrated Health Solutions. (2011). *Primary and behavioral healthcare integration: Guiding principles for workforce development*. Retrieved from http://www.integration.samhsa.gov

Saunders, J. B., Aasland, O. G., Babor, T. F., de la Fuente, J. R., & Grant, M. (1993). Development of the alcohol use disorders identification test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption. II. *Addiction, 88,* 791–804. doi:10.1111/j.1360-0443.1993.tb02093.x

Schappert, S. M., & Rechtsteiner, E. A. (2008). Ambulatory medical care utilization estimates for 2006. *National Health Statistics Reports, 8,* 1–29.

Schoen, C., Osborn, R., Doty, M. M., Bishop, M., Peugh, J., & Murukutla, N. (2007). Toward higher-performance health systems: Adults' health care experiences in seven countries, *Health Affairs, 26,* 717–734. doi:10.1377/hlthaff.26.6.w717.PMID 17978360

Taylor, M. (2001). Ethical issues for psychologists in pain management. *Pain Medicine, 2,* 147–154. doi:10.1046/j.1526-4637.2001.002002147.x

Tovian, S. M. (2006). Interdisciplinary collaboration in outpatient practice. *Professional Psychology: Research and Practice, 37,* 268–272. doi:10.1037/0735-7028.37.3.268

Tovian, S. M., Rozensky, R. H., & Sweet, J. J. (2003). A decade of clinical psychology in medical settings: The short longer view. *Journal of Clinical Psychology in Medical Settings, 10,* 1–8. doi:10.1023/A:1022861728067

Trivedi, A. N., & Grebla, R. C. (2011). Quality and equity of care in the Veterans Affairs health-care system and in Medicare advantage health plans. *Medical Care, 49,* 560–568. doi:10.1097/MLR.0b013e31820fb0f6

University of Pennsylvania Health System. (2011). Retrieved from http://www.mypennmedicine.org

VandenBos, G. R., & Williams, S. (2000). Is psychologists' involvement in the prescribing of psychotropic medication really a new activity? *Professional Psychology: Research and Practice, 31,* 615–618. doi:10.1037/0735-7028.31.6.615

(Assignment 2)

Prior to beginning work on this written assignment, be sure to carefully review the instructions for the Final Assignment, which is due at the end of Week Six. In preparation for that assignment, you will list the four required content domains you have chosen for the Integrative Literature Review and provide a minimum list of six resources you intend to use for each domain. For assistance with researching your resources, please view the Psychology Subject Guide in the Ashford University Library.

For the group of resources in each domain, evaluate the reliability, validity, and generalizability of the research findings and provide a rationale for including the group within the domain. These rationales should include descriptions of how the research findings will function together in the Integrative Literature Review.

Please use the format below for each of the four domains.

Name of the Domain: (e.g., Psychopharmacology)
List the complete references for each of the six resources. Format your reference list in alphabetical order according to APA style as outlined in the Ashford Writing Center (Links to an external site.).

Rationale:
One to two paragraphs including the required information noted above.

The Resources for the Integrative Literature Review

- Must include a separate title page with the following:
  - Title of paper
  - Student's name
  - Course name and number
  - Instructor's name
  - Date submitted
- Must use at least 24 scholarly sources, including a minimum of 20 from the Ashford University Library.
- Must document all sources in APA style as outlined in the Ashford Writing Center.
- Must include a separate references page that is formatted according to APA style as outlined in the Ashford Writing Center.

Domains along with Resources

DEVELOPMENTAL Psychology

Psychopharmacology

Personality Theories

Psychopathology

CHILD DEVELOPMENT

Child Development, July/August 2015, Volume 86, Number 4, Pages 1253–1261

Child and Adolescent Predictors of Personality in Early Adulthood

Developmental Psychology:

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This study investigated development of the Big Five personality traits from early childhood into adulthood. An initial group of 137 Swedish children were assessed eight times between ages 2 and 29 years. Initial decreases in extraversion leveled off in early adulthood; agreeableness and conscientiousness increased from ages 2 to 29; neuroticism initially increased, leveled off in later childhood and adolescence, and decreased throughout early adulthood; while openness to experience showed an initial increase, then decreased and leveled off in early adulthood. Individual developmental trajectories varied significantly, particularly in relation to gender. Personality traits became increasingly stable, and the fact that childhood scores predicted scores in adulthood indicated that personalities are fairly stable across this portion of the life span.

The transition to adulthood is increasingly delayed in industrial and postindustrial societies (Arnett, 1998, 2006; Shanahan, 2000), with many individuals undergoing significant transitions that make changes in personality likely during the 20s (Roberts, Wood, & Caspi, 2008; Robins, Fraley, Roberts, & Trzesniewsky, 2001). The five-factor model (FFM) of personality is commonly used to describe individual differences in personality (John, Naumann, & Soto, 2008; McCrae & Costa, 2008), but few researchers have followed the same individuals from early childhood to adulthood, despite Shiner's (2006) argument that such research is essential in order to understand personality across the life span. This was the first study to examine how the personality development of men and women in early adulthood was related to personality in childhood and adolescence.

Personality Development in Childhood

Individual differences among children are apparent early and are related to many aspects of later development, including health, occupational, and educational achievements, and social relationships (Ozer & Benet-Martinez, 2006; Shiner & Caspi, 2003; Wilson, Schalet, Hicks, & Zucker, 2013). There is a growing consensus that the FFM applies to both children and adults (Asendorpf & Van Aken, 2003; Hampson & Goldberg, 2006; John, Caspi, Robins, Moffit, & Stauthamer-Loeber, 1994; Lamb, Chuang, Wessels, Broberg, & Hwang, 2002; Shiner & Caspi, 2003; Soto, John, Gosling, & Potter, 2008), even though the traits may be less distinctive in early childhood than they are later (Wilson et al., 2013). Personality traits are already quite stable in early childhood, but their stability increases with age (Roberts & DelVecchio, 2000).

Developmental trends may differ depending on both age and context (Bates, Schermerhorn, & Goodnight, 2010; Lamb et al., 2002), raising questions about how developmental changes in adulthood are related to personality at previous ages. By including personality ratings in childhood, a phase that is rarely included in studies of life-span personality development (e.g., Allemand, Zimprich, & Hendriks, 2008; Lehman, Denissen, Allemand, & Penke, 2013; Roberts, Walton, & Viechtbauer, 2006), as well as adolescence and adulthood, we were able to study child and adolescent predictors

Our thanks go first of all to the participants who enabled this longitudinal research. We also want to thank the Swedish Research Council for Health, Working Life and Welfare (FORTE), the Swedish Foundation for Humanities and Social Sciences (RJ), and the Swedish Research Council (VR) who financed this research and also those who have assisted with the data collection throughout this project. We also thank Valgeir Thorvaldsson for assistance with the data analysis.

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of early adult personality and to put the associations between personality traits and psychosocial functioning into a broader developmental context.

Personality Development in Adolescence and the Emergence of Gender Differences

Adolescence is considered a key period for personality change (Soto, John, Gosling, & Potter, 2011) and for the emergence of gender differences in personality (Klimstra, Hale, Raaijmakers, Branje, & Meeus, 2009; McCrae et al., 2002; Soto et al., 2011). For example, in a large-scale cross-sectional study mostly involving U.S. participants, Soto et al. (2011) found that girls became more neurotic from childhood to adolescence (neuroticism decreased from early adulthood to middle age), whereas boys' neuroticism decreased from childhood to middle age. In a study of Dutch adolescents, Klimstra et al. (2009) found that girls were more neurotic and conscientious than boys throughout adolescence and that initially higher levels and faster increases in agreeableness for girls disappeared by the end of adolescence. However, Lamb et al. (2002) found no gender differences in any of the traits from ages 2 to 15. These similarities between boys and girls were somewhat surprising and one goal of this study was to determine whether gender differences in the same cohort emerged after age 15. Sweden, where this study was performed, is widely recognized for high levels of gender equality (World Economic Forum, 2013) and may thus foster patterns of development for males and females that differ from those evident in other countries.

Personality Development in Early Adulthood

Although normative trends across childhood and adolescence have not been delineated with any consistency (Bates et al., 2010), personality development largely follows the same trends in early adulthood and later parts of the life span (e.g., Allemand et al., 2008; Lehman et al., 2013; Roberts et al., 2006; Soto et al., 2011): Conscientiousness appears to increase and neuroticism to decrease (Roberts et al., 2006; Robins et al., 2001; Vaidya, Gray, Haig, Mroczek, & Watson, 2008). Some studies point toward no change (Robins et al., 2001) and some toward increases (Vaidya et al., 2008) in extraversion, while agreeableness appear to be the most stable trait (Roberts et al., 2006) albeit with occasional slight increases in early adulthood (Robins et al., 2001; Vaidya et al., 2008). Openness to experience also tends to increase in early adulthood (Robins et al., 2001; Vaidya et al., 2008). Because life-span studies of personality development usually start in late childhood or adolescence, many questions remain concerning the associations between, and development of, personality traits in other phases. For example, do different developmental demands in childhood and early adulthood produce different mean levels and developmental trajectories for the personality traits?

The Present Study

This study expanded upon Lamb et al.'s (2002) study of personality development from ages 2 to 15 by assessing the same participants at 21, 25, and 29 years of age. From ages 2 to 15, agreeableness and conscientiousness increased, extraversion decreased, neuroticism initially increased then leveled off, and openness to experience first increased then decreased. Three specific research questions and hypotheses guided the present study:

1. How are personality traits in childhood, adolescence, and early adulthood related? Informed by previous research on rank-order stability (Roberts & DelVecchio, 2000), we expected to find that child and adolescent scores predicted personality traits in early adulthood and that rank-order stability would increase with age.
2. How do personality traits develop in early adulthood and does this differ for males and females? We expected agreeableness, conscientiousness, and openness to experience to increase and neuroticism to decrease in early adulthood (Roberts et al., 2006; Robins et al., 2001; Vaidya et al., 2008) but could offer no hypotheses with respect to extraversion. Gender differences often emerge in adolescence (e.g., Soto et al., 2011), although there were no gender differences when these participants were assessed in childhood and adolescence. We predicted that gender differences would emerge after age 15, although they might be quite muted due to the gender-equitable Swedish context.
3. Is personality development from early childhood best described by linear or curvilinear developmental trajectories? We expected conscientiousness and agreeableness to increase across the whole period, while predicting that the increases in neuroticism and decreases in extraversion observed between ages 2 and 15

would flatten or change directions so that neuroticism started to decrease and extraversion to increase in early adulthood (Roberts et al., 2006; Robins et al., 2001; Vaidya et al., 2008). Previous findings concerning openness to experience (e.g., Bates et al., 2010) were not consistent and we therefore did not formulate any hypotheses concerning the associated trajectories. We also expected to find individual variations in developmental trajectories, such that people differed, not only with respect to their scores, but also with respect to changes over time.

Method

Participants

The Gothenburg (Sweden) longitudinal study of development started in 1982 with 144 children aged between 1 and 2 years. The participants came from a variety of socioeconomic backgrounds and were firstborn children whose parents lived together. In the first wave included in this study (which was the second time the families were studied, here referred to as Wave 1) 137 children participated (68 girls, 69 boys, M_{age} = 2.3 years, SD = 0.26). In the latest wave (Wave 8), the average age of the remaining 124 participants was 29.3 years. Wave 4 had the lowest retention rate (N = 108, M_{age} = 8.4; for the number of participants, mean ages, and attrition at each wave, see Table S1 in the online Supporting Information). There were no differences between those who participated in all waves and those who did not with regard to either gender or initial levels of any of the Big Five traits.

Measures

The Big Five Inventory

A Swedish version (Zakrisson, 2010) of the Big Five Inventory (BFI; John et al., 2008) was used in Wave 8 (age 29). The questionnaire has 44 items designed to capture core aspects of each of the Big Five traits. Participants rate phrases on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). John et al. (2008) reported internal consistencies (Cronbach's alpha) ranging from .79 for the agreeableness scale to .87 for the neuroticism scale. In the present study the internal consistencies were: .85 for extraversion, .76 for agreeableness, .77 for conscientiousness, .80 for neuroticism, and .82 for openness to experience.

The California Child Q-Set

The California Child Q-set (CCQ; Block & Block, 1980) was used to study the participants' personalities in all waves. The CCQ includes indicators of characteristic behaviors, emotions, and cognitions and yields a comprehensive measure of individual differences in personality as described by parents or teachers at early ages (Wilson et al., 2013) and by participants themselves at older ages. The measure involves 100 cards with personality descriptors written on them. The informant places each card in 1 of 9 categories ranging from 1 (*least descriptive*) to 9 (*most descriptive*). Eleven cards are placed in each category, except the middle category (5 = *neither descriptive nor nondescriptive*) in which 12 cards are placed. The items were translated from English into Swedish and back-translated to make sure that their meaning had not been changed by translation.

In the first five waves, trained members of the research staff visited the participants' homes and the mothers described the participants using the CCQ. Starting at age 21 (Wave 6) the participants completed the CCQ themselves. In the last three waves, the same Q-set was used as in Waves 1–5 although a few items were reworded. For example, Item 30: "Tends to arouse liking and acceptance in adults" was changed to "Tends to arouse liking and acceptance in others."

On the basis of the CCQ, John et al. (1994) defined Big Five scale scores (for lists of the items on all scales, see Table S2) with internal consistencies (Cronbach's alpha) ranging from .53 for the openness scale to .83 for the agreeableness scale. In this study, we used the scales described by John et al. to maximize our ability to compare findings with the results of other studies. Reliabilities for Waves 1–5 were presented by Lamb et al. (2002). At Waves 6–8, alphas ranged from .69 to .75 for extraversion, .70 to .72 for agreeableness, .40 to .51 for conscientiousness, .79 to .80 for neuroticism, and .40 to .49 for openness to experience (see Table S2). The reliabilities for the conscientiousness and openness to experience scales were consistently moderate to low so analyses involving these scales should be interpreted with caution.

The external validity of the CCQ-derived Big Five scales was evident in associations between scores on these scales and both mothers' and teachers' ratings of the children's school adjustment, school performance, and cognitive abilities at 8 years of age (Wave 4; Lamb et al., 2002) and between the CCQ scales and judgments and behavioral observations of children's aggressiveness,

inhibition, IQ, and cognitive self-esteem throughout childhood (ages 4–10; Asendorpf & Van Aken, 2003). Correlations between the CCQ-derived and BFI-derived scale scores at age 29 (N = 92) were .79 for extraversion, .66 for agreeableness, .71 for conscientiousness, .78 for neuroticism, and .66 for openness to experience. Correlations between the CCQ-derived scores in all waves and the BFI scores at Wave 8 (age 29; see Table S3) revealed that the BFI scores at age 29 were similarly associated with the CCQ-derived scores in most waves, although correlations were attenuated by age.

Data Analysis

Rank-order stability was investigated using Pearson correlations between Big Five scores across waves for each scale. Fisher's r-to-z transformations were calculated to compare the correlation coefficients (Lee & Preacher, 2013a, 2013b). Individual differences in developmental trajectories were modeled with growth curves computed using the PASW statistical package, version 20 (SPSS, 2005). Multilevel modeling was used because it accommodates variability in measurement occasions and in spacing of measurements. Unconditional models were initially estimated before models including age as a time-varying covariate. To account for variability in time between measurement occasions, we coded the age factor to the mean age at each wave and centered it at the first wave. In all models, we specified that age involved in both fixed and random effects, with fixed effects referring to estimated average change trajectories and random effects to variations across individuals. To investigate gender differences, we entered gender as a covariate, with values of 0 for men and 1 for women. Parameter estimates were obtained using restricted maximum likelihood estimation and missing data were modeled under the assumption that data were missing at random. In the analyses of development from ages 2 to 29, linear and curvilinear developmental trends were investigated, with first-, second-, and third-order polynomial functions of age fitted to the data. A dummy variable coded 0 for Waves 1–5 and 1 for Waves 6–8 was included as a main effect in order to control for the change in informant between Waves 5 and 6.

Results

Rank-Order Stability

Analyses exploring the relations between personality traits in early adulthood and personality traits in childhood and adolescence showed that for all of the Big Five traits, there were significant correlations across most waves, with an average correlation of r = .34 (see Table S3) but nonsignificant correlations between assessments of agreeableness in early childhood and adulthood as well as between assessments of conscientiousness in both early and middle childhood and adulthood. Correlations between adjacent waves (see Table 1) pointed to increases with age in the stability of individual differences in personality traits, with most correlations in adulthood significantly stronger than those in previous waves. The correlations decreased between ages 15 and 21 (Waves 5 and 6), when the informants changed, but the decrease was only significant for neuroticism.

Developmental Trends in Early Adulthood

Agreeableness and conscientiousness increased from ages 21 to 29, whereas neuroticism decreased (see Figure 1; for descriptive statistics and model estimations, see Tables S4–S6). Extraversion and openness to experience did not change from ages 21 to 29. Initial scores on all traits varied significantly between individuals, and there was significant variation around the change trajectories for neuroticism and conscientiousness. Women were significantly more extraverted and neurotic and less open to experiences than were men. The stability of these gender differences across early adulthood was evident in the absence of effect for gender on the change trajectories for these traits. For agreeableness, on the other hand, a significant interaction between gender and age meant that the averages for women and men were similar at age 21, but that women became increasingly more agreeable than men.

Developmental Trends From Childhood to Early Adulthood

A third research question focused on the shape of the developmental trajectories. As illustrated in Figure 2 (for model estimates see Table S7) cubic curvilinear trends best described the development of all traits except agreeableness, for which the trend was linear and positive. Specifically, initial decreases in extraversion leveled off in early adulthood; agreeableness showed a small linear increase from ages 2 to 29; conscientiousness increased throughout, although not at a consistent rate; neuroticism showed initial increases that leveled off and then showed a slight decrease; and openness to experience showed an initial increase, followed by a decrease that lev-

Table 1
Correlations Between California Child Q-Set–Derived Big-Five Scale Scores From Adjacent Waves

Measure	Between ages (years)						
	2–3	3–7	7–8	8–15	15–21	21–25	25–29
Extraversion	.53***	.48***	.71***	.54***	.48***	.75***	.75***
Agreeableness	.63***	.36***	.75***	.48***	.34**	.67***	.76***
Conscientiousness	.62***	.50***	.66***	.43***	.25*	.65***	.65***
Neuroticism	.52***	.38***	.64***	.62***	.32**	.84***	.80***
Openness	.68***	.46***	.51***	.50***	.46***	.65***	.71***

Note. $N = 92$. Informants changed between ages 15 and 21.
$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

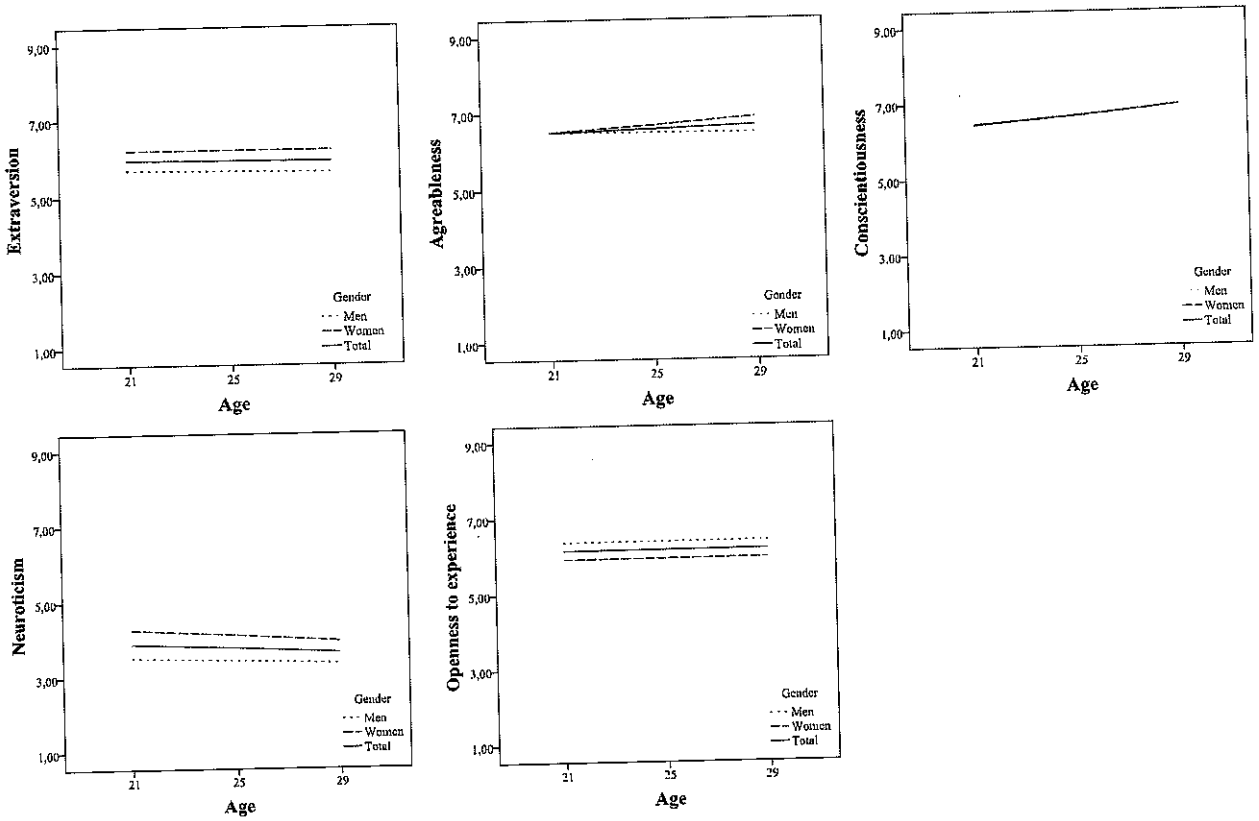

Figure 1. Estimated growth for the Big Five traits from ages 21 to 29 for the total group and for women and men separately.

eled off in early adulthood. The change in informant between ages 15 and 21 was controlled for in these analyses. Overall, personality thus changed at different rates and, for some traits, in different directions at different portions of the life span.

Discussion

These findings provide novel and important insights into how personalities develop across the first three decades of the life span. Agreeableness and conscientiousness increase consistently independent of both age and cultural context, as indicated by the similarities between the present findings and those obtained in previous studies (e.g., Allemand et al., 2008; Lehman et al., 2013; Roberts et al., 2006; Soto et al., 2011). However, as in some previous studies (Roberts et al., 2006; Robins et al., 2001), the changes in agreeableness were quite small, suggesting that individuals tend to maintain their levels of agreeableness. Neuroticism increased until the school years and then started to level off, before decreasing over time in early adulthood. Perhaps neuroticism

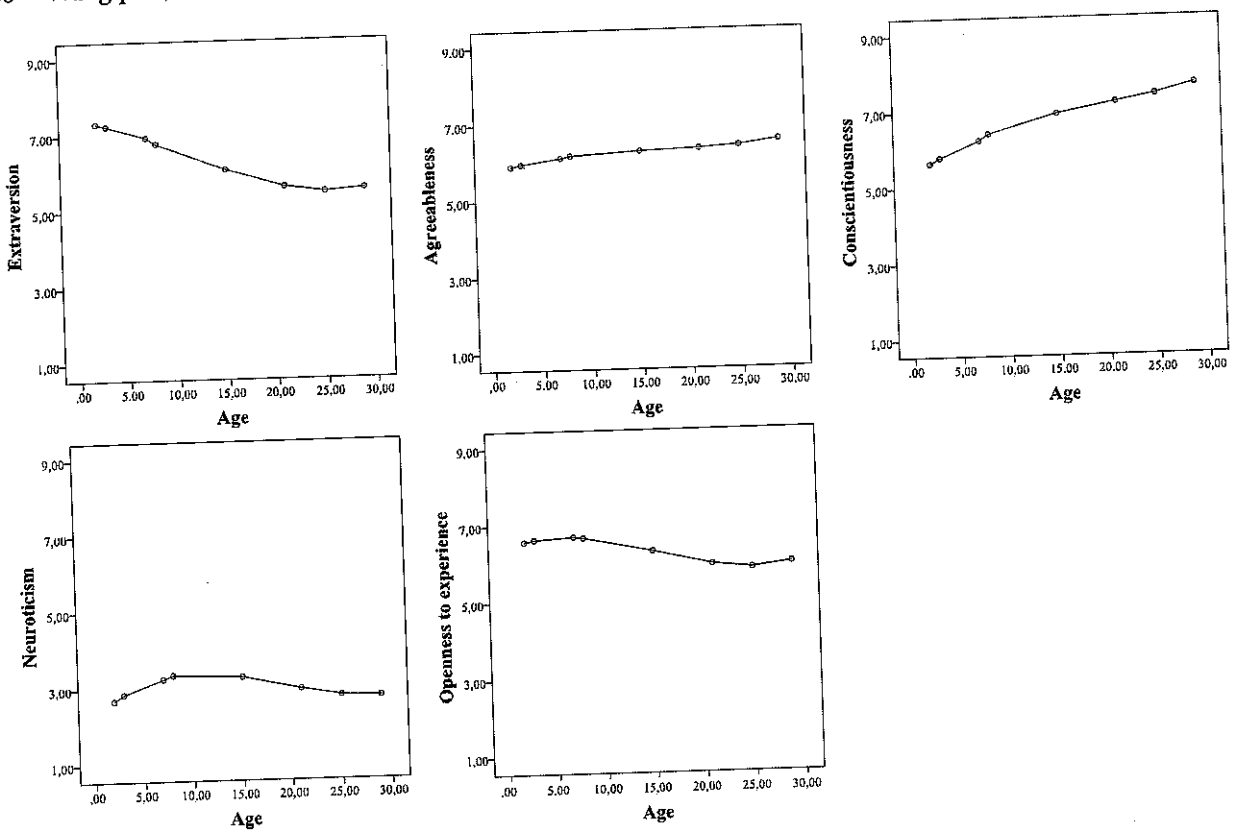

Figure 2. Estimated growth for the Big Five scales in the total group from ages 2 to 29.

increases as children move from close dependence on primary caregivers into larger and more demanding out-of-home (day care and school) contexts (Lamb & Ahnert, 2006). Leveling off in the school years might be related to the positive aspects of independence when children become comfortable at school and with peers. Meanwhile, the decrease in neuroticism from ages 21 to 29 could reflect well-being associated with stable intimate relationships and work arrangements in the late 20s (Arnett, 2012; Kroger, 2007). Extraversion and openness to experience appear susceptible to both age-related and contextual influences, however. For example, as in the present study, Robins et al. (2001) found no change in extraversion in early adulthood, whereas Vaidya et al. (2008) found increases. Extraversion might be influenced by cultural values emphasizing gregariousness or humility, and openness to experience by the value placed on curiosity. The decreases in these traits across childhood in the present study might reflect the gradual embrace of cultural beliefs in Sweden regarding humility and contentedness. Together with findings obtained in other countries at various ages, the present study indicates that normative increases in agreeableness and conscientiousness are consistent regardless of culture, whereas individual differences in extraversion, openness to experience, and neuroticism are more susceptible to age-related and sociocultural influences.

Gender affected individual differences in all aspects of personality except conscientiousness. There were no gender differences from ages 2 to 15 (Lamb et al., 2002), so these new analyses reveal that Swedish women start showing higher extraversion and neuroticism and lower openness to experience between ages 15 and 21, and higher agreeableness between ages 21 and 29. The predicted emergence of gender differences later than in other cultures (e.g., Klimstra et al., 2009, in the Netherlands) suggests that different social demands and norms for women and men are formatively important and that gender-differentiated demands may become salient later in Sweden than in other countries. Previous research in Sweden (Frisén, Carlsson, & Wängqvist, 2014; Frisén & Wängqvist, 2011) has revealed that 25-year-old women think more about future work and family priorities than do their male peers. Perhaps the anticipation of future parenthood explains the emerging gender differences in personality as well.

The increasing stability of personality traits over time demonstrated the expected individual consis-

tency (Roberts & DelVecchio, 2000) with changes in personality less common in early adulthood than in childhood and adolescence. Change is also an important aspect of personality development (Shiner, 2006), however, and previous rankings do not fully explain later personality traits. Taken together, the analyses of both stability and change showed that the participants' personalities were stable, but not unchanging. Individual factors (such as genetic makeup), external factors (such as exposure to unique and shared environments), and the distinctive ways in which individuals create changes in themselves and their contexts may lead to different developmental trajectories (Mroczek, Almeida, Spiro, & Pafford, 2006). Knowledge of the ways personalities change from childhood to adulthood might, by extension, help explain whether and how personalities are influenced by everyday experiences (Shiner, 2006) as well as by both normative and unexpected events throughout the life span. How, for example, does the loss of a parent affect children's personality development? Do personality changes vary depending on individual characteristics? These are important questions to address in future research on personality development.

This longitudinal study was the first to trace the personalities of the same individuals from early childhood into adulthood. Even though the generalizability of the findings is limited by the small sample size, the high retention rate and the inclusion of eight measurement points over a 27-year span made the contributions unique. However, long-term longitudinal research involves some unavoidable trade-offs. The analyses showed high rank-order stability for all the Big Five traits, with the internal reliabilities of the scales measuring extraversion, agreeableness, and neuroticism consistently adequate. Analyses using latent variables might have helped overcome problems associated with the reduced reliability of the other two scales although the sample size made such analyses inappropriate. The multilevel approach adopted is, however, suitable for longitudinal analyzes of unbalanced data with variations in the number of participants and in spacing between waves (Mroczek et al., 2006; Singer & Willet, 2003).

The ipsative nature of the data meant that scores on each trait were not fully independent of scores on other traits. This interdependence complicated previous efforts to explore the factor structure (Lamb et al., 2002) and calls for caution when interpreting the mean scores. However, correlations between scores on the CCQ-derived scales and BFI-derived scores at age 29 demonstrated concurrent validity, and previous studies have established the external validity of the scales in childhood (Asendorpf & Van Aken, 2003; Lamb et al., 2002).

Multiple informants would certainly have strengthened the validity of the CCQ-derived scores and would have allowed us to investigate similarities and differences in the constructs measured by mother reports and self-reports. However, the analyses reported here showed convergence between the mothers' and participants' reports. Self-report measures were not suitable in early childhood (when the participants were 2 to 3 years old) and it is highly unlikely that mother reports would be more valid indicators of personalities in adulthood than self-reports. Unfortunately, both maternal and self-reports were never obtained in the same wave and this makes it impossible to interpret the drop in rank-order stability between ages 15 and 21.

The CCQ was designed to measure children's personality while remaining appropriate, with minor changes, in adulthood, making it suitable for this type of longitudinal study. However, the poor reliability of some of the trait measures means that other measures, such as observations or behavioral tests, would be preferable when openness to experience or conscientiousness are of particular interest. It might also be valuable to include other conceptualizations of personality (e.g., ego resiliency and ego control) when trying to map the development of personality across this age period.

The developmental trajectories of some of the Big Five traits varied at different phases of the life span and there were significant variations in individual developmental trajectories. Some developmental trends, including age-related increases in agreeableness and conscientiousness, appear to be independent of culture, whereas differences in mean-level changes and between-individual variability on other traits might reflect cultural differences. Culturally sensitive accounts of normative changes in personality development thus need to take into account individual, sociocultural, and age-related variability.

References

Allemand, M., Zimprich, D., & Hendriks, A. A. J. (2008). Age differences in five personality domains across the life span. *Developmental Psychology, 44,* 758–770. doi:10.1037/0012-1649.44.3.758

Arnett, J. J. (1998). Learning to stand alone: The contemporary American transition to adulthood in cultural and historical context. *Human Development, 41,* 295–315. doi:10.1159/000022591

Arnett, J. J. (2006). *Emerging adulthood: The winding road from the late teens through the twenties*. New York, NY: Oxford University Press.

Arnett, J. J. (2012). New horizons in research on emerging and young adulthood. In A. Both, S. L. Brown, N. S. Landale, W. D. Manning, & S. M. McHale (Eds.), *Early adulthood in a family context* (Vol. 2, pp. 231–244). New York, NY: Springer.

Asendorpf, J. B., & Van Aken, M. A. G. (2003). Validity of Big Five personality judgements in childhood: A 9 year longitudinal study. *European Journal of Personality, 17*, 1–17. doi:10.1002/per.460

Bates, J. E., Schermerhorn, A. C., & Goodnight, J. A. (2010). Temperament and personality through the life span. In M. L. Lamb & A. M. Freund (Eds.), *The handbook of lifespan development: Social and emotional development* (Vol. 2, pp 208–253). Hoboken, NJ: Wiley.

Block, J., & Block, J. H. (1980). *The California Child Q-set*. Palo Alto, CA: Consulting Psychologists Press.

Frisén, A., Carlsson, J., & Wängqvist, M. (2014). "Doesn't everyone want that? It's just a given": Swedish emerging adults' expectations on future parenthood and work/family priorities. *Journal of Adolescent Research, 29*, 67–88. doi:10.1177/0743558413502537

Frisén, A., & Wängqvist, M. (2011). Emerging adults in Sweden: Identity formation in the light of love, work and family. *Journal of Adolescent Research, 26*, 200–221. doi:10.1177/0743558410376829

Hampson, S. E., & Goldberg, L. R. (2006). A first large cohort study of personality trait stability over the 40 years between elementary school and midlife. *Journal of Personality and Social Psychology, 91*, 763–779. doi:10.2307/1131373

John, O. P., Caspi, A., Robins, R. W., Moffit, T. E., & Stauthamer-Loeber, M. (1994). The "little five." Exploring the nomological network of the five-factor model of personality in adolescent boys. *Child Development, 65*, 160–178. doi:10.1111/1467-8624.ep9406130687

John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative Big Five trait taxonomy: History, measurement, and conceptual issues. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (3rd ed., pp. 114–158). New York, NY: Guilford Press.

Klimstra, T. A., Hale, W. W., III, Raaijmakers, Q. A. W., Branje, S. J. T., & Meeus, W. (2009). Maturation of personality in adolescence. *Journal of Personality and Social Psychology, 96*, 898–912. doi:10.1037/a0014746

Kroger, J. (2007). *Identity development: Adolescence through adulthood* (2nd ed.). Thousand Oaks, CA: Sage.

Lamb, M. E., & Ahnert, L. (2006). Nonparental child care: Context, concepts, correlates, and consequences. In W. Damon, R. M. Lerner, K. A. Renninger, & I. E. Sigel (Eds.), *Handbook of child psychology: Child psychology in practice* (Vol. 4, 6th ed., pp. 950–1016). New York, NY: Wiley.

Lamb, M. E., Chuang, S. S., Wessels, H., Broberg, A., & Hwang, C. P. (2002). Emergence and construct validation of the Big Five factors in early childhood: A longitudinal analysis of their ontogeny in Sweden. *Child Development, 73*, 1517–1524. doi:10.1111/1467-8624.00487

Lee, I. A., & Preacher, K. J. (2013a, October). *Calculation for the test of the difference between two dependent correlations with no variable in common* [Computer software]. Retrieved from http://quantpsy.org

Lee, I. A., & Preacher, K. J. (2013b, September). *Calculation for the test of the difference between two dependent correlations with one variable in common* [Computer software]. Retrieved from http://quantpsy.org

Lehman, R., Denissen, J. J. A., Allemand, M., & Penke, L. (2013). Age and gender differences in motivational manifestations of the Big Five from age 16 to 60. *Developmental Psychology, 49*, 365–383. doi:10.1037/a0028277

McCrae, R. R., & Costa, P. T. J. (2008). The five-factor theory of personality. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (3rd ed., pp. 159–181). New York, NY: Guilford Press.

McCrae, R. R., Costa, P. T. J., Terracciano, A., Parker, W. D., Mills, C. J., De Fruyt, F., & Mervielde, I. (2002). Personality trait development from age 12 to age 18: Longitudinal, cross-sectional, and cross-cultural analyses. *Journal of Personality and Social Psychology, 83*, 1456–1468. doi:10.1037//0022-3514.83.6.1456

Mroczek, D. K., Almeida, D. M., Spiro, A., & Pafford, C. (2006). Modeling intraindividual stability and change in personality. In D. K. Mroczek & T. D. Little (Eds.), *Handbook of personality development* (pp. 163–180). Mahwah, NJ: Erlbaum.

Ozer, D. J., & Benet-Martinez, V. (2006). Personality and the predictions of consequential outcomes. *Annual Review of Psychology, 57*, 401–421. doi:10.1146/annurev.psych.57.102904.190127

Roberts, B. W., & DelVecchio, W. F. (2000). The rank-order consistency of personality traits from childhood to old age: A quantitative review of longitudinal studies. *Psychological Bulletin, 126*, 3–25. doi:10.1037//0033-2909.126.1.3

Roberts, B. W., Walton, K. E., & Viechtbauer, W. (2006). Patterns of mean-level change in personality traits across the life course: A meta-analysis of longitudinal studies. *Psychological Bulletin, 132*, 1–25. doi:10.1037/0033-3909.132.1.1

Roberts, B. W., Wood, D., & Caspi, A. (2008). The development of personality in adulthood. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (3rd ed., pp. 375–398). New York, NY: Guilford Press.

Robins, R. W., Fraley, R. C., Roberts, B. W., & Trzesniewsky, K. H. (2001). A longitudinal study of personality change in young adulthood. *Journal of Personality, 69*, 617–640. doi:10.1111/1467-6494.694157

Shanahan, M. J. (2000). Pathways to adulthood in changing societies: Variability and mechanisms in life course perspectives. *Annual Review of Psychology, 26*, 667–692. doi:10.1146/annurev.soc.26.1.667

Shiner, R. L. (2006). Temperament and personality in childhood. In D. K. Mroczek & T. D. Little (Eds.), *Handbook of personality development* (pp. 213–230). Mahwah, NJ: Erlbaum.

Shiner, R. L., & Caspi, A. (2003). Personality differences in childhood and adolescence: Measurement, development, and consequences. *Journal of Child Psychology and Psychiatry, 44*, 2–32. doi:10.1111/1469-7610.00101

Singer, J. D., & Willet, J. B. (2003). *Applied longitudinal data analysis: Modeling change and event occurrence*. New York, NY: Oxford University Press.

Soto, C. J., John, O. P., Gosling, S. D., & Potter, J. (2008). The developmental psychometrics of Big Five self-reports: Acquiescence, factor structure, coherence, and differentiations from ages 10 to 20. *Journal of Personality and Social Psychology, 94*, 718–737. doi:10.1037/0022-3514.94.4.718

Soto, C. J., John, O. P., Gosling, S. D., & Potter, J. (2011). Age differences in personality traits from 10 to 65: Big Five domains and facets in a large cross-sectional sample. *Journal of Personality and Social Psychology, 100*, 330–348. doi:10.1037/a0021717

SPSS. (2005). *Linear mixed-effects modeling in SPSS: An introduction to the MIXED procedure*. Chicago, IL: SPSS.

Vaidya, J. G., Gray, E. K., Haig, J. R., Mroczek, D. K., & Watson, D. (2008). Differential stability and individual growth trajectories of Big Five and affective traits during young adulthood. *Journal of Personality, 76*, 267–304. doi:10.1111/j.1467-6494.2007.00486.x

Wilson, S., Schalet, B. D., Hicks, B. M., & Zucker, R. A. (2013). Identifying early childhood personality dimensions using the California Child Q-Set and prospective associations with behavioral and psychosocial development. *Journal of Research in Personality, 47*, 339–350. doi:10.1016/j.jrp.2013.02.010

World Economic Forum. (2013). *The global gender gap report*. Retrieved from http://www.weforum.org/issues/global-gender-gap

Zakrisson, I. (2010). *Big Five Inventory (BFI): Utprövning för svenska förhållanden* [Big Five Inventory (BFI): A testing for Swedish conditions] (Vol. 2010:3, Social Science Rep.). Mid Sweden University.

Supporting Information

Additional supporting information may be found in the online version of this article at the publisher's website:

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EDITORIAL

Reflections on Six Decades of Research on Adolescent Behavior and Development

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Abstract
These reflections, spanning six decades of involvement with developmental behavioral science, report on several salutary trends that have shaped that field of social inquiry, e.g., its increasingly trans-disciplinary character. They also take note of some of its enduring limitations, e.g., its failure to engage with theory. In addition, the reflections confront some current issues, such as the widespread stereotyping of adolescents as risk takers, and the growing recourse to reductionist explanation. On balance, however, developmental behavioral science can be seen in retrospect as having evolved in a decidedly positive direction. Clearly, it has yielded a firmer grasp on adolescent behavior and development.

Keywords Adolescent development · Developmental behavioral science · Problem behavior theory · Risk behavior · Qualitative method · Reductionism

A recent experience of having to organize the body of my work on adolescent behavior and development since the late 1950s (Jessor 2016, 2017a, b) stimulated some overall impressions about the burgeoning field of developmental behavioral science (Jessor 1993). This account of those impressions—about my own work as well as the work of other scholars—while not exhaustive by any means, takes note of several salutary trends, calls attention to a few important shortcomings, and engages with some current issues in the field.

In regard to salutary trends, an overriding impression is that the field has, indeed, become more truly *developmental*, relying far more on time-extended or longitudinal designs than was the practice early on. This greater reliance on studying how the *same* young people grow and change over time has replaced an earlier reliance on inferring growth and change from differences between age cohorts. In addition to the greater developmental attention to intra-individual change, there has been increased attention to assessing concomitant change in the predictors or co-variates of that intra-individual change over the same time segment (Jessor and Jessor 1977). That is to say, there is increased awareness that a more compelling understanding of developmental change requires simultaneously demonstrating theoretically-consonant or theoretically-parallel change in its determinants as well.

Another important trend in the field of developmental behavioral science is that it has become increasingly inter-or trans-disciplinary. Whereas earlier developmental studies tended to focus on individual/ psychological variation, while eliding attention to variation in the social environment, or focused on the latter, while eliding attention to individual variation, more recent studies have tended to encompass variation in *both* person and context, engaging —in the very same study—explanatory concepts not only from psychology but also from the social disciplines.

Notable also as an important trend has been the enlargement in developmental research of what constitutes a satisfactory explanatory objective. In contrast to earlier studies that sought to predict or explain single behaviors (e.g., aggression), or single attitudes (e.g., self-esteem), or single beliefs (e.g., internal control), or to engage single contexts (e.g., the peer group, or the family, or the school), more recent developmental work has sought to account for more comprehensive explanatory objectives, objectives that subtend those separate domains in ways that capture a larger sense of the *individual-in-context*, concepts such as *lifestyle* that constitute an individual's way of thinking, believing, and behaving across contexts, and represent an adolescent's

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overall way of being in the world. Reliance in developmental research on single concepts, whether behaviors or beliefs or attitudes or contexts, can be expected to yield only highly constrained, even impoverished, understanding of individuality and of individual development.

Developmental research has also become far more problem-focused than in earlier years, responding, at least in part, to Kurt Lewin's insistence (1951) that theory-guided inquiry can be carried out not just in laboratories but in the full social context in which it occurs, and that, indeed, contextually-situated findings yield greater external validity than those that are laboratory-based. Concern with social problems in adolescence and youth, such as drug use, violence, obesity, poverty, etc., has animated considerable developmental research in recent decades, has led to innovative research designs, e.g., predicting variation in time of onset or initiation of problem behaviors, and has generated innovative explanatory concepts, e.g., the notion of "transition proneness," that is, a readiness to make an age-graded developmental change. This invigorated problem focus has been another important contribution to developmental behavioral science.

In relation to the greater focus on problem behaviors, there has been a broadening consensus that problem behaviors in adolescence and young adulthood come in clusters, that is, that they tend to co-vary, to have common determinants, and, indeed, to constitute a "problem behavior syndrome" (Jessor and Jessor 1977). This recognition has transformed what previously had been specializations by developmental scholars in particular problem behaviors, e.g., delinquency, or drinking behavior, or tobacco use, or precocious sexual activity, etc., into greater acceptance of the obligation in developmental research to engage the larger pattern of involvements across those previously segmented domains. [For a similar issue in health behavior research, the report of a recent meeting sponsored by the National Cancer Institute (Klein et al. 2016) stated: "... research programs often examine single health behaviors without a systematic attempt to integrate knowledge across behaviors." (p. 1); and concluded that "Integrating knowledge across behavioral domains is a public health imperative." (p. 6).]

Another salutary trend has been the growing recognition that a commitment to understanding adolescent problem behavior is not incompatible with a concern for understanding positive youth development but, indeed, is essential to the latter. Initially presented as an antidote to a perceived over-emphasis on problem behavior in adolescence, the positive youth development movement sought to counter by emphasizing, instead, adolescent strengths and assets. An unfortunate antinomy was established, thereby, between research on adolescent problem behavior and research on adolescent assets. That oppositional division was unhelpful in that it could yield only a partial understanding of adolescence and adolescent development; after all, problems and assets co-exist in every adolescent, and to privilege one at the expense of the other is to compromise a broader understanding. Recently there have been signs of a growing reconciliation between the two research constituencies and a mutual recognition that a firm grasp on adolescence and youth requires attention to *both* problems and assets—and to how they relate—and that comprehensive interventions designed to prevent the former and promote the latter require strategies tailored to each (Jessor and Turbin 2014).

With regard to method, the long-term, seemingly intractable opposition between quantitative and qualitative approaches to research appears to have been tempered or mitigated in recent decades, and research projects are increasingly employing both methods. A salutary outcome of the openness of the post-positivist era in social inquiry, it reflects a growing recognition of the compelling logic of methodological pluralism and of reliance on mixed methods and on their convergence. It also has entailed a closer examination of the epistemological foundations of both approaches, with one author claiming "...the distinction between qualitative and quantitative is of limited use and, indeed, carries some danger" (Hammersley 1992, p. 159), and another stating that "...all studies have an "ethnographic" component embedded in them, even if ethnography was not done" (Weisner 1996). In a relevant volume (Jessor et al. 1996) reporting on a conference examining the distinctive role of qualitative research on human development, the consensus that was reached was that "...qualitative and quantitative methods of social inquiry, though often asking different kinds of questions, share a common epistemological foundation and a common philosophy of science" (Jessor 1996, p. 264). Happily, we are now past the time of awarding honorific status to particular methods, whether qualitative or quantitative, and increasingly see methods simply as handmaidens to theory and problems.

Lastly, a salutary trend also worth noting is the greater interest in adolescent health and in the role that it plays in development. There has been an assimilation of the interest in problem behaviors with an interest in health behaviors since many of what are termed problem behaviors are, at the same time, health-compromising behaviors. It has become evident that health behaviors also cluster, as do problem behaviors, and that involvements in health-promoting behaviors relate inversely to involvements in problem behavior. The broader rubric of *behavioral health* emerged some time ago (e.g., Matarazzo et al. 1984) to refer to all those behaviors that are relevant to variation in adolescent health, including problem behaviors that can compromise health, regular exercise and healthy diet that can promote health, safety behaviors such as seatbelt use that can protect

health, etc. This increased attention to the role of health in adolescent behavior and development has obvious reverberations for intervention efforts to advance positive, prosocial development more generally.

With regard to shortcomings or disappointments, my overriding impression is that *theory in general*, and theories of the middle range (Merton 1957) especially, have played only a limited role in developmental behavioral science over recent decades. This impression is buttressed by a perceptive comment on contemporary research on adolescent development by a well-known developmental scholar; he laments that: "...the majority of studies are effectively atheoretical, with the occasional theoretical gloss added to provide a patina of respectability rather than to articulate an explicit framework in which the research was grounded" (Lamb 2015, p. 117).

Beyond possibly providing that "patina of respectability"—and far more important, of course—engaging with theory provides the foundation for explanation at what Kurt Lewin long ago termed the *genotypic* level (Lewin 1935), the level of underlying, causal constructs or determinants, in contrast to the phenotypic, observable, or descriptive level. It is theory that enables generality of findings across cultures and local, national, or international settings that differ greatly at the descriptive level, and across persons who vary in age, gender, ethnicity, social status, and national origin, among other attributes. The impact of genotypic, theoretical constructs such as social support or social control, for two examples, on adolescent behavior or experience should be invariant, whether from an older sib in Chicago, or a parent in Italy, or a teacher in Iran (Jessor 2008). Engaging theory in developmental research also permits the logical derivation of measures and procedures from the theory, thereby endowing them with construct validity at the outset of the research. Greater engagement with theory, its development and application, increases the likelihood of developmental research findings that will have both generality and robustness.

Another issue of concern has been what appears to be something of a resurgence of 20th-century *reductionism* (Jessor 1958) in developmental behavioral science. For one example, there has been considerable recent attention to the so-called "immature adolescent brain," the still-developing frontal lobes especially, in accounting for adolescent risk behavior. For another, heavy involvement with substances, whether alcohol or other drugs, is increasingly referred to as an "addiction," and the latter has recently been deemed a "brain disease." More broadly, there has been growing engagement with genetics in research on adolescence. Expanding developmental behavioral science to engage with and accommodate brain science and genetics can, of course, enlarge the explanatory network and constitute thereby an important scientific achievement. It is only when recourse to the brain and to genetics is considered to provide more fundamental or causal or basic explanation that it becomes problematic and relies upon an archaic notion of a hierarchy of the sciences. Not only are the mechanisms that could link brain and genes to behavior and experience not yet established, but the amount of variance in behavior and experience they account for remains small, especially in contrast to that of the psychosocial level of analysis. It would be unfortunate, therefore, if latter-day reductionist thinking in support of biological explanation were to divert attention from the quest for psychosocial understanding.

One more disappointing impression about the field is the continued and widespread employment of the concept of *risk taking behavior* rather than *risk behavior* in studies of adolescent engagement in the various problem behaviors. It has been nearly three decades since I argued—unsuccessfully as it has turned out—that the use of that term yielded stereotypical characterizations of adolescents as *risk takers*, an unfortunate tautology, and that it should be dropped from the scientific vocabulary (Jessor 1991). The fact is, of course, that many of the behaviors that adolescents engage in do, indeed, put them at risk for negative consequences, whether for dropping out of school, or getting pregnant, or becoming involved with the justice system, or failing to meet their parents' expectations. But the fact that risk is entailed in engaging in those behaviors does not mean that the adolescent is *aware of* that risk, has *sought* that risk, or engaged in the behavior *because of* the risk, that is, that the adolescent by engaging in behaviors that entail risk is, thereby, a risk *taker*. Adults who drive a car to work or for shopping engage in a behavior that clearly carries risk for accidents, but we do not refer to them as risk takers just because of that. It would seem best for developmental scientists to dispense with the concept of *risk taking* behavior (except, of course, for those behaviors, e.g., drag racing or rock climbing, perhaps, where risk is deliberately sought) in favor of the neutral concept of *risk behavior*. The latter term would make clear that accounting for adolescent engagement in risk behavior requires the very same kind of complex search for explanation as does adolescent engagement in any other category of behavior, without needing to rely on the simplistic and tautological explanation that adolescents are *risk takers*.

Looking back over these past six decades, it is my overall impression that developmental behavioral science has pursued a decidedly fruitful direction, achieving a transdisciplinary grasp on adolescence and bringing illumination to the process of development and change that characterizes that segment of the life course. It has been an enduring source of excitement to have been a participant in and a long-time contributor to that enterprise. With regard to the latter, our development of a middle-range theory known as Problem Behavior Theory (Jessor 2014, 2016,

2017a, b), in collaboration with many colleagues and students over the decades, may be the most significant contribution. The theory's development has been responsive to most of the salutary trends noted in these reflections. My hope now is that those trends will continue and serve as imperatives for the next generation of developmental behavioral scientists.

Compliance with ethical standards

Conflict of Interest The authors declare that they have no conflict of interest.

References

Hammersley, M. (1992). *What's wrong with ethnography? Methodological explorations*. London: Routledge.

Jessor, R. (1958). The problem of reductionism in psychology. *Psychological Review, 65*(3), 170–178.

Jessor, R. (1991). Risk behavior in adolescence: A psychosocial framework for understanding and action. *Journal of Adolescent Health, 12*(8), 597–605.

Jessor, R. (1993). Successful adolescent development among youth in high-risk settings. *American Psychologist, 48*(2), 117–126.

Jessor, R. (1996). Ethnographic methods in contemporary perspective. In R. Jessor, A. Colby & R. A. Shweder (Eds.), *Ethnography and human development: Context and meaning in social inquiry*. Chicago, IL: University of Chicago Press.

Jessor, R. (2008). Description versus explanation in cross-national research on adolescence. *Journal of Adolescent Health, 43*(6), 527–528.

Jessor, R. (2014). Problem Behavior Theory: A half-century of research on adolescent behavior and development. In R. M. Lerner, A. C. Petersen, R. K. Silbereisen & J. Brooks-Gunn (Eds.), *The developmental science of adolescence: History through autobiography*. New York, NY: Psychology Press.

Jessor, R. (2016). *The origins and development of Problem Behavior Theory: The collected works of Richard Jessor, Volume 1*. New York, NY: Springer International Publishing.

Jessor, R. (2017a). *Problem Behavior Theory and adolescent health: The collected works of Richard Jessor, Volume 2*. New York, NY: Springer International Publishing.

Jessor, R. (2017b). *Problem Behavior Theory and the social context: The collected works of Richard Jessor, Volume3*. New York, NY: Springer International Publishing.

Jessor, R., Colby, A. & Shweder, R. A. (Eds.), (1996). *Ethnography and human development: Context and meaning in social inquiry*. Chicago, IL: University of Chicago Press.

Jessor, R., & Jessor, S. L. (1977). *Problem behavior and psychosocial development: A longitudinal study of youth*. New York, NY: Academic Press.

Jessor, R., & Turbin, M. S. (2014). Parsing protection and risk for problem behavior versus pro-social behavior among US and Chinese adolescents. *Journal of Youth and Adolescence, 43*, 1037–1051.

Klein, W. M. P., Grenen, E. G., O'Connell, M., Blanch-Hartigan, D., Chou, W.-Y. S., Hall, K. L. et al. (2016). Integrating knowledge across domains to advance the science of health behavior: Overcoming challenges and facilitating success. *Translational Behavioral Medicine, 7*, 1–8.

Lamb, M. E. (2015). Reflections on the evolution of theory in developmental science: A commentary on Lerner, Johnson, and Buckingham. *Journal of Family Theory & Review, 7*(2), 115–117.

Lewin, K. (1935). *A dynamic theory of personality: Selected papers*. New York, NY: McGraw-Hill.

Lewin, K. (1951). *Field theory in social science: Selected theoretical papers*. New York, NY: Harper & Row.

Matarazzo, J. D., Weiss, C. M., Herd, J. A., Miller, N. E. & Weiss, S. M.(Eds.), (1984). *Behavioral health: A handbook of health enhancement and disease prevention*. New York, NY: Wiley.

Merton, R. K. (1957). *Social theory and social structure*. (Rev. and enl. edit.) New York, NY: Free Press.

Weisner, T. S. (1996). Why ethnography should be the most important method in the study of human development. In R. Jessor, A. Colby & R. A. Shweder (Eds.), *Ethnography and human development: Context and meaning in social inquiry*. Chicago, IL: University of Chicago Press.

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The Quality of Experience in Adolescents' Daily Lives: Developmental Perspectives

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ABSTRACT. The authors analyzed the pattern of experience fluctuation in adolescents' daily activities. Italian high school students (N = 120; 16–20 years of age) were tested with the experience sampling method, a technique based on on-line sampling of daily life and experience. A total of 4,794 forms were gathered and analyzed by means of a model for the study of experience fluctuations. Among daily activities, studying at home, doing classwork, watching television, and having structured leisure were selected as the focus of analysis on the basis of their frequency and meaning in the adolescents' lives. Results showed that (a) daily activities have unique experiential profiles, (b) engagement may be used as an index of long-term commitment to a given activity, (c) studying at home and doing classwork share this basic component and can foster behavioral development, (d) structured leisure can play an edifying role at the short-term level for a socially integrated transition to adulthood, and (e) watching television is associated with lack of goals and engagement and is a source of apathy. The results (a) shed light on the role of daily life experience in shaping individual development and (b) provide suggestions for educational and psychosocial intervention in adolescence.

RESEARCH ON ADOLESCENCE has produced a great amount of information regarding the unstable and fluctuating behavior of teenagers. Mood variability, impulsiveness (Larson & Csikszentmihalyi, 1980; Larson & Richards, 1994), and eclectic behaviors are often pointed to as clear symptoms of a transitory stage toward adulthood. Adolescence may be seen as an arena in which teens can recognize and practice their skills, build their identity (Harter, 1990; Kalakoski & Nurmi, 1998; Marsh, 1990), and find their social role within their cultural context (Jarvinen & Nicholls, 1996). It is a time during which young people experiment widely to find out what kind of person they would like to be. In the

solitude of their rooms, with friends, watching television, listening to music, and interacting with family and significant others, adolescents look for models, try out possible behaviors, and form future life expectations. On the one hand, individual factors come into play in determining teenagers' physical and cognitive development (Commons & Richards, 1984; Fischer, 1980; Piaget, 1936; Susman, 1997). On the other hand, cultural institutions such as school (Benjamin & Hollings, 1995; Ranson & Martin, 1996), and social contexts such as family and friends (Dornbusch & Glasgow, 1995; Gauze, Bukowski, Aquan-Assee, & Sippola, 1996; Smetana, 1995) help shape and overcome adolescents' "storm and stress" (Larson & Ham, 1993), focus fluctuating attention, and provide opportunities for action.

Despite adolescents' potential for growth and integration in their social and cultural settings, the psychological literature also indicates that deviant behavior, poor scholastic achievement, drug abuse, and social maladjustment often go hand in hand with the process of becoming an adult (Brooks-Gunn & Attie, 1996; Sameroff, Seifer, & Bartko, 1997). Apathy and boredom are experiences adolescents frequently associate with their daily lives, social interactions, productive activities, and even leisure activities (Shaw, Caldwell, & Kleiber, 1996).

What kind of suggestions can researchers draw about adolescents from these mixed outcomes? Is there a way to understand the deep-seated dynamic process that funnels teenagers' energy into positive constructive goals or into deviant and maladjusted behavior? Can teachers, psychologists, and social workers help direct adolescents toward becoming socially integrated, complex beings? Can researchers identify activities or contexts that are going to be preferentially selected by adolescents as opportunities for concentration and as life-long goals?

Several studies have pointed out the heuristic implications of chaos theory (Ayers, 1997; Duke, 1994) and nonlinear dynamic systems (Delle Fave, 1996a; Prigogine & Stengers, 1984; Thelen, 1990; van Geert, 1994) in the analysis of the developmental processes. In these approaches, researchers attempt to integrate individual and contextual factors that contribute to behavioral development from a dynamic perspective. Thus, these approaches can help researchers interpret behavioral changes and fluctuations that occur in an evolving, complex, adaptive system—the individual—that undergoes a life-long process of growth (Eidelson, 1997). The increasing complexity of human information and behavior (Jaques & Cason, 1994) has also been analyzed by means of growth modeling approaches (Willett, 1997).

We examined adolescents' behavior within a composite framework. On the one hand, we took into account the theoretical implications of complexity theo-

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ry. On the other hand, we emphasized the active role of the individual in shaping and transforming his or her life goals and interests (Freeman & Robinson, 1990) and the influence of individual values and meanings in building identity and in fostering personal cognitive development (Ferrari & Mahalingam, 1998).

Individuals act as open living systems, exchanging information with their natural and cultural environments. They preferentially select and replicate information and opportunities for action on the basis of the quality of experience. This process has been labeled *individual psychological selection* (Csikszentmihalyi & Massimini, 1985; Massimini, Inghilleri, & Delle Fave, 1996).

As first pointed out by Csikszentmihalyi (1975, 1978), among the different states of consciousness arising during daily life, Optimal Experience (or Flow) has been identified as a peculiarly positive and complex one. Cross-cultural research findings show that the great majority of tested individuals recognize Flow experience in their lives and agree in describing it as an ordered state of consciousness characterized by the merging of action and awareness, deep concentration, clear rules in and unambiguous feedback from the task at hand, loss of ego or loss of self-consciousness, control of one's actions and environment, and intrinsic reward (Csikszentmihalyi, 1982; Csikszentmihalyi & Csikszentmihalyi, 1988). The two major variables involved in the emergence of Optimal Experience are the challenges or opportunities for action that individuals perceive in the ongoing activity and the personal skills or abilities needed to cope with them. When both challenges and skills are high, Flow experience is likely to arise.

Because of its global positive and rewarding features, Flow is a state of consciousness people tend to replicate. In particular, those activities that offer the prerequisites to Flow emergence are likely to be selected as preferential foci of attention, both in daily life and in the life-long perspective of psychological selection. Optimal Experience plays a key role in individual development: The more a Flow-inducing activity is carried out, the more the personal skills involved in coping with it improve. Therefore, for the individual to restore the high balance between challenges and skills required for Flow emergence, higher challenges in the activity have to be found. This dynamic process of balance upset and restoration can be a life-long source of personal development, complexity, and order in consciousness.

Psychological selection shapes individual behavior. The preferential replication of Flow-inducing opportunities for action gives rise to a personal Life Theme (Csikszentmihalyi & Beattie, 1979; Massimini & Delle Fave, 1995), which is defined as a set of peculiar activities, social relations, and life goals an individual uniquely cultivates and pursues.

In contrast to Optimal Experience is the experience of Apathy. Numerous research studies have stressed the basically negative nature of such a destructuring state. In particular, in studies of adolescence, Apathy has been described as loss of motivation, withdrawal, loss of interest, inability to study (Kasai, Muramatsu, Hosaka, & Miura, 1995), and refusal to attend school (Matsubara, 1993; Tsuru-

ta, 1996). Apathy is characterized by the perception of a negative balance between challenges and personal skills (Delle Fave, 1996a). There is no potential for growth in this experience. Adolescents, however, have to deal with activities that are not challenging every day. With no focus of attention and no opportunities for action whatsoever, consciousness starts to disintegrate, complexity wanes, and potential social maladjustment and deviant behaviors ensue.

Because it is a period of social and personal exploration and of commitment to future-oriented goals (Nurmi, Poole, & Kalakoski, 1993), adolescence becomes the major source for investigating and trying to predict what kinds of adults teenagers will become, what kinds of jobs they are likely to choose, what kinds of families they are going to have, and what kinds of experiences will be central in their lives. The theoretical approach based on psychological selection can help interpret teenagers' daily lives and identify Flow-inducing activities and personal Life Themes.

In the present study we focused on the investigation of adolescents' daily lives and experiences. The most frequent everyday activities are identified, related experiences are probed, and peculiarities are highlighted. Each activity presents a unique profile that can fluctuate across different experiences such as Flow and Apathy. However, some activities are preferentially associated with one or the other. This association depends on the characteristics of the activities and on adolescents' subjective perceptions. It has also been observed that, in some activities, associated experience is not completely negative even when challenges and skills are (as in the case of Apathy). Implications for individual development toward complexity are identified, and possible intervention strategies are suggested.

Method

Sample and Procedure

The sample consisted of 120 adolescents (58 boys and 62 girls) between 16 and 20 years of age. They were balanced as far as age and gender are concerned: 38 participants (20 girls and 18 boys) were in their 3rd year of high school, 40 (20 girls and 20 boys) were in the 4th year, and 42 (22 girls and 20 boys) were in their 5th (last) year. The sample was from a Liceo Classico in Milan. This type of school was chosen on the basis of its demanding educational curriculum comprising a broad range of humanistic and scientific subjects.

Data were gathered by means of the experience sampling method (ESM), first developed by Csikszentmihalyi, Larson, and Prescott (1977). Each participant was given a booklet of ESM questionnaires and an electronic pager that emitted a beeping sound at random intervals. The participants carried the questionnaires and pager with them during all the hours of the week they were tested. When the pager signaled, the participants were to fill out a report. Questionnaires filled out more than 15 min after the beep were discarded from analysis.

The sample was tested for 1 week, from 8 a.m. to 10 p.m. Monday to Friday, from 8 a.m. to 12 a.m. on Saturday, and from 10 a.m. to 10 p.m. on Sunday. After the testing sessions, 4,794 ESM questionnaires were collected.

The standard ESM self-report is designed to investigate both contextual and experiential variables, to give an on-line description of a person's daily life. In the present study, open-ended questions were used to gather information about the students' thought content, actual and preferred activities, places they were in, and social contexts. In addition, Likert-type and semantic-differential scales were used to assess psychological variables in terms of cognitive, emotional, and motivational dimensions (Csikszentmihalyi & Larson, 1984). Given the repeated sampling, the data were standardized on each participant's weekly mean for every variable before we performed the analyses. In particular, we report z scores that were calculated from the number of participants and not from the number of questionnaires each adolescent filled out (Larson & Delespaul, 1992). We used factor analysis (varimax rotation) to identify four main dimensions of experience: mood (happy, cheerful, sociable, friendly); engagement (concentration, alert, active, at stake); confidence (control, clear, unself-conscious, relaxed); and intrinsic motivation (free, wish to do the activity, ease of concentration, excited).

The ESM questionnaire also included two scales that measured the level of challenges the adolescents perceived in the ongoing activity and the level of personal skills required to cope with those challenges. On the basis of the kind of relationship between challenges and skills with respect to the subjective average (standardized values), the experience fluctuation model was devised (Massimini, Csikszentmihalyi, & Carli, 1987), dividing the Cartesian plane into eight areas called channels. Four main experiential states were identified (see Figure 1):

- Optimal Experience or Flow (Channel 2): Challenges and skills are balanced and are higher than the subjective average.
- Relaxation (Channel 4): Challenges are lower and skills are higher than average.
- Apathy (Channel 6): Challenges and skills are balanced but below average.
- Anxiety (Channel 8): Challenges are higher and skills are lower than average.

Each channel was also divided into three main areas, called rings, which identified the distance of the values of challenges and skills from the center of the model—that is, the subjective mean (Delle Fave, 1996a). Ring 1 ranged from 0 to .90 standard deviations from the center, Ring 2 from .90 to 1.8, and Ring 3 from 1.8 to 2.7. A fourth ring, which was over 2.7 standard deviations, was also found but did not occur frequently enough to be part of the present analysis. The additional division of the channels into rings allowed us to analyze possible changes in the quality of experience related to the participants' perceptions of the different values of the challenges and skills within each channel.

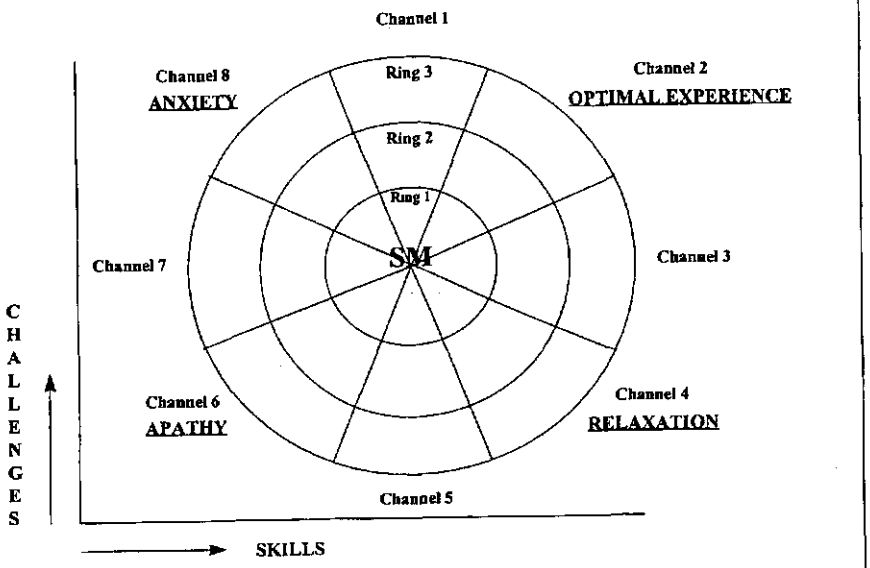

FIGURE 1. Experience fluctuation model. The eight channels identify different experiential states on the basis of the perceived challenges/skills ratio.

Several studies (Delle Fave, 1996b; Delle Fave & Massimini, 1992; Kubey & Csikszentmihalyi, 1990; Massimini & Carli, 1988) have shown that Channel 2 is associated with the most positive and complex state of consciousness, whereas Channel 6 is associated with a state of psychic disorganization and entropy. Studying and understanding these states of consciousness and, above all, the activities or contexts that can enhance such experiences, can be of great help to researchers in their analyses of adolescence, in terms of future adult development and behavior.

Results

Activity Distribution

The daily activities our sample was involved in (and their frequencies) are shown in Figure 2.

Studying at home and doing classwork were the most frequently reported activities. In line with the Italian school system, students are required to spend 5 hr at school every day from 8 a.m. to 1 p.m. Afternoons and sometimes evenings are supposed to be devoted to homework and further studying. Although studying was the major activity the adolescents were busy doing (33.5%), socializing was

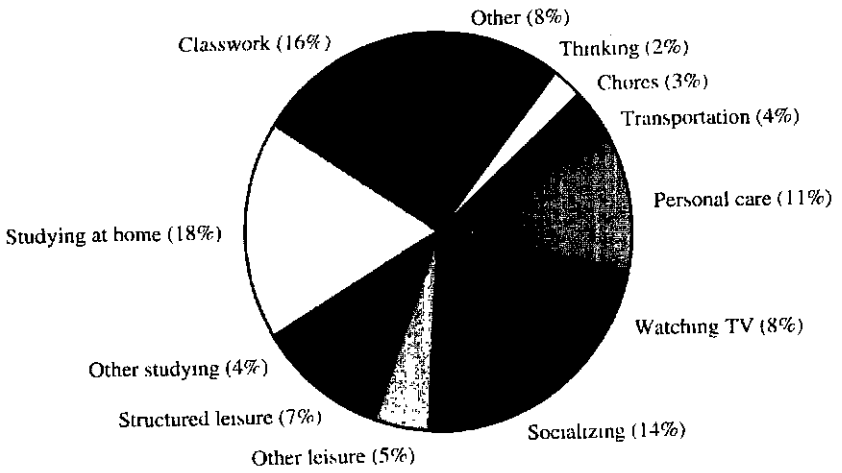

FIGURE 2. Frequency distribution of daily activities. Percentages have been rounded to the nearest whole number. *N* reports = 4,786.

the next largest category of activity, followed by personal care, watching television, and structured leisure (sports, arts, hobbies, and reading). According to the classification by Csikszentmihalyi and Larson (1984), the Italian adolescents in our sample spent 37.1% of their time in productive activities (studying at home, classwork, other related activities), 36.6% in leisure activities (structured leisure, other free-time activities, socializing, watching television, thinking), and 17.9% in maintenance (personal care, transportation, chores, and errands).

To be consistent with the purpose of this article, we have focused our investigation on four major categories, namely, studying at home, classwork, watching television, and structured leisure. It is reasonable to assume that school activities, homework, and structured leisure activities are very common sources of opportunities for action that will play a meaningful role in individual psychological selection and Life Theme. Watching television was added to the analysis because it has become a dominant activity in modern adolescents' lives.

Quality of Experience in Daily Activities

The overall quality of experience associated with the selected daily activities is reported in Table 1. Studying at home was characterized by very high engagement, $t(118) = 14$, $p < .001$, and average confidence. Mood and intrinsic motivation were significantly lower than the mean, $t(118) = -8.8$, $p < .001$, and $t(119) =$

TABLE 1
Quality of Experience in Daily Activities

Variable	Studying at home (n = 120)[a]	Classwork (n = 119)[a]	Watching television (n = 106)[a]	Structured leisure (n = 103)[a]
Mood	−.35***	−.06	−.0	.08
Happy	−.22***	−.17***	.08	.15**
Cheerful	−.22***	−.08	.04	.09
Sociable	−.46***	.10*	−.15*	−.05
Friendly	−.11**	−.07	.0	.03
Engagement	.64***	.31***	−.67***	.15*
Concentration	.57***	.37***	−.17*	.22***
Alert	.08*	.08	−.34***	.14*
Active	.25***	.05	−.52***	.14*
At stake	.73***	.31***	−.80***	−.02
Confidence	.04	−.43***	.26***	.25***
Control	.01	−.26***	.07	.13*
Clear	.07	−.14**	.0	.20**
Unself-conscious	.15***	−.29***	.21***	.03
Relaxed	−.08*	−.41***	.38***	.21***
Intrinsic motivation	−.69***	−.52***	.31***	.47***
Free	−.49***	−.49***	.28***	.42***
Wish to do activity	−.44***	−.37***	.25***	.45***
Ease of concentration	−.75***	−.48***	.36***	.25***
Excited	−.32***	−.18***	−.10	.16
Creative	.11*	.06	−.30***	.22**
Satisfaction	−.08	−.17***	−.18**	.16*
Goals	.55***	.24***	−.50***	.15
Number of self-reports	846	753	394	343

[a]Number of participants.
*p < .05. **p < .01. ***p < .001

−14.8, $p < .001$, respectively, and lower than the scores reported in the other activity categories, as shown by analysis of variance, $F(3) = 12.7$, $p < .001$, and $F(3) = 121.9$, $p < .001$, respectively. In particular, the students did not feel free to choose whether to study or not, $t(118) = -10.4$, $p < .001$, and they found it difficult to concentrate, $t(119) = -13.5$, $p < .001$. However, they did concentrate on the task at hand, $t(119) = 11.1$, $p < .001$, reporting high goals, $t(86) = 8.2$, $p < .001$, and high scores for the variable at stake, $t(119) = 13.4$, $p < .001$. As Table 1 shows, studying at home was the most engaging daily activity, $F(3) = 100.9$, $p < .001$. At the same time, the students could organize and structure their energy and involvement at will, without adult control, evaluation, or comparison, as

shown by the average level of perceived confidence and specifically lack of self-consciousness, $t(119) = 5.2$, $p < .001$.

Classwork was similarly associated with significantly high engagement, $t(117) = 6.9$, $p < .001$, even if it was not rated as high as studying at home. As expected, intrinsic motivation was negative, $t(117) = -10.7$, $p < .001$, because studying at school involves compulsory activities directed and structured mainly by adults. Moreover, the presence of other people, whether they were peers or teachers, had a relevant impact on our sample's confidence, making the level drop significantly below the average, $t(117) = -9.4$, $p < .001$. In contrast with the experience reported for studying at home, students at school were confronted with classmates and with oral and written examinations. Thus they felt extremely self-conscious, $t(118) = -6.7$, $p < .001$, and found it hard to concentrate, $t(118) = -10.1$, $p < .001$. At the same time, average mood values could be related to the presence of other people, as opposed to studying at home, an activity often carried out on one's own, in solitude, and with no external sources of comparison.

Watching television revealed rather unique experiential features, in contrast with the overall experience associated with studying. Engagement was extremely low, $t(104) = -10.6$, $p < .001$, along with the goals perceived in the activity, $t(78) = -11.8$, $p < .001$. Watching television is clearly a passive leisure activity but freely sought after and intrinsically motivated, $t(102) = 5.6$, $p < .001$. Students also reported average mood and high confidence, $t(104) = 5.3$, $p < .001$; they were moderately in control of the situation, relaxed, $t(104) = 6.3$, $p < .001$, and unself-conscious, $t(105) = 5.5$, $p < .001$.

Structured leisure was characterized by a globally positive experience. The data indicated that the students freely chose to take part in structured leisure activities such as sports, reading, arts, and hobbies. They reported being intrinsically motivated, $t(99) = 7.7$, $p < .001$, engaged, $t(101) = 2.2$, $p < .04$, and at the same time confident, $t(101) = 4.6$, $p < .001$. This kind of overall positive profile is close to Optimal Experience, but with a major important difference: Structured leisure does not pose high significant goals and is not worth committing as much personal engagement to as is studying.

Because we wanted to understand the importance and the far-reaching effects of the selected activities in our sample's daily lives, our analysis went beyond the investigation of overall experiential profile. Each activity was alternatively and consequently associated with different kinds of experiential states on the grounds of the relationship perceived between challenges and skills with respect to the subjective mean. In particular, our attention was focused on the experience associated with these activities in Channel 2 and Channel 6.

Activity Distribution in Channel 2 and Channel 6

Quite relevant differences were identified in our sample (see Table 2). In Channel 2, studying at home and socializing were the prevailing activities. Class-

TABLE 2
Activity Percentage Distribution

Activity	Channel 2 (n = 892)[a]	Channel 6 (n = 771)[a]
Classwork	14.2	17.4
Studying at home	22.4	17.5
Other studying	2.1	4.4
Structured leisure	10.5	3.8
Other leisure	3.5	5.3
Socializing	20.0	10.1
Watching television	3.4	11.5
Personal care	8.0	11.5
Transportation	4.6	4.0
Chores and errands	1.8	1.8
Thinking	2.1	1.7
Other	7.4	11.0

[a]Number of self-reports

work, structured leisure, and personal care came next. Watching television was reported only 3.4% of the time, half the figure in the average frequency distribution (Figure 2). In Channel 6, again, studying at home was reported with the highest frequency, although less frequently than in Channel 2. Classwork followed, with a slightly lower percentage. Both personal care and watching television were reported more frequently than they were in Channel 2, whereas socializing dropped to 10.1% and structured leisure to 3.8%. In particular, the analysis of the frequency distributions in the two channels highlights peculiar opposite patterns for watching television and structured leisure. Watching television fell mostly into Channel 4 (26.6%) and Channel 6 (22.6%), which are characterized by low levels of challenges. On the contrary, structured leisure had the highest frequency in Channel 2 (27.4%), showing that it is perceived as an opportunity for action and self-expression.

The data in Table 1 show the distinct experiential profiles for the four activities selected for analysis. We examined whether such differences could be detected also within Channel 2 and Channel 6, and whether there were salient characteristics that could help us understand how adolescents cope with Apathy or find Flow in the selected activities.

Flow and Apathy in the Selected Activities

In Channel 2, all the variables had higher scores (see Table 3), whether, on average, they were positive or negative. The score for mood was significantly higher than the subjective mean for classwork, $t(70) = 3$, $p < .004$, and watching

television, $t(22) = 3$, $p < .008$; it was positive but not significant for structured leisure, and not as negative as the average for studying at home, $t(79) = -2.2$, $p < .03$. Engagement was high for all activities, including watching television, which was significantly negative on average. However, the variable at stake was still negative for watching television, hinting at the global passivity of watching television, and it became significantly positive for structured leisure, $t(50) = 2.9$, $p < .006$. Confidence, too, was high for all activities and positive for classwork, which, on average, had significantly negative values for this dimension of experience. Intrinsic motivation improved: Even if it was still negative for studying at home, $t(79) = -2.5$, $p < .02$, it was close to the mean for classwork and signifi-

TABLE 3
Quality of Experience in Channel 2

Variable	Studying at home ($n = 81$)[a]	Classwork ($n = 71$)[a]	Watching television ($n = 23$)[a]	Structured leisure ($n = 51$)[a]
Mood	−.16*	.26**	.45**	.16
Happy	.01	.19*	.46*	.42***
Cheerful	−.12	.18*	.33	.24*
Sociable	−.45***	.19*	.32*	−.18
Friendly	.12	.21*	.31	.11
Engagement	.92***	.78***	.26	.52***
Concentration	.90***	.79***	.60***	.51***
Alert	.25***	.34***	.62***	.16
Active	.27***	.35***	−.03	.31***
At stake	.96***	.60***	−.21	.35**
Confidence	.44***	.17	.29*	.49***
Control	.49***	.42***	.50**	.39**
Clear	.36***	.44***	.32	.38***
Unself-conscious	.25***	−.27*	.04	.15
Relaxed	.05	−.18	.05	.37***
Intrinsic motivation	−.21*	.10	.81***	.76***
Free	−.18*	.04	.56***	.58***
Wish to do activity	−.13	.15	.57***	.72***
Ease of concentration	−.24**	−.28**	.44***	.32**
Excited	.0	.28**	.73***	.55***
Creative	.37***	.38***	.13	.48***
Satisfaction	.44***	.44***	.39*	.60***
Goals	.69***	.56***	.11	.52**
Number of self-reports	200	127	30	94

[a]Number of participants.
*$p < .05$. **$p < .01$. ***$p < .001$.

cantly high for watching television, $t(22) = 7.6$, $p < .001$, and structured leisure, $t(46) = 10.8$, $p < .001$.

In Channel 6 (Table 4), experience was globally negative for all but a few meaningful exceptions.

Not surprisingly, mood was extremely negative for studying at home, $t(71) = -7$, $p < .001$, and classwork, $t(70) = -3.1$, $p < .004$, and not as low for watching television, $t(51) = -2.6$, $p < .02$, and structured leisure. Engagement was still astonishingly high for studying at home, $t(71) = 2.9$, $p < .006$, if we remember that Channel 6 is characterized by challenges and skills below average and that all the

TABLE 4
Quality of Experience in Channel 6

Variable	Studying at home ($n = 72$)[a]	Classwork ($n = 73$)[a]	Watching television ($n = 52$)[a]	Structured leisure ($n = 20$)[a]
Mood	−.58***	−.32**	−.27*	.02
Happy	−.42***	−.48***	−.10	.25
Cheerful	−.39***	−.26**	−.10	.17
Sociable	−.52***	.0	−.31**	−.21
Friendly	−.35***	−.21	−.23	−.15
Engagement	.26**	−.33***	−.93***	−.21
Concentration	.12	−.21*	−.41**	−.18
Alert	−.07	−.28**	−.55***	.35
Active	.09	−.33**	−.71***	−.01
At stake	.46***	−.15	−.86***	−.58**
Confidence	−.28**	−.80***	.03	.03
Control	−.29***	−.72***	−.10	−.34
Clear	−.24*	−.50***	−.28**	−.14
Unself-conscious	.20***	−.51***	.18*	.31
Relaxed	−.27**	−.44***	.30**	.25
Intrinsic motivation	−1.22***	−1.12***	.03	−.0
Free	−.80***	−.80***	.14	.19
Wish to do activity	−.84***	−.84***	−.05	−.03
Ease of concentration	−1.11***	−.82***	.19	.04
Excited	−.71***	−.67***	−.36**	−.05
Creative	−.27**	−.26*	−.51***	.02
Satisfaction	−.58***	−.73***	−.31**	−.43
Goals	.48**	−.16	−.58***	−.29
Number of self-reports	135	134	89	29

[a]Number of participants.
*$p < .05$. **$p < .01$. ***$p < .001$.

other major variables were negative for studying at home. Engagement dropped to values lower than average for classwork, $t(70) = -3.7$, $p < .001$, watching television, $t(51) = -9$, $p < .001$, and structured leisure. Confidence was significantly lower for studying at home, $t(70) = -2.8$, $p < .007$, and classwork, $t(72) = -9.2$, $p < .001$, whereas it was close to the mean for watching television and structured leisure. Again, intrinsic motivation was significantly negative for studying at home, $t(71) = -13.9$, $p < .001$, and classwork, $t(69) = -12.8$, $p < .001$, and it was close to the average for watching television and structured leisure.

Fluctuation of Experience in the Rings

Tables 5 and 6 show the percentage distribution of the activities in Channel 2 and Channel 6 and the related fluctuations of experience in the rings of the experience fluctuation model. Studying at home and classwork showed clear patterns of fluctuation passing from Ring 1 to Ring 3, both in Channel 2 and Channel 6. Experience became more and more positive in Channel 2 and more and more negative in Channel 6. Both studying activities emerged as sources of complexity in daily life and as potential components of personal Life Theme, thanks

TABLE 5
Quality of Experience in the Rings—Channel 2

Ring	Mood	Engagement	Confidence	Intrinsic motivation	SS[a]	n[b]	%n[b]
Studying at home					118	199	
Ring 1	−.29*	.80***	.22*	−.47***	41	57	28.6
Ring 2	−.08	.86***	.43***	−.26*	56	108	54.3
Ring 3	−.41**	1.15***	.62***	.01	21	34	17.1
Classwork					92	121	
Ring 1	.17	.53***	−.18	−.06	29	37	30.6
Ring 2	.31*	.76***	.26*	.05	44	64	52.9
Ring 3	.62**	1.23***	.60*	.40	19	20	16.5
Watching television					27	30	
Ring 1	.55*	.13	.44*	.69***	9	11	36.7
Ring 2	.42	.20	.25	.91***	13	14	46.6
Ring 3	.31	.45	.55	.75	5	5	16.7
Structured leisure					63	93	
Ring 1	−.05	−.26	.10	.44*	10	13	14.0
Ring 2	.08	.38*	.54***	.74***	32	55	59.1
Ring 3	.25	.95***	.45**	.92***	21	25	26.9

[a]Number of participants. [b]Number of self-reports.
*$p < .05$. **$p < .01$. ***$p < .001$.

TABLE 6
Quality of Experience in the Rings—Channel 6

Ring	Mood	Engagement	Confidence	Intrinsic motivation	SS[a]	n^b	$\%n^b$
Studying at home					92	132	
Ring 1	−.50**	.59***	−.04	−1.08***	36	45	34.1
Ring 2	−.60***	.12	−.26*	−1.26***	39	67	50.8
Ring 3	−.69**	−.05	−.92*	−1.53***	17	20	15.1
Classwork					93	129	
Ring 1	−.30	−.03	−.50*	−.92***	22	31	24.1
Ring 2	−.19	−.35**	−.74***	−1.14***	53	75	58.1
Ring 3	−.61*	−.53*	−1.17***	−1.33***	18	23	17.8
Watching television					60	88	
Ring 1	−.02	−.36	.41*	.28	9	12	13.6
Ring 2	−.17	−.88***	.06	.10	37	58	65.9
Ring 3	−.62*	−1.41***	−.16	−.30	14	18	20.5
Structured leisure					23	29	
Ring 1	.59*	−.25	.51	.13	8	10	34.5
Ring 2	−.28	.05	−.11	−.04	10	14	48.3
Ring 3	.11	−.60	−.04	.14	5	5	17.2

[a]Number of participants [b]Number of self-reports.
*$p < .05$. **$p < .01$. ***$p < .001$.

to the major role played by engagement. Even if Ring 3 in Channel 2 was not the most frequent ring for these activities, engagement was the crucial component of experience for studying at home, $t(20) = 7.42$, $p < .001$, and classwork, $t(18) = 8.61$, $p < .001$. Engagement was even positive in Ring 1 in Channel 6 for studying at home, $t(34) = 4.10$, $p < .001$, and not as dramatically negative in Ring 3 for classwork, $t(50) = -3.22$, $p < .002$, as it was for watching television, $t(13) = -9.95$, $p < .001$.

Watching television rarely fell into Channel 2; therefore, little can be said about its experiential fluctuation in the rings. There was no clear improvement in the experiential dimensions passing from Ring 1 to Ring 3. Moreover, in Channel 6, watching television had the highest percentage in Ring 3 (20.5%). In this area, the value of engagement dropped dramatically, $t(13) = -9.95$, $p < .001$. However, even in Ring 3, intrinsic motivation and confidence did not become as negative as in studying at home, $t(16) = -17.4$, $p < .001$; $t(16) = -3.90$, $p < .001$, respectively, or classwork, $t(15) = -7.46$, $p < .001$; $t(17) = -4.21$, $p < .001$, respectively.

Structured leisure was seldom associated with Channel 6; therefore, its experiential pattern was globally nonsignificant. However, we noticed that it was not extremely negative, in line with its overall experiential profile. Mood was sig-

nificantly positive in Ring 1, $t(7) = 2.68$, $p < .031$, slightly negative in Ring 2, and about average in Ring 3; intrinsic motivation was moderately positive in Ring 1, moderately negative in Ring 2, and moderately positive in Ring 3. Conversely, in Channel 2, structured leisure showed the highest frequency of reports in Ring 3 (26.9%) compared with the other selected activities. In this case, the most important dimension was intrinsic motivation, which had the highest score, $t(20) = 7.74$, $p < .001$. Engagement was not as high as in studying at home and classwork, but for structured leisure it was still the dimension with the highest rating, $t(19) = 5.28$, $p < .001$.

Discussion

On the basis of the present analyses, we can attempt to define the role each activity is likely to play in the lives of these adolescents.

In general, studying was the major activity these adolescents carried out daily. Despite being a compulsory activity, it is engaging, requires concentration, and is likely to be associated with Optimal Experience. Therefore, studying can be preferentially selected and cultivated as a component of personal Life Theme. When studying at home, these students were often alone and wished to be doing something else: Their mood and intrinsic motivation were negative, even in Channel 2. However, many studies (Csikszentmihalyi, 1996; Delle Fave & Larson, 1986; Larson, 1997) have shown that solitude can be a fruitful opportunity for creative behavior and personal growth, and for building identity. Especially from early adolescence on, solitude has a constructive role as a strategic retreat that complements social experience and enhances self-confidence. Moreover, the adolescents in this study associated studying at home with very high levels of engagement and clear goals that remained positive and above average, even when challenges and skills were negative and below the mean, as in Channel 6.

Watching television was more commonly associated with Apathy than with Optimal Experience. Other studies have pointed out that adolescents' private use of media can be a source of behavioral and identity models (Larson, 1995), and that watching television has a better experiential profile when it is not a solitary activity and other members of the family are present (Delle Fave, 1998). Whether on average, in Channel 2, or in Channel 6, watching television was never associated with an extremely negative experience in terms of mood, motivation, or confidence. It was freely sought after, relaxing, and under control. However, our sample was extremely passive while watching television. No goals were set, no stakes were made, and no engagement was perceived in the activity.

Finally, structured leisure was characterized by an average experience close to Flow. In general, our students reported average engagement, high confidence, and high intrinsic motivation. The distribution percentage of structured leisure and the associated experience in Ring 3 of Channel 2 suggest that this activity can be a source of complexity in behavior. In addition to high engagement—

even if not as high as in studying at home and classwork—no other activity was so intrinsically motivated and thus freely chosen and carried out as was structured leisure.

The results of the present study may have theoretical and practical implications. First, the major theoretical contribution resides in the identification of one of the basic aspects of Flow, namely engagement. Its main implication is in the long-term perspective. The values of engagement in the various activities can be indices of complexity and predictors of future goals and activity cultivation (see also Greene & Miller, 1996; Higgins & Trope, 1990; Wehlage, 1989). In particular, even compulsory activities such as studying at home and doing classwork can be perceived as sources of Flow and can therefore influence individuals' lives and future vocational choices. In these cases, the main feature of Optimal Experience is engagement in the activity and the improvement of the quality of the experience in the rings of Channel 2. Engagement in studying at home is a crucial dimension of experience, even when challenges and skills are below average and Apathy rises. Therefore, engagement can be considered a key variable in shaping Optimal Experience and a potential means of stepping out of Apathy (Channel 6).

In contrast with productive activities, watching television is characterized by predominant high values for intrinsic motivation and confidence. Both dimensions are significantly positive in Channel 2, and about average in Channel 6. As has also been found in other research studies, watching television is considered a relaxing leisure activity (Kleiber, Larson, & Csikszentmihalyi, 1986; Kubey & Csikszentmihalyi, 1990): On the grounds of its positive emotional and motivational features, in Channel 6 it exerts a sort of "parachute effect," preventing adolescents' attention and consciousness from falling into irreversible disorder (Delle Fave & Massimini, 1994; Delle Fave, Massimini, & Borri Gaspardin, 1993). However, the lack of goals and engagement make it difficult for adolescents to step out of Apathy and head toward more complex and challenging opportunities for action. Therefore, watching television is not a source of long-term growth, and it is seldom associated with Channel 2 and Optimal Experience (Massimini, Delle Fave, & Borri Gaspardin, 1992).

In contrast, structured leisure activities offer high levels of engagement and intrinsic motivation, can attract adolescents' attention, and represent a complex source of Flow. In general, free-time activities have been identified as involving great freedom, intrinsic motivation, and positive affect (Kleiber, Larson, & Csikszentmihalyi, 1986). However, being unstructured and free, these activities can easily be associated with Apathy or even socially harmful behaviors. Structured leisure, instead, includes transitional activities similar in demand characteristics to serious adult roles. Thus, it can play a short-term structuring role in adolescents' personal development (Kleiber & Kirshnit, 1991; Kleiber, Larson, & Csikszentmihalyi, 1986) and can be crucial for an orderly and socially integrated transition toward adult behaviors.

The experiential profile associated with the students' most frequent activities

varies not only according to the challenges/skills ratio (channels) but also according to the intensity of the relationship (rings). The higher the balanced ratio between opportunities for action and abilities in facing them, the more positive and complex the associated experience. By contrast, experience gets worse and worse when challenges and skills plunge below the average. Yet each activity retains its unique profile across the rings.

In particular, the pattern of experience fluctuation in the rings of Channel 2 emphasizes the roles of studying and structured leisure in adolescents' development. Thanks to their intrinsic complexity, these activities are virtually unlimited sources of challenges that can be faced with a suitable increase in personal skills. Therefore, they can be cultivated and become part of the Life Theme. Moreover, the association of studying with Optimal Experience is particularly meaningful in that this activity provides skills and information that can be useful for building adolescents' social and cultural identities.

Second, the findings from this study have practical value. On the one hand, the results show the methodological usefulness of the ESM and the experience fluctuation model in coding, assessing, and interpreting how students perceive their everyday contexts, activities, and associated experiences. On the other hand, the results provide interesting suggestions in terms of adolescents' behavior and psychosocial interventions. Knowing the major experiential components of Apathy and the activities that are likely to be associated with it, researchers can have a better understanding of the anatomy of deviant behavior (Delle Fave & Massimini, 1992) in school, at home, or in interactions with peers and society (Csikszentmihalyi & Larson, 1978). They can also investigate maladjusted behaviors as possibly associated with Flow-like experiences and intrinsic reward (Delle Fave, 1996c). Finally, they can help adolescents look for complex and socially accepted activities that can be an opportunity for challenges and Optimal Experience.

Conclusions

Adolescence is a crucial period for building life goals and values. Not only do teenagers face deep changes at the physical and psychological levels, but they also have to cope with the demands of their cultural environment. As this study shows, the quality of experience they associate with daily activities can direct their psychological selection, namely, the process that allows them to identify those activities and contexts that will be preferentially cultivated in their future lives.

In particular, the association of Flow with culturally meaningful activities, such as studying, is an important premise for individual future ability to successfully cope with the challenges of the productive world. Adolescents can be equipped to perceive significant opportunities for engagement and personal growth in their work. As clearly shown in the present study, Flow does not necessarily mean fun. It is a complex and structured experience that helps individuals actively shape their own life goals and identity. For example, regarding study-

ing, a school system based on passive learning and the transmission of ready-made easy notions can lead students to Apathy, lack of involvement in school subjects, and a search for alternative, sometimes deviant sources of Optimal Experience. Students should be encouraged to use their abilities and to find challenges during classwork and homework (Ranson & Martin, 1996).

At the same time, selective allocation of attention and energy to structured leisure activities can help students organize free time in their search for high challenges and active involvement. Activities such as reading, sport, arts, and hobbies can become effective sources of Flow experience, thanks to their complex structure and to the intrinsic motivation and engagement adolescents report in performing them.

In contrast with previous generations, adolescents in post-industrial societies have more time to define their Life Theme and main goals. School and free time are the two main contexts in which they can put themselves to the test, discover their attitudes, and build their skills. Teenagers' successful integration into the cultural environment is rooted in the active selection of the available opportunities for action. The level of complexity and cultural relevance of the activities they preferentially cultivate as sources of Flow experience will influence the quality and extent of their personal growth and development. To provide youths with enriching and challenging environments, educators and parents should pay attention to these issues. Thus, they can help adolescents make their lives worth experiencing, with engagement and motivation in pursuing adult life goals.

REFERENCES

Ayers, S. (1997). The application of chaos theory to psychology. *Theory & Psychology, 7*(3), 373–398.

Benjamin, M., & Hollings, A. E. (1995). Toward a theory of student satisfaction: An exploratory study of the "Quality of Student Life." *Journal of College Student Development, 36*(6), 574–586.

Brooks-Gunn, J., & Attie, I. (1996). Developmental psychopathology in the context of adolescence. In M. F. Lenzenweger & J. J. Haugaard (Eds.), *Frontiers of developmental psychopathology* (pp. 148–189). New York: Oxford University Press.

Commons, M. L., & Richards, F. A. (1984). A general model of stage theory. In M. Commons, F. Richards, & C. Armon (Eds.), *Beyond formal operations: Late adolescent and adult cognitive development* (pp. 120–140). New York: Praeger.

Csikszentmihalyi, M. (1975). *Beyond boredom and anxiety.* San Francisco: Jossey-Bass.

Csikszentmihalyi, M. (1978). Attention and the holistic approach to behavior. In K. S. Pope & J. L. Singer (Eds.), *The stream of consciousness* (pp. 335–358). New York: Plenum Press.

Csikszentmihalyi, M. (1982). Toward a psychology of Optimal Experience. In L. Wheeler (Ed.), *Review of personality and social psychology* (Vol. 3, pp. 13–36). Beverly Hills, CA: Sage.

Csikszentmihalyi, M. (1996). *Creativity. Flow and the psychology of discovery and invention.* New York: HarperCollins.

Csikszentmihalyi, M., & Beattie, O. (1979). Life themes: A theoretical and empirical exploration of their origins and effect. *Journal of Humanistic Psychology, 19*(1), 45–63.

Csikszentmihalyi, M., & Csikszentmihalyi, I. (Eds.). (1988). *Optimal Experience. Psychological studies of Flow in consciousness.* New York: Cambridge University Press.

Csikszentmihalyi, M., & Larson, R. (1978). Intrinsic rewards in school crime. *Crime & Delinquency, 24*(3), 322–335.

Csikszentmihalyi, M., & Larson, R. (1984). *Being adolescent* New York: Basic Books.

Csikszentmihalyi, M., Larson, R., & Prescott, S. (1977). The ecology of adolescent activity and experience. *Journal of Youth and Adolescence, 6,* 281–294.

Csikszentmihalyi, M., & Massimini, F. (1985). On the psychological selection of bio-cultural information. *New Ideas in Psychology, 3*(2), 115–138.

Delle Fave, A. (1996a). Esperienza ottimale e sviluppo del comportamento: Evidenze sperimentali [Optimal experience and behavior development: Experimental evidence]. In F. Massimini, P. Inghilleri, & A. Delle Fave (Eds.), *La selezione psicologica umana. Teoria e metodo d'analisi* (pp. 569–598). Milan, Italy: Cooperativa Libraria IULM.

Delle Fave, A. (1996b). Esperienza ottimale e fluttuazioni dello stato di coscienza: risultati sperimentali [Optimal experience and fluctuations of the state of consciousness]. In F. Massimini, P. Inghilleri, & A. Delle Fave (Eds.), *La selezione psicologica umana. Teoria e metodo d'analisi* (pp. 541–568). Milan, Italy: Cooperativa Libraria IULM.

Delle Fave, A. (1996c). Tossicodipendenza e qualità dell'esperienza: un fenomeno di mimetismo [Drug addiction and quality of experience: A mimetic phenomenon]. In F. Massimini, P. Inghilleri, & A. Delle Fave (Eds.), *La selezione psicologica umana. Teoria e metodo d'analisi* (pp. 635–652). Milan, Italy: Cooperativa Libraria IULM.

Delle Fave, A. (1998, July). *Italian adolescents and daily family interaction: The influence of gender and cultural context on subjective experience.* Paper presented at the XVth International Society for the Study of Behavioral Development meeting, Berne, Switzerland.

Delle Fave, A., & Larson R. (1986). Solitudine ed evoluzione culturale [Solitude and cultural evolution]. In F. Massimini & P. Inghilleri (Eds.), *L'esperienza quotidiana—Teoria e metodo d'analisi* (pp. 319–344). Milan, Italy: Franco Angeli.

Delle Fave, A., & Massimini, F. (1992). The ESM and the measurement of clinical change: A case of anxiety disorder. In M. W. deVries (Ed.), *The experience of psychopathology* (pp. 280–289). New York: Cambridge University Press.

Delle Fave, A., & Massimini, F. (1994). Frequenza della fruizione televisiva quotidiana e qualità dell'esperienza [Daily frequency of TV watching and the quality of experience]. *Ikon, 28,* 11–39.

Delle Fave, A., Massimini, F., & Borri Gaspardin, M. (1993). Televisione e qualità dell'esperienza quotidiana [Television and daily quality of experience]. *Ikon, 26,* 81–109.

Dornbusch, S., & Glasgow, K. L. (1995). The structural context of family-school relations. In A. Booth & J. F. Dunn (Eds.), *Family-school links: How do they affect educational outcomes?* (pp. 35–55). Mahwah, NJ: Erlbaum

Duke, M. P. (1994). Chaos theory and psychology: Seven propositions. *Genetic, Social, and General Psychology Monographs, 120*(3), 265–286.

Eidelson, R. J. (1997). Complex adaptive systems in the behavioural and social sciences. *Review in General Psychology, 1*(1), 42–71.

Ferrari, M., & Mahalingam, R. (1998). Personal cognitive development and its implications for teaching and learning. *Educational Psychologist, 33*(1), 35–44.

Fischer, K. (1980). A theory of cognitive development: The control and construction of hierarchies of skills. *Psychological Review, 87,* 477–531.

Freeman, M., & Robinson, R. E. (1990). The development within: An alternative approach to the study of lives. *New Ideas in Psychology, 8*(1), 53–72.

Gauze, C., Bukowski, M., Aquan-Assee, J., & Sippola, L. K. (1996) Interactions between family environment and friendship and associations with self-perceived well-being

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Levels of Hopelessness in Children and Adolescents: A Developmental Perspective

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We investigated hopelessness at 3 age levels (8-, 12-, and 17-year-olds) in 210 children and adolescents from a community sample derived from public school listings of 4,810 children in a midwestern college town. The sample included 105 boys and 105 girls, and there were 70 subjects in each age group. The major finding was that children with high hopelessness scores are at greater risk not only for suicide and depression as revealed by the Child Assessment Schedule and the Birleson Depression Scale but also for overall psychopathology. This study suggests that hopelessness does not increase from preadolescence to adolescence in a general population.

Hopelessness in adults has been the subject of recent research by several investigators (Beck, Kovacs, & Weissman, 1975; Beck, Weissman, Lester, & Trexler, 1974; Dyer & Kreitman, 1984; Wetzel, 1976). Defined as a negative expectation toward the future, hopelessness as a symptom is significant both as a component of depression and as it relates to completed suicide. Beck, Steer, Kovacs, and Garrison (1985) found that hopelessness predicted eventual suicide in patients hospitalized for depression—specifically, in predicting future suicide among ideators. Beck et al. viewed hopelessness not as a stable trait, but rather as a dynamic psychological state subject to escalation during intrapsychic disturbances.

The interest in hopelessness in children is more recent. Most studies of hopelessness, depression, and suicide have been conducted almost exclusively with adults (Kazdin, French, Unis, Esveldt-Dawson, & Sherick, 1983). Kazdin et al. (1983) developed a hopelessness scale for children modeled after the Beck Hopelessness Scale (Beck et al., 1975) for adults, and they reported its psychometric properties in a sample of children in an inpatient psychiatric unit (Kazdin, Rodgers, & Colbus, 1986).

The theoretical literature has predicted that the manifestation of hopelessness requires a level of cognitive functioning higher than that present in most young children (Carlson & Garber, 1986; Rutter, 1988). However, empirical data and normative distributions of hopelessness in the general population of children and adolescents are generally lacking. Initial studies addressed some developmental aspects of hopelessness; Kazdin et al. (1986) recommended further study of a nonclinic sample and a more rigorous developmental study of hopelessness from the general population.

This article reports the prevalence of hopelessness in children and adolescents of three different age groups, the relationship of hopelessness to demographic variables and recurrent suicidal ideation, and the categorical as well as dimensional approach to psychopathology. In addition, we explored the potential usefulness of extending the hopelessness construct to include hopefulness.

Method

Subjects

Prior to sampling, we decided to have equal gender representation (105 boys and 105 girls) and an equal number of 8-, 12-, and 17-year-olds (70 subjects of each age, with an equal number of boys and girls in each group). We chose 8-year-olds to reflect the early stage of preadolescence, 17-year-olds to reflect late adolescence, and 12-year-olds to represent the transitional period before the teen years when youngsters have reached or soon will reach puberty. The sample consisted of 210 children selected by taking a systematic sample from the public school listings of 4,810 children (in a midwestern college town having a predominantly professional population) after stratifying the lists by the three age groups and sex. The sample's socioeconomic status (SES; Hollingshead & Redlich, 1958) was as follows: Class I, 20%; Class II, 34.8%; Class III, 27.1%; Class IV, 16.7%; and Class V, 1.4%. The racial breakdown was Caucasian, 89%; Black, 9%; and Oriental/Other, 2%. (The catchment area was 90% Caucasian, 8% Black, 1% Oriental, and 1% Hispanic.) Of the children's families, 162 classified themselves as married and 48 as divorced.

Procedure

The children's families were approached by telephone, with the experimenters explaining the procedure and mentioning the incentive for participation ($50.00 per child). An interview took place in the subject's home and consisted of the administration of a structured interview, a hopelessness scale, a depression instrument, an anxiety instrument, and other scales. We called 377 families, and 289 (77%) agreed to participate. We halted the interview procedures when the predetermined sam-

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ple size for age and gender was reached. Interviews were conducted by doctoral students in psychology or child and family development. Training in the administration of the interview (the Child Assessment Schedule) was continued until the interviewers met the following criteria: (a) an item-by-item criterion of Kappa = .80 during practice role playing of the interview, and (b) an interrater reliability criterion of k = .85. To prevent interviewer's drift and maintain quality control, we conducted weekly meetings to rereview scoring procedures and appropriate probes in *DSM–III* (third edition of the *Diagnostic and Statistical Manual of Mental Disorders*, American Psychiatric Association, 1980) criteria, to discuss concerns, and to check each completed interview to ensure that it had been scored in its entirety.

Measures

Hopelessness group composition. Children were assigned to one of three groups on the basis of their scores on Kazdin's Hopelessness Scale for Children. Developed by Kazdin et al. (1983), this hopelessness instrument contains 17 dichotomous items assessing negative expectancies or hopeless ideation about the future and the self. A mixture of items is used to assess both positive and negative expectancies, with the positive items being reverse coded to yield a response indicative of negative expectancies. The internal consistency ranges from .75 (Kazdin et al., 1983) to .97 (Kazdin et al., 1986).

The first group, showing "no hopelessness" (n = 9), answered all items in the positive, no-hopelessness direction. Their mean hopelessness score was zero (±0). The second group, which showed "moderate hopelessness," responded in the hopelessness direction to at least one but not more than six items (n = 183, M = 3.00, SD = 1.46). The third group, exhibiting "high hopelessness," were those who answered seven or more items in the hopelessness direction (n = 18, M = 8.17, SD = 1.29). Determination of the cutoff score between the no-hopelessness and the moderate-hopelessness groups was based on our desire to define a contrasting group of "hopeful" people. The cutoff score between the moderate-hopelessness and high-hopelessness groups was two standard deviations above the mean.

Child Assessment Schedule (CAS). This semistructured diagnostic interview determines whether *DSM–III* criteria are met for a number of childhood and adolescent diagnoses, provides the number of symptoms relevant to particular diagnoses (termed *symptom complex scores*), and measures the dysfunction in the content areas of school, friends, family, and self-image. The symptoms for the various anxiety disorders were grouped into a larger Anxiety Disorders metascale, and the symptoms for the different types of conduct disorders were combined to form a Conduct Disorders metascale. The reliability and validity of the CAS have been reported by Hodges (1987).

Seven scales from the CAS were used in the analyses: the Total Psychopathology score, the Depression Symptom Complex score, the Anxiety Symptom Complex score, the Family Content score, the Friends Content score, the Self-Image Content score, and the School Content score.

Revised Children's Manifest Anxiety Scale (RCMAS). The RCMAS was developed from the Children's Manifest Anxiety Scale by Reynolds and Richmond (1978) to assess three facets of chronic, manifest anxiety: Physiological, Worry/Oversensitivity, and Concentration. The structure of the three-factor solution appears to be stable (Reynolds & Richmond, 1978). Reynolds (1980) demonstrated a high degree of concurrent validity between the RCMAS and the State–Trait Anxiety Inventory for Children.

Birleson Depression Scale (BRL). The 18 items measuring depression are summed to yield a single scale score. Responses are made on a 3-point scale ranging from 0 (*never*) to 2 (*most of the time*). The content validity and reliability of the BRL are stable (Birleson, Hudson, Buchanan, & Wolff, 1987).

Statistical analyses. Analysis of group differences for those dependent variables that had a response range greater than five was performed using the Kruskal-Wallis test (i.e., the BRL, the three RCMAS subscales, the CAS content area scales, and the CAS symptom complex scales). For those dependent variables with excessive ties, a median split was performed and the variables were then analyzed using chi-square. Analysis of group differences for dichotomous items (i.e., the CAS generated both diagnoses and suicidal ideation) and for demographic data (i.e., SES, age, and gender) was accomplished by chi-square. The 5-point SES scale was dichotomized (Classes I and II formed one group [n = 115], and Classes III, IV, and V formed a second group [n = 95]). A probability level of $p < .05$ was used to assess significance; the Bonferroni correction yielded $p < .003$.

Results

Demographic Differences

No statistically significant differences emerged between the no-, moderate-, and high-hopelessness groups due to age, χ^2 (4, N = 210) = 5.62, p = .23, or to SES, χ^2 (2, N = 210) = 4.02, p = *ns*. There were significant differences in group membership due to gender, χ^2 (2, N = 210) = 8.37, p = .015. Specifically, the distribution of boys and girls in the three groups was as follows: no hopelessness, boys = 1, girls = 8; moderate hopelessness, boys = 98, girls = 85; and high hopelessness, boys = 6, girls = 12. Subsequent partitioning indicated there were more females than expected in the no-hopelessness group, χ^2 (1, N = 210) = 5.69, $p < .02$. The hopelessness scores of the 48 children and adolescents whose parents were divorced were slightly but not significantly higher than those whose parents were married (Wilcoxon test, p = .14).

Diagnostic Membership Differences

Examination of the relationship between the no-hopelessness group and the two hopelessness groups combined on the presence of a symptom constellation for a *DSM–III* depression diagnosis (without regard for duration criteria, n = 22) indicated no significant differences between the groups (p = .99, Fisher exact test).

Neither were there differences between the two groups on the presence of an anxiety diagnosis (a diagnosis frequently coexisting with depression, p = .99, Fisher exact test) or on the presence of recurrent suicidal ideation (n = 14, p = .99, Fisher exact test).

Scale Score Differences

The results from the comparison of the three hopelessness groups on the psychopathology-related scales are shown in Table 1. These results indicated that on both depression measures (the BRL and the CAS symptom complex scales) there was a significant difference among the various groups in the number of depressive symptoms. The no-hopelessness group had the least number of depressive symptoms, and the high-hopelessness group had the greatest number of depressive symptoms.

Results regarding the various anxiety measures were less clear-cut. There were no significant differences between the three groups on the CAS symptom complex score for anxiety (p = .22). However, there were significant differences between

Table 1
Group Differences on the Psychopathology-Related Scale Scores

Scale	No hopelessness ($n = 9$)		Moderate hopelessness ($n = 183$)		High hopelessness ($n = 18$)		
	M	*SD*	*M*	*SD*	*M*	*SD*	χ^2
Birleson Depression Scale	5.56	2.55	7.97	3.84	11.94	5.09	14.05*
CAS Depression Symptom Complex	2.56	1.74	5.06	3.62	9.00	5.05	17.05*
CAS Anxiety Symptom Complex	4.89	3.69	5.97	5.04	8.50	6.35	2.98
RCMAS Physiological	1.56	1.59	3.11	2.14	5.33	2.14	21.33*
RCMAS Oversensitive	2.11	1.66	4.01	2.49	6.11	2.30	16.10*
RCMAS Concentration	1.56	1.81	1.90	1.72	3.89	1.91	17.27*
CAS School Content	0.33	0.71	1.11	1.74	2.67	2.17	14.13*
CAS Self-Image Content	1.56	2.55	1.75	1.34	2.33	1.85	4.16
CAS Family Content	3.44	2.01	3.47	3.10	4.06	3.06	1.04
CAS Friends Content	1.00	1.41	0.79	1.17	1.44	1.42	4.51
CAS Total Symptoms	24.89	8.25	33.92	16.73	48.39	25.68	9.27*

Note. All analyses were performed using the Kruskal Wallis test. Even though means and standard deviations are not used in the statistical calculations, they are reported for the convenience of the reader. CAS = Child Assessment Schedule; RCMAS = Revised Children's Manifest Anxiety Scale.
* $p < .001$.

the three groups on all three subscales of the RCMAS. These differences indicated that the no-hopelessness group had the least number of anxiety symptoms on all three subscales of the RCMAS, whereas the high-hopelessness group had the greatest number of anxiety symptoms on all three subscales.

Comparison of the four content areas of interest showed that the School Problems content area score was significantly different among the three groups. On this scale, the high-hopelessness group had a significantly greater number of school problems than either the no-hopelessness or the moderate-hopelessness group. There were no significant differences among the three groups on the Self-Image content score, the Family Problems content score, or the Friends content score (*ps* = .12, .60, and .10). Finally, there was a significant difference on the CAS Total Symptoms score among the three groups; the no-hopelessness group had the least number of symptoms, and the high-hopelessness group had the highest total CAS score.

Discussion

The major findings of this study can be summarized as follows: (a) Hopelessness did not increase with age from preadolescence through adolescence; (b) children with a high hopelessness score had a higher CAS Depression Symptom Complex score and a higher score on the BRL; (c) children with a high hopelessness score reported significantly more school problems; (d) high scorers on the Hopelessness Scale for Children also had the greatest psychopathology as measured by the CAS total score.

Before discussing the findings and their implications, we need to mention some of the limitations of this study. First, because of the relatively small sample size, especially the paucity of children and adolescents in the extreme hopelessness groups, the results of this study must be viewed as tentative. Second, because the design of this study was cross-sectional rather than longitudinal, we did not assess the effects of hopelessness in the same person over time. Third, the criteria for hopelessness in this study focused on dysfunction, with little or no attention given to healthy functioning. If the study of hopelessness is limited to the prediction of psychopathology, applications of the results of this study will be limited. On the other hand, the positive effect of a lack of hopelessness suggests that future studies should examine both positive and negative characteristics.

This study measured three degrees of hopelessness: no, moderate, or high hopelessness. Previous studies were concerned primarily with the negative impact of high hopelessness on suicide and psychopathology; the positive buffering effects of a lack of hopelessness were not investigated. However, given the demonstrated effect of positive buffer variables such as social support (Sarason & Sarason, 1982) and hardiness (Kobasa, Maddi, & Kahn, 1982), we feel that the same may be true for hopefulness. The hopelessness instrument used in this study was not designed to measure hopefulness.

We found no support for the theoretical assumption that negative expectations toward the future are more likely in adolescence than in childhood. It is interesting that a parallel situation is found with depression—namely, the common belief until a decade ago that depression in children could not exist due to a child's inability to conceptualize the future (Rie, 1966). We now know this is not the case.

The relationship between depression and hopelessness has been addressed in a study of a severely disturbed inpatient sample (Beck et al., 1985; Wetzel, 1976). The present study not only confirms previous work but also evaluates the relationship from multiple perspectives: (a) diagnostic categorization, (b) number of depressive symptoms (symptom complex score), and (c) rating scale. The relationship proved significant in the latter two areas.

It is noteworthy that in the no-hopelessness group there were no suicidal children and that in only 4% of the moderate-hopelessness group was there recurrent suicidal ideation. In contrast, one third (33.3%) of the high-hopelessness group had re-

current suicidal ideation. Although the numbers for suicidal ideation were too small to warrant positive findings, the possible greater prevalence of suicidal ideation in the high-hopelessness group suggests that the link between hopelessness and suicide is evident in both children and adolescents, just as it is in adults. Therefore, strategies and treatment plans to reduce the risk of suicide, especially in adolescents, require a greater focus on the causes and correlates of hopelessness.

Content areas measure a child's functioning. The results from this study indicate that high hopelessness was associated with more problems in school functioning and performance. This content area (school) was the only one that required work from the individual. Convinced that his or her best efforts will not ensure future success, a child may consider his or her performance in this sphere to be unimportant and useless. Given the importance of the school environment to future accomplishments and advances in life, further research on the mechanism linking hopelessness and school problems is a priority. Once we confirm this finding and understand its basis, effective intervention strategies can be developed.

Finally, the severity and degree of hopelessness were significantly related to the total CAS score, indicating more psychopathology in the group with higher hopelessness. In other words, this measurement of hopelessness could possibly be integrated with other instruments to predict and measure overall psychopathology.

References

American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders.* Washington, DC: Author.

Beck, A. T., Kovacs, M., & Weissman, A. (1975). Hopelessness and suicidal behavior: An overview. *Journal of the American Medical Association, 234,* 1146–1149.

Beck, A. T., Steer, R. A., Kovacs, M., & Garrison, B. (1985). Hopelessness and eventual suicide: A 10-year prospective study of patients hospitalized with suicidal ideation. *American Journal of Psychiatry, 142,* 559–563.

Beck, A. T., Weissman, A., Lester, D., & Trexler, L. (1974). The measurement of pessimism: The Hopelessness Scale. *Journal of Consulting and Clinical Psychology, 42,* 861–865.

Birleson, P., Hudson, I., Buchanan, D. F., & Wolff, S. (1987). Clinical evaluation of a self-rating scale for depressive disorder in childhood (Depression Self-Rating Scale). *Journal of Child Psychology and Psychiatry and Allied Disciplines, 28,* 43–60.

Carlson, G. A., & Garber, J. (1986). Developmental issues in the classification of depression in children. In M. Rutter, C. E. Izard, & P. B. Read (Eds.), *Depression in young people: Developmental and clinical perspectives* (pp. 399–434). New York: Guildford Press.

Dyer, J. A. T., & Kreitman, N. (1984). Hopelessness, depression and suicidal intent in parasuicide. *British Journal of Psychiatry, 144,* 127–133.

Hodges, K. K. (1987). Assessing children with a clinical research interview: The Child Assessment Schedule (CAS). In R. J. Prinz (Ed.), *Advances in behavioral assessment of children and families* (Vol. 3, pp. 203–233). Greenwich, CT: JAI Press.

Hollingshead, A. B., & Redlich, F. C. (1958). *Social class and mental illness.* New York: Wiley.

Kazdin, A. E., French, N. H., Unis, A. S., Esveldt-Dawson, K., & Sherick, R. B. (1983). Hopelessness, depression, and suicidal intent among psychiatrically disturbed inpatient children. *Journal of Consulting and Clinical Psychology, 51,* 504–510.

Kazdin, A. E., Rodgers, A., & Colbus, D. (1986). The Hopelessness Scale for Children: Psychometric characteristics and concurrent validity. *Journal of Consulting and Clinical Psychology, 54,* 241–245.

Kobasa, S. C., Maddi, S. R., & Kahn, S. (1982). Hardiness and health: A prospective study. *Journal of Personality and Social Psychology, 42,* 168–177.

Reynolds, C. R. (1980). Concurrent validity of what I think and feel: The Revised Children's Manifest Anxiety Scale. *Journal of Consulting and Clinical Psychology, 48,* 774–775.

Reynolds, C. R., & Richmond, B. O. (1978). What I think and feel: A revised measure of children's manifest anxiety. *Journal of Abnormal Child Psychology, 6,* 271–280.

Rie, H. E. (1966). Depression in childhood: A survey of some pertinent contributions. *Journal of the American Academy of Child Psychiatry, 5,* 653–685.

Rutter, M. (1988). Epidemiological approaches to developmental psychopathology. *Archives of General Psychiatry, 45,* 486–495.

Sarason, I. G., & Sarason, B. R. (1982). Concomitants of social support: Attitudes, personality characteristics, and life experiences. *Journal of Personality, 50,* 331–344.

Wetzel, R. D. (1976). Hopelessness, depression, and suicide intent. *Archives of General Psychiatry, 33,* 1069–1073.

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Developmental Trajectories of Maladaptive Perfectionism Among African American Adolescents

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DEVELOPMENTAL PSYCHOLOGY

This study examined the developmental trajectories of maladaptive perfectionism over a 7-year period among African American youth living in an urban setting (N = 547). In particular, the study attempted to determine whether two maladaptive aspects of perfectionism (socially prescribed and self-critical) changed over time and could be distinguished by variables in 6th and 12th grades (M_{age} at study entry [first grade] was 6.22 years [SD = 0.34]). Four classes best described the developmental trajectories on both measures of maladaptive perfectionism: high, low, increasing, and decreasing. Sixth- and 12th-grade correlates, including measures of internalizing symptoms, mostly confirmed the distinctiveness of these classes. Parallel process analyses suggested that the two processes are complementary, yet distinct. Implications regarding the prevention of maladaptive perfectionism are discussed.

Over the past two decades, evidence has accumulated suggesting that perfectionism is a multidimensional construct (Stoeber & Otto, 2006). Investigation into the multiple dimensions of perfectionism has mostly focused on distinguishing two higher order perfectionism factors—positive-adaptive and negative-maladaptive—and the association of maladaptive perfectionism with various psychological disorders (Frost et al., 1993). Increasing numbers of studies with adolescents support the association of maladaptive perfectionism with depression (Huggins, Davis, Rooney, & Kane, 2008), anxiety (Essau, Leung, Conradt, Cheng, & Wong, 2008; O'Connor, Rasmussen, & Hawton, 2010), suicidal ideation (Jacobs et al., 2009), eating disorders (Boone, Soenens, Braet, & Goossens, 2010), and obsessive–compulsive disorder (Ye, Rice, & Storch, 2008).

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Among the various conceptualizations of perfectionistic dimensions, Hewitt and Flett's (1991) framework, which focuses on the interpersonal origins of perfectionism, has received much attention. In particular, they differentiated perfectionistic expectations that originated from one's self (self-oriented perfectionism [SOP]) from those that were perceived as coming from others (socially prescribed perfection [SPP]). SPP has been particularly associated with higher levels of anxiety, depression, and interpersonal problems (Klibert, Langhinrichsen-Rohling, & Saito, 2005). In contrast, researchers have found that SOP, initially viewed as a negative aspect by Hewitt and Flett, relates to positive outcomes as well (e.g., Bieling, Israeli, Smith, & Antony, 2003). More recently, using the Child and Adolescents Perfectionism Scale (CAPS; Flett, Hewitt, Boucher, Davidson, & Munro, 2000), two factors have been differentiated within SOP—striving and critical, which better distinguish the adaptive and maladaptive components (McCreary, Joiner, Schmidt, & Ialongo, 2004; O'Connor, Dixon, & Rasmussen, 2009). The critical factor (SOP-C) is associated more strongly with depression and anxiety (McCreary et al., 2004; Wang, Slaney, & Rice, 2007).

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The primary hypothesized mechanisms by which SOP-C and SPP lead to internalizing symptoms include cognitive discrepancies (between perceived and desired self), interpersonal distress, and achievement-related stress (Hewitt, Flett, & Ediger, 1996; Rice, Ashby, & Slaney, 1998).

Despite the convincing evidence of the impact of maladaptive perfectionism on mental health (see Shafran & Mansell, 2001, for a review), there is relatively little information on how maladaptive perfectionism develops over time. Only a handful of studies have measured perfectionism across different time points (Cox & Enns, 2003; Nilsson, Sundbom, & Hagglof, 2008; O'Connor et al., 2009; Rice & Aldea, 2006). Results from these four studies suggested that overall perfectionism is a relatively stable trait, although there could be some levels of changes over periods of time. In other words, evidence exists pointing to more *relative stability* (relative differences among individuals remained consistent over time) and less so for *absolute stability* (mean group score consistencies over time) in perfectionism levels over time (Cox & Enns, 2003; Rice & Aldea, 2006).

Importantly, available evidence suggests that perfectionism may be malleable in response to intervention (Arpin-Cribbie et al., 2008; Hawley, Ho, Zuroff, & Blatt, 2006). Arpin-Cribbie et al. (2008) found that exposure to a web-based intervention predicted decreases in perfectionism among college students over a 10-week period. Two other studies found that perfectionism decreased along with the level of depression over time with psychotherapy (Hawley, Ho, Zuroff, & Blatt, 2006; Zuroff et al., 2000).

It is worth noting that all these studies examining perfectionism stability and response to intervention used aggregated sample data, which do not take into account possible individual or subgroup variations over time. In other words, perfectionism qualities may be more stable for some groups than others. This may be especially true during adolescence as personalities and self-perceptions are becoming crystallized. For instance, some youth may have stable, low self-critical perfectionism beliefs throughout adolescence whereas others may experience an increase in these beliefs over time in response to significant development transitions such as entry into middle school or high school. Existing studies have not considered person-centered developmental variations such as this. In addition, all existing studies have either examined perfectionism changes within a short period of time (less than 1 year) or only compared perfectionism differences across two or three time points. A more nuanced examination of the development of maladaptive perfectionism would examine these qualities over the course of adolescence. Such analyses could guide future prevention efforts by identifying youth most at risk for adverse outcomes related to maladaptive perfectionism at key developmental points.

Moreover, a developmental approach would also identify potential precursors to perfectionism profiles. Flett, Hewitt, Oliver, and Macdonald (2002) integrated model of perfectionism attempted to specify the origins of maladaptive SOP-C and SPP. Although their model places great emphasis on child temperament and early parent–child interactions, Flett et al. hypothesized that perfectionism was influenced and shaped by environmental pressures over the course of development. In particular, they hypothesized that adolescence was a critical period for understanding socially prescribed (SPP) as well as self-critical (SOP-C) aspects of perfectionism given the heightened self-consciousness and increasing social evaluations that occur during this developmental stage. They emphasized three aspects of the social field that could influence the early adolescent's emerging perfectionism patterns: peers, teachers, and cultural context. It is not entirely clear from their model, however, if environmental influences during adolescence could actually alter perfectionism patterns and trajectories or if they merely served to exacerbate preexisting tendencies. This is a critical question for research given that evidence of absolute instability would contradict a strict trait perspective on perfectionism and instead suggest it may be better understood as a malleable characteristic, responsive to environmental manipulations during adolescence.

Although Flett et al. (2002) highlighted peers, teachers, and culture as key influences on adolescent perfectionism, they only vaguely described elements of these domains. On the other hand, Cole and colleagues' competency model explains specific pathways by which peers and teachers affect youths' emerging sense of self and their own performance standards. They have found that performance and feedback from peers and teachers in social and academic spheres leave lasting impressions on youth self-beliefs and ultimately their mood (Cole, Jacquez, & Maschman, 2001). Not surprisingly, youth with academic or social deficits or with problems known to interfere with academic and social success (such as depression, attention problems, or defiant behaviors) are more likely to develop negative self-perceptions and expectations (Herman & Ostrander, 2007; Ostrander & Herman, 2006).

Missing from both the integrated model of perfectionism and the competency model of depression, however, are explanations about the role of other dimensions of culture including race or ethnicity. Emerging evidence has suggested that perfectionism types may vary across cultural contexts (e.g., Wang et al., 2007). Equally likely, although understudied to date, some precursors of maladaptive self-beliefs may also be contingent upon cultural dimensions. For instance, experiences with racism may undermine children's sense of personal agency, which contributes to negative self-beliefs in youth from nonmajority groups (Lambert, Herman, Bynum, & Ialongo, 2009).

African American youth, in particular, have been underrepresented in studies on perfectionism types and origins. A few past studies have compared African Americans with Whites and other ethnic groups (Castro & Rice, 2003; Chang, Watkins, & Banks, 2004; Nilsson, Paul, Lupini, & Tatem, 1999; Rice, Tucker, & Desmond, 2008) and found some differences such as African Americans having higher levels of SOP, but not SPP, than White students. A recent study with African American youth from low-income backgrounds suggested that the two types of maladaptive perfectionism may not be needed to differentiate perfectionism types for these youth (Herman, Trotter, Reinke, & Ialongo, 2011). That is, SOP-C and SPP were nearly identical within each of the four identified classes, suggesting that they may represent overlapping aspects of perfectionism in this population.

The unified theory of depression provides a conceptual framework for understanding how perfectionism-related processes may vary for African American youth, especially those living in disadvantaged conditions (Hammack, 2003). Hammack integrated four conceptual traditions into a macrotheory explaining depression among urban African American youth. The unified theory identifies experiences with oppression as the core construct. That is, historical oppression (forced migration, enslavement, cultural marginalization) predisposes urban African American adolescents to experience detrimental environmental contexts (racism, alienation from culture) that set the stage for enduring physiological burden (chronic stress), maladaptive self-beliefs (internalized racism, helplessness, hopelessness), and depressive symptoms. Consistent with the unified theory, Herman et al. (2011) found a unique perfectionism type among urban, disadvantaged African American youth, one marked by extreme absence of striving. This pattern of perfectionism, as expected, was associated with low levels of perceived control and high levels of depression. The authors speculated that this pattern of perfectionism may only emerge under conditions of extreme oppression, disadvantage, or both, as it had not been reported in any other prior sample. In a separate study, Herman, Ostrander, and Tucker (2007) found that critical perfectionism beliefs predicted depressive symptoms in African American and European American adolescents but suggested the origins of those beliefs might vary by cultural group. For instance, perfectionism beliefs mediated the effects of family conflict on depression in European Americans whereas only family cohesion had direct and unmediated effects on depression in African American, leaving the origins of maladaptive perfectionism in this group unexplained.

Although research suggests that perfectionism patterns are fairly consistent across genders, the competency model used to specify peer and teacher influences in this study would suggest continued examination of possible gender differences. Females are more prone to adopt certain academic and social attributional biases during adolescence, which in turn may influence perfectionism patterns (Frey & Ruble, 1987). For instance, they tend to focus on their low ability in explaining failure experiences, which could lead to stable or increasing critical perfectionism.

Present Study

This study examines the developmental trajectories of maladaptive perfectionism in a group of African American urban adolescents during the time period between 6th and 12th grades. This study's main goal was to: (a) examine the natural progression of two maladaptive perfectionism beliefs and their degree of malleability during this developmental period. In addition, we were interested in determining (b) which developmental precursors in 6th grade distinguished the different trajectories and, (c) what outcomes were associated with any identified trajectories. Finally, we examined (d) the conditional probabilities of co-occurring SPP and SOP-C trajectories and their associated risk for adverse outcomes.

First, on the basis of Flett et al.'s (2002) integrated model, we hypothesized that one or more trajectories of both processes would be characterized by change (either increasing or decreasing) rather than stability, highlighting adolescence as a period of influence over perfectionism patterns. Second, consistent with the competency model and unified theory described above, we hypothesized that social, emotional, or

academic deficits and cultural risk factors in 6th grade would predict different perfectionism patterns. In particular, we expected emotional symptoms, negative self-perceptions, shyness, inattention, academic skill deficits, and community context (neighborhood risk or exposure to racism) to distinguish perfectionism trajectories. Third, we predicted trajectories with stable, high, and increasing patterns of SOP-C and SPP would predict internalizing symptoms and disorders in 12th grade, given the established links between maladaptive perfectionism and depression and anxiety (Klibert et al., 2005; Rice & Ashby, 2007). Finally, given the lack of prior studies, we did not have a specific hypothesis about the joint probabilities or the combined risks of SPP and SOP-C profiles. Our research question pertaining to the parallel process analyses was whether combinations of maladaptive perfectionism trajectories conferred greater risk for adverse outcomes relative to either process alone (e.g., would youth in high or increasing classes on both processes have worse outcomes than youth in high or increasing classes on one process).

We used the same sample of children as the McCreary et al. (2004) and Herman et al. (2011) studies to capitalize on their prior work in determining the sample-specific factor structure of the CAPS for these children. Because their primary interest was in the factor structure and single time-point classification of perfectionism types, McCreary et al. and Herman et al. did not attempt to model perfectionism beliefs over time. Two aspects of the current manuscript are unique compared to any prior study. First, this is the first study, to our knowledge, to determine the growth of perfectionism beliefs over a 7-year period of adolescence. Second, it is the first study to assess predictors and outcomes of perfectionism trajectories over the same developmental period. We focused on sixth-grade predictors of perfectionism types because middle school entry represents a critical developmental transition (Kellam & Rebok, 1992) and can set in motion the processes that we expected to contribute to maladaptive aspects of perfectionism.

Method

Participants

Data were drawn from a longitudinal study conducted by the Prevention Intervention Research Center (PIRC) at Johns Hopkins University (JHU). The original study population consisted of a total of 678 children and families, representative of students entering first grade in nine Baltimore City public elementary schools (Ialongo, Kellam, & Poduska, 1999). Ninety-seven percent of parents in these schools provided informed consent for their child's participation. In first-grade, children provided verbal assent, and in later follow-ups that occurred during secondary school, they provided their written consent. The children were recruited for participation in two school-based, preventive, intervention trials targeting early learning and aggression (Ialongo et al., 1999). Three first-grade classrooms in each of the nine elementary schools were randomly assigned to one of the two intervention conditions or a control condition. The interventions were provided over the first-grade year, following a pretest assessment in the early fall. We examined and controlled for intervention effects in predictor and outcome analyses described below.

Six hundred and sixty-one children participated in the intervention trial in the fall of 1993 and completed one or more assessments through Grade 12. Eighty-nine percent (n = 585) of these children were African American and the majority were from low-income families (over 60% qualified for free or reduced lunch at school). Analyses for this study focused on African American children who enrolled in the study in first grade and who completed one or more assessments during the spring of 6th through 12th grades (N = 547). African American children who completed 6th- to 12th-grade assessments did not significantly differ from the African American children who did not on measures of self-reported depression, teacher-rated attention problems, or academic achievement scores collected during fall of 1st grade ($ps < .05$). As an indicator of low socioeconomic status, 73% of the sample for this study received free lunch or reduced lunches according to parent report in the fall of 1st grade. This percentage did not significantly differ for those who completed 6th- to 12th-grade assessments and those who did not ($ps < .05$).

Measures: Class Indicators

Child and adolescent perfectionism scale. Perfectionism was assessed using the Child and Adolescent Perfectionism Scale (CAPS) developed by Flett et al. (2000). The CAPS scale assesses one's perfectionistic beliefs and their source (self- or other prescribed). Youth rated the extent of their agreement with each item of the 22 items on a 5-point scale from 1 (*false–not at all true of me*) to 5 (*very true of me*). In their factor analysis, McCreary et al. (2004) found three factors best captured the sixth-grade responses of the African American youth in this study. The

factors and corresponding αs were as follows: Self-Oriented Striving (.58), Self-Oriented Critical (.66), and Socially Prescribed (.85). Items on the SOP-C scale include: "I get mad at myself when I make a mistake" and "I get upset if there is even one mistake in my work." SPP items include: "There are people in my life who expect me to be perfect" and "People expect more from me than I am able to give." After sixth grade, the Striving subscale was dropped from the study; thus, youth only provided data on the two maladaptive subscales: Critical and Socially Prescribed.

Measures: Class Predictors (6th Grade) and Outcomes (12th Grade)

Depressive and anxious symptoms. The Baltimore How I Feel–Young Child Version, Child Report (BHIF–YC–C; Ialongo et al., 1999) is a child self-report scale of depressive and anxious symptoms. Students completed the BHIF–YC–C in spring of 6th and 12th grades. The internal consistency for the BHIF–YC–C 14-item Depression subscale was .70 in 1st grade and .75 in 3rd grade. Two-week test–retest reliability coefficients have ranged from .60 in 1st grade to .70 in middle school (Ialongo et al., 1999). The 6-month, test–retest correlation coefficient in 1st grade for the BHIF–YC–C Depression subscale was .31, reasonable stability given the fluctuating nature of the construct. In terms of concurrent validity, for each standard deviation increase in BHIF–YC–C Depression subscale scores in 1st grade, there was a threefold and statistically significant increase in the likelihood of the child's parent reporting that the child was in need of mental health services for "feeling sad, worried or upset." Data from the first-generation PIRC data sets revealed that child self-reports on the BHIF Depression subscale during elementary school predicted report of a lifetime suicide attempt (odds ratio [OR] = 2.38, confidence interval [CI] = 1.30–4.25) and a diagnosis of a lifetime episode of major depressive disorder (OR = 1.84, CI = 1.16–2.92) up to age 20.

Major depressive disorder diagnoses. The Diagnostic Interview Schedule for Children–IV (DISC–IV; Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000) is a structured clinical interview that yields *Diagnostic and Statistical Manual of Mental Disorders,* Fourth Edition (*DSM–IV*; American Psychiatric Association, 1994) diagnoses, as well as a symptom count for each disorder. Prior studies suggest that the DISC has adequate test–retest reliability and validity (see Shaffer et al., 2000). The DISC–IV's Major Depressive Disorder (MDD) module was administered to youth in Grades 6–12. At each annual assessment, youth were asked about any mood episodes that may have occurred over the prior year. Given the relatively low incidence of diagnoses within a given year, we aggregated across the 7 years and assigned youth a 1 if they ever met MDD criteria during that period and a 0 if they did not.

Perceived control. Perceived control was assessed using the 18-item Control-Related Beliefs (CRB) scale developed by Weisz and colleagues (Weisz, Southam-Gerow, & McCarty, 2001; Weisz, Sweeney, Proffitt, & Carr, 1993). The CRB scale assesses beliefs about one's ability to exert control over outcomes in academic, social, and behavioral domains. It has demonstrated relations with depressive symptoms and low perceived personal competence, another type of control-related belief, and also with perceived noncontingency of outcomes (Weisz et al., 1993). Youth respond to each item using a 4-point scale ranging from 1 (*not at all true*) to 4 (*very true*). Weisz et al. (2001) reported an α of .88 for total CRB scores; in our sample the α for total scores was .76. Using data from the PIRC trial, Lambert et al. (2009) reported that scores on the CRB mediated the relations between racism experiences and depression for African American youth.

School behaviors and symptoms. Teacher ratings of shyness and attention problems were obtained in the spring semester of the sixth and twelfth grade using the Teacher Observation of Classroom Adaptation–Revised (TOCA–R; Werthamer-Larsson, Kellam, & Wheeler, 1991). The TOCA–R was developed and employed by the JHU PIRC in the evaluation of the first- and second-generation JHU PIRC trials, and thus was validated on African American youth living in urban settings. The TOCA–R asks teachers to respond to 43 items pertaining to the child's adaptation to classroom task demands over the last 3 weeks. Adaptation is rated by teachers on a 6-point frequency scale (1 = *almost never* to 6 = *almost always*). Each subscale is reported as a mean score of all items. Items for the subscales were largely drawn from the *DSM–III, III–R,* and *IV.* The Shy subscale includes four items that measure social avoidance or low social participation ("Avoided classmates," "Stayed to him/herself"). The Attention Problems (Inattention) subscale has nine items (e.g., "pays attention," "easily distracted"). Test–retest correlations over a 4-month interval were .60 or higher for each of these subscales, whereas the coefficient αs ranged from .80 to .94 for all subscales. The αs for the TOCA–R

subscales were .83 (Shyness) and .97 (Attention Problems).

Academic competence. The Kaufman Test of Educational Achievement–Brief and Comprehensive Forms (K-TEA; Kaufman & Kaufman, 1998) is an individually administered diagnostic battery that measures reading, mathematics, and spelling skills. The brief form of the K–TEA is designed to provide a global assessment of achievement in each of the latter areas. In this study, we employed the Reading (reading decoding and comprehension) subtest from the brief form in Grade 6. The K–TEA Math Computation test was not administered in Grade 6 in light of initial concerns over the length of the overall battery. Both forms provide age- and grade-based standard scores, grade equivalents, percentile ranks, normal curve equivalents, and stanines. The K–TEA norms are based on a nationally representative sampling of over 3000 children from Grades 1 to 12.

Neighborhood disorder. The Neighborhood Environment Scale (NES; Elliot et al. 1985) was used to assess neighborhood disorder. The NES is a measure of neighborhood disorganization, including questions about violent crime (e.g., "Every few weeks, some kid in my neighborhood gets beat up or mugged") and drug use and sales (e.g., "I have seen people using or selling drugs in my neighborhood"). Youth rate each item on a 4-point Likert scale (1 = *not at all*, 4 = *very much*) and higher scores indicate greater neighborhood disorganization (10 items, $\alpha = .86$). Studies with youth in the PIRC trials show that the NES predicts meaningful youth outcomes such as drug use in African American youth (Crum, Lillie-Blanton, & Anthony, 1996).

Racism. Seven items drawn from the Racism and Life Experiences Scales (RaLES; Harrell, 2000) were used to assess experiences with racism and discrimination. The RaLES assesses how often youth have experienced racism or negative events associated with their race (e.g., "How often have you been ignored, overlooked, or not given service in a restaurant, store, etc.?" and "How often have you been treated rudely or disrespectfully because of your race?"). Youth respond to each item using a 6-point frequency scale (1 = *never*, 2 = *less than once a year*, 3 = *a few times a year*, 4 = *about once a month*, 5 = *a few times a month*, 6 = *once a week or more*). A summary score may be created by taking the mean of the seven items, and higher scores indicate more experiences with racism. In this sample, mean summary scores ranged from 1.00 to 5.57 ($M = 1.78$) in Grade 7, the first year this scale was administered. Coefficient α for the seven-item scale was .88. In terms of concurrent validity, the RaLES correlates positively with conceptually similar measures including the Index of Race–Related Stress (Utsey & Ponterotto, 1996), which assesses stress experienced due to racism and discrimination. Lambert et al. (2009) reported that RaLES scores in 8th grade predicted depression in 10th grade for PIRC participants. Criterion validity was demonstrated by evidence that in each of Grades 8, 9, and 10, African American participants in the PIRC study reported significantly more experiences with racism and discrimination on the RaLES than White participants (Lambert et al., 2009).

Statistical Methodism

Growth mixture modeling. Growth mixture modeling (GMM) using the Mplus version 6 statistical software package (Muthén & Muthén, 2009) was used to identify patterns of growth in SPP and SOP-C over time. The analysis occurred in several stages. In the first stage, separate analyses were conducted for SPP and SOP-C to determine the need for growth parameters, the number of trajectory classes, and the shape of growth within the trajectories. The observed indicators for SPP and SOP-C included annual youth reports of SPP in Grades 6–12. Time was treated as a fixed parameter in the models based on the spacing between assessment sessions. All analyses used automated multiple starting values in the optimization to reduce the risk that solutions represent local rather than global optima.

Before mixture modeling, unconditional latent growth curve (LGC) models (without covariates) were estimated to determine the shape of the trajectories that would provide guidelines for subsequent analyses. The next step in the analysis was to fit the conditional LGC model by including the covariate measures at baseline.

The GMM analyses were then conducted and based on the conditional LGC models (i.e., included growth indices). To determine the relative fit of the models for varying numbers of classes, we used the most accepted and widely cited methods (Bauer & Curran, 2003; Muthén, 2003). First, we compared models with differing numbers of classes using the Bayesian information criterion (BIC; Schwartz, 1978) and the sample-size-adjusted BIC (aBIC; Sclove, 1987). In addition, we used a likelihood difference test, the Lo–Mendel–Rubin (LMR; Lo, Mendel, & Rubin, 2001), which assesses the fit between two nested models that differ by one class. We conducted a recently developed parametric

bootstrap likelihood ratio test (LRT; MPlus 6) on the final class solution testing to determine whether the selected class model was statistically better than the solution with one less class. MPlus computes log likelihood values for the final class solution (k) and for the solution with one less class ($k - 1$), which in turn are used to calculate LRTs for each bootstrap draw. The initial solution is compared with the distribution of statistics generated from the bootstrap draws to compute a p value; p values less than .05 indicate that the solution with k classes offered significantly better fit than the $k - 1$ solution. In addition, we evaluated the classification precision as indicated by estimated posterior class probabilities, summarized by the entropy measure (Ramaswamy, DeSarbo, Reibstein, & Robinson, 1993). Finally, models with varying numbers of classes were evaluated and compared according to substantive utility, distinctiveness, and interpretability of the resultant class sets.

Once the appropriate number of trajectories was determined for each GMM, these classes were used to predict distal outcomes by means of latent class regression analysis (Guo, Wall, & Amemiya, 2006) and examination of the odds ratio estimates. Each outcome was modeled separately.

To examine the relations between the two separate mixture models, parallel process GMM was used. The parallel process model was used to estimate the probability of each individual being in a class for each of the two growth processes. These individual class probabilities provided a cross-classification of the two sets of growth mixtures. In other words, the two growth mixtures (SOP-C and SPP trajectories) were modeled simultaneously rather than as a single process with multiple indicators, enabling us to examine which trajectories individuals were associated with across both growth processes (SOP-C and SPP during the same time frame.

Missing data. The Mplus software uses full information maximum likelihood estimation under the assumption that the data are missing at random (Arbuckle, 1996; Little, 1995), which is a widely accepted way of handling missing data (Muthén & Shedden, 1999; Schafer & Graham, 2002). Overall, 82% of the participants had at least five of the seven assessment time points from Grades 6 to 12. The minimum covariance coverage recommended for reliable model convergence is .10 (Muthén & Muthén, 2009). In this study, coverage ranged from .76 to .91, well within the recommended range. Moreover, for 6th-grade predictors, 100% of participants completed the BHIF Depression and Anxiety scales, CRB scale, and the K–TEA; 98% of participants had teacher-rated TOCA scores. For 12th-grade outcomes, 100% of participants had MDD diagnostic data; 92% completed the BHIF scales.

Results

Unconditional Latent Growth Curve Modeling

The correlation matrix for all study variables is given in Table 1. As a preliminary step to determine the shape and trajectories of growth processes, we conducted unconditional latent growth curve (LGC) modeling on the single growth trajectories for both SPP and SOP-C from Grades 6 to 12. Fit indices for the LGC revealed that intercept, slope, and quadratic trends were evident in both the SPP and SOP-C models. Including a slope parameter significantly improved the fit over that of the intercept model for both SPP, $\Delta\chi^2(3) = 71.27$, $p < .001$, and SOP-C, $\Delta\chi^2(3) = 39.99$, $p < .001$, models. The addition of the quadratic term further improved the model for each, SPP, $\Delta\chi^2(4) = 99.60$, $p < .001$, and SOP-C, $\Delta\chi^2(4) = 76.57$, $p < .001$, respectively. In addition, all estimated values of the intercept, slope, and quadratic growth factors were significantly different from zero, suggesting individual differences in pathways of SPP and SOP-C.

Determination and Description of Latent Growth Classes

Next, we conducted GMM using Mplus 6 to identify patterns of growth within each process. The GMM is an extension of the conditional LGC models formed by adding a latent categorical variable. As described in the Analysis subsection, to determine the best fitting GMM model, we considered the BIC, aBIC, and LMR indices, with the smaller value indicating a better fit model. In addition, entropy was examined. Entropy values close to 1.0 indicate higher classification precision. We then included class prevalence and interpretability (the extent to which an additional class provided unique information) as additional criteria while selecting the best fitting models. Finally, we conducted a parametric bootstrap LRT to confirm that the selected model provided a statistical significance better fit than the model with one fewer classes; p values below .05 on this test indicate that the log likelihood differences favoring models with k versus $k - 1$ classes were unlikely to have occurred by chance. Initial runs were conducted in which all growth parameters were allowed to vary. However,

Table 1
Intercorrelations Among Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. SPP (6th)	—												
2. SOP-C (6th)	.46**	—											
3. Depression (6th)	.31**	.35**	—										
4. Anxiety (6th)	.31**	.40**	.77**	—									
5. PC (6th)	−.26**	−.28**	−.43**	−.40**	—								
6. Shyness (6th)	.10*	.07	.10*	.07	−.11*	—							
7. Inattention (6th)	.19**	.11*	.12**	.07	−.17**	.52**	—						
8. KTEA Read (6th)	−.15**	−.10*	−.11*	−.09*	.19**	−.08	−.23**	—					
9. Neighborhood (6th)	.13**	.09	.23**	.24**	−.31**	.08	.09	−.26**	—				
10. Racism (7th)	.18**	.10*	.13**	.11*	−.19**	−.08	.01	−.05	.19**	—			
11. Depression (12th)	.07	.05	.22**	.15**	−.09	.02	.03	−.07	.11*	.20**	—		
12. Anxiety (12th)	.05	.09	.18**	.19**	−.06	.03	.01	−.08	.11*	.21**	.78**	—	
13. MDD (12th)	.01	.05	.02	.01	−.03	.08	.14**	.04	−.02	.06	.07**	.04	—

Note. SPP = socially prescribed perfectionism; SOP-C = self-oriented perfectionism-critical; PC = perceived control; KTEA = Kaufman Test of Educational Achievement; MDD = major depressive disorder.
*$p < .05$. **$p < .01$.

examination of the variance of the quadratic and slope terms with multiple classes revealed lack of variability within each class (variance < .01). Thus, on subsequent runs, we constrained the variance for these terms to zero.

Socially prescribed perfectionism. According to the BIC, aBIC, and LMR, significant improvements in model fit were observed up to four classes (see Table 2). Each of the classes in the four class solution had adequate prevalence and was readily interpretable. The parametric bootstrap test confirmed this as the best fitting solution. The four trajectories included a group of adolescents exhibiting high levels of SPP across each assessment (10.3%), a group with scores that increased over time (15.7%), a group with decreasing scores (11.7%), and a group exhibiting consistently low scores (62.3%). Notably, no class was characterized by absolute stability. The High class continued to increase over time and the Low class decreased over time. In addition, the Increasing class had a delayed onset with scores accelerating after entry into high school (Grade 10). After obtaining the predicted group membership from the GMM analyses, the estimated means were calculated and graphed (see Figure 1). We included gender as a covariate to determine if males or females were more likely to be in one class relative to the others. No differences were observed across the classes. Likewise, intervention status was unrelated to class membership.

Self-oriented perfectionism-critical. Similarly, the SOP-C analyses supported a four-class solution. The BIC values for the four- and five-class solutions were comparable and the LMR was lower for the four class solution. A four-class model was selected over three because the BIC was lower for the four-class solution, the fourth added class was prevalent and interpretable, and the parametric bootstrap test indicated that the four-class provided a superior fit (see Table 2). The four trajectories included similar groups as those observed for the SPP analyses: a group of with high scores over time (5.5%), one with scores that increased over time (22.6%), one with decreasing scores (19.3%), and another with consistently low scores (52.6%). The only notable differences between the two processes were that the High and Low classes for SOP-C were stable over time and the Increasing class began its steady increase in seventh grade compared to the delayed onset for the SPP group. After obtaining the predicted group membership from the GMM analyses, the estimated means were calculated and graphed (see Figure 2).

Gender and intervention status were used as covariates of class membership to determine if unique demographics could distinguish the groups. Males were more likely (and in turn females were less likely) to be in the Decreasing class relative to the Low (OR = 1.89, CI = 1.10, 3.17) and High (OR = 2.58, CI = 1.09, 6.10) classes. There were no other significant gender or intervention status differences among the various classes. We retained these variables as covariates for subsequent analyses, however.

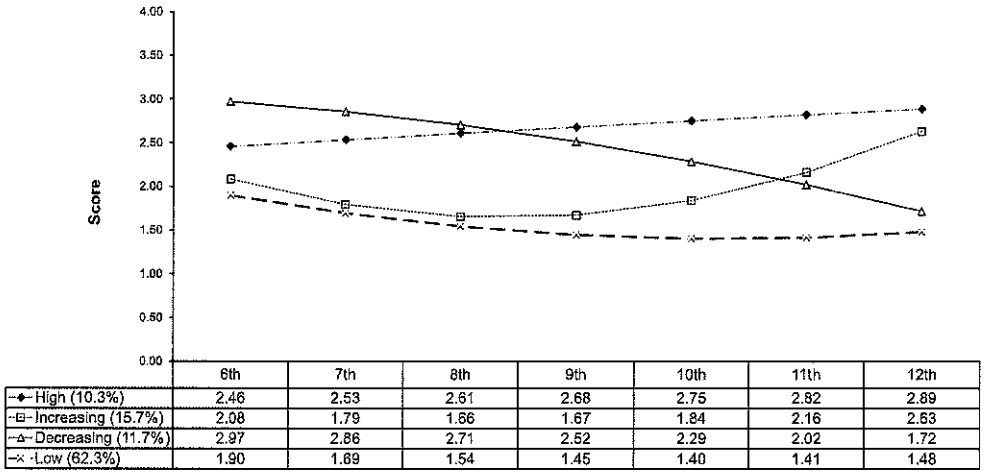
Outcomes Associated With Class Membership

Following identification of the appropriate number of classes, the classes were used to predict distal outcomes. For continuous variables, we used the

Table 2
Fit Indices of Growth Mixture Modeling for SPP and SOP-C

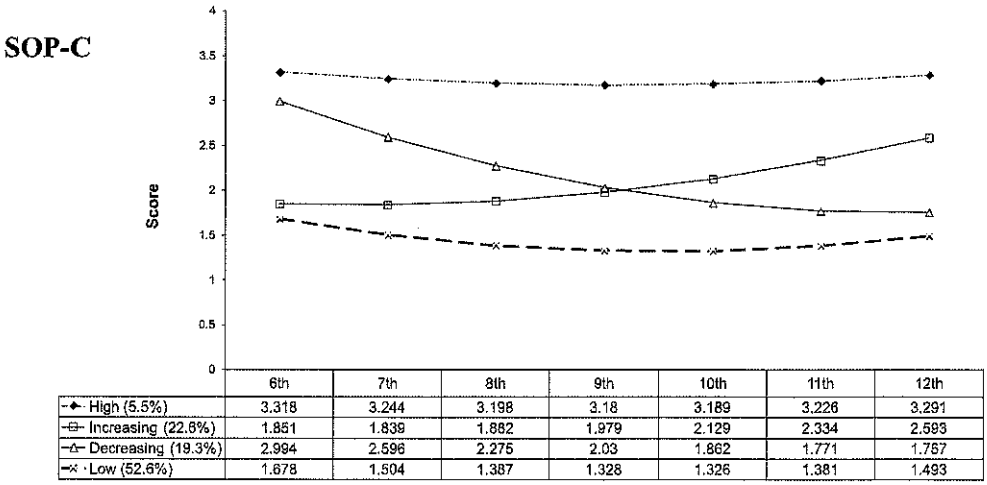
	SPP				SOP-C			
LC	BIC	aBIC	LMR	Entropy	BIC	aBIC	LMR	Entropy
2	6651.91	6604.30	.00	0.66	7480.94	7433.32	.00	0.60
3	6569.33	6509.02	.75	0.75	7436.78	7376.46	.00	0.72
4[a]	**6546.19**	**6473.17**	**.05**	**0.74**	**7413.11**	**7340.10**	**.34**	**0.71**
5	6554.08	6468.36	.19	0.74	7410.26	7324.55	.68	0.75

Note. SPP = socially prescribed perfectionism; SOP-C = self-oriented perfectionism-critical; LC = latent class; BIC = Bayesian information criterion; aBIC = adjusted Bayesian information criterion; LMR = Lo–Mendel–Rubin adjusted likelihood ratio test. Smaller values indicate better fit of the model. Entropy values close to 1.0 indicate higher classification precision. All entropy ratings indicate acceptable fit. Bold indicates selected solutions.
[a]Parametric bootstrap likelihood ratio test indicated a four-class solution provided significantly better fit than a three-class solution for both SPP and SOP-C ($p < .001$).



	6th	7th	8th	9th	10th	11th	12th
High (10.3%)	2.46	2.53	2.61	2.68	2.75	2.82	2.89
Increasing (15.7%)	2.08	1.79	1.66	1.67	1.84	2.16	2.63
Decreasing (11.7%)	2.97	2.86	2.71	2.52	2.29	2.02	1.72
Low (62.3%)	1.90	1.69	1.54	1.45	1.40	1.41	1.48

Figure 1. Developmental trajectories of socially prescribed perfectionism (SPP) from Grades 6 to 12.



	6th	7th	8th	9th	10th	11th	12th
High (5.5%)	3.318	3.244	3.198	3.18	3.189	3.226	3.291
Increasing (22.6%)	1.851	1.839	1.882	1.979	2.129	2.334	2.593
Decreasing (19.3%)	2.994	2.596	2.275	2.03	1.862	1.771	1.757
Low (52.6%)	1.678	1.504	1.387	1.328	1.326	1.381	1.493

Figure 2. Developmental trajectories of self-oriented perfectionism-critical (SOP-C) from Grades 6 to 12.

Table 3
Estimated Mean Scores on 12th-Grade Outcomes: Child, Teacher, Parent, and Clinician-Reported Variables and Academics by SPP and SOP-C Class

	1 High *M* (*SE*)	2 Increasing *M* (*SE*)	3 Decreasing *M* (*SE*)	4 Low *M* (*SE*)	Significant comparisons
SPP					
Depression	0.82 (.11)	0.64 (.06)	0.48 (.07)	0.47 (.03)	1 vs. 3*, 4** 2 vs. 4*
Anxiety	0.55 (.09)	0.46 (.05)	0.36 (.05)	0.34 (.02)	1 vs. 4* 2 vs. 4*
MDD diagnosis	.33	.00	.14	.04	1, 3 vs. 4
SOP-C					
Depression	0.76 (.12)	0.64 (.06)	0.53 (.06)	0.47 (.03)	1 vs. 4* 2 vs. 4*
Anxiety	0.60 (.12)	0.46 (1.20)	0.42 (.49)	0.32 (.02)	1 vs. 4* 2 vs. 4*
MDD diagnosis	.15	.12	.08	.04	1, 2 vs. 4

Note. SPP = socially prescribed perfectionism; SOP-C = self-oriented perfectionism-critical; MDD = major depressive disorder.
*$p < .05$. **$p \leq .01$.

auxiliary function in MPlus to report the equality of tests of means across classes using posterior probability-based multiple imputations. For categorical outcome variables, we report the odds ratios associated with class membership.

Socially prescribed perfectionism. As expected, the High and Increasing SPP classes were associated with the highest depression and anxiety scores in 12th grade (see Table 3). The mean depression score for the High class was significantly higher than the mean scores for both the low class, $\chi^2(1) = 9.01$, $p = .003$, and Decreasing class, $\chi^2(1) = 6.70$, $p = .01$. The Increasing class mean depression score in 12th grade was also significantly higher than the Low class, $\chi^2(1) = 6.34$, $p = .01$. The mean anxiety scores for the High and Increasing classes were also significantly higher than the Low class, $\chi^2(1) = 4.98$, $p = .03$, $\chi^2(1) = 4.07$, $p = .04$, respectively. The High classes had the highest probability of MDD diagnosis (.33). They were 13 times more likely to be diagnosed with MDD during the study period than the Low group (CI = 3.64–47.62). Although by 12th grade the Decreasing classes mean depression and anxiety scores were in the normal range, they were 3.64 times as likely to have received a diagnosis of MDD at some point during the 7-year period as the Low group (CI = 1.30–10.71), presumably during early adolescence.

Self-oriented perfectionism-critical. The outcome analyses for SOP-C paralleled the findings for SPP (see Table 3). The High and Increasing SOP-C classes were associated with significantly higher depression, $\chi^2(1) = 5.23$, $p = .02$; $\chi^2(1) = 5.71$, $p = .02$, respectively, and anxiety scores, $\chi^2(1) = 5.33$, $p = .02$, $\chi^2(1) = 6.48$, $p = .01$, respectively, compared to the Low SOP-C class. The High class was also most likely to receive an MDD diagnosis (.15), and this translated into a 4.61 increased odds compared to the Low class (CI = 1.11–19.23). The Increasing group had the second highest probability of MDD diagnoses (.12) and this was a significantly greater risk compared to the Low class (OR = 3.64, CI = 1.30–10.17).

Sixth-Grade Predictors of Class Membership

Child- and teacher-reported characteristics in sixth grade as well as academic performance provided independent tests of the discriminant and convergent validity of the respective classes. Latent class regressions (LCR) were conducted to determine if these characteristics distinguished the classes.

Socially prescribed perfectionism. The High and Decreasing classes had the highest internalizing symptoms in sixth grade (see Table 4). The High class depression scores ($M = 1.04$) were significantly higher than the Low ($M = 0.63$) and the Increasing ($M = 0.73$) classes ($Z = 3.57$, $p < .001$). The Decreasing class also had significantly higher mean depression scores (.97) than the Low class ($Z = 3.10$, $p = .002$). In addition, the Decreasing class had significantly higher mean anxiety scores compared to the Low class ($Z = 3.21$, $p < .001$) and the Increasing class ($Z = 2.24$, $p < .03$); the High class had significantly higher anxiety scores than the Low class ($Z = 2.45$, $p = .01$). Moreover, the High and Decreasing classes had the lowest perceived control scores. The Decreasing class reported significantly lower perceived control scores compared to

Table 4
Estimated Mean Scores on Sixth-Grade Child- and Teacher-Reported Variables and Academics by Class

	1 High *M* (*SD*)	2 Increasing *M* (*SD*)	3 Decreasing *M* (*SD*)	4 Low *M* (*SD*)	Significant comparisons
SPP					
Child report					
Depression	1.04 (.63)	0.73 (.40)	0.97 (.51)	0.63 (.46)	1 vs. 2*, 4*** 3 vs. 4** 3 vs. 2*,4***
Anxiety	1.01 (.71)	0.66 (.49)	1.09 (.54)	0.67 (.49)	1 vs. 4* 3 vs. 2*, 4***
Perceived control	2.32 (.41)	2.46 (.35)	2.18 (.40)	2.54 (.34)	1 vs. 4*
Teacher report					
Shy	2.54 (.65)	2.64 (.71)	2.91 (.75)	2.47 (.70)	3 vs. 1***, 4*
Inattention	3.02 (1.11)	3.04 (1.09)	3.78 (1.11)	2.88 (1.16)	3 vs. 1*2**,4***
Academics					
KTEA Reading	30.50 (8.95)	33.40 (5.78)	30.06 (7.54)	33.91 (5.91)	3 vs. 2*, 4*** 1 vs. 4*
Context					
Neighbor	1.90 (.68)	1.90 (.65)	1.95 (.65)	1.75 (.61)	*ns*
Racism (7th)	2.18 (1.03)	1.68 (.76)	2.14 (1.08)	1.61 (.78)	3 vs. 2*,4**
SOP-C					
Child report					
Depression	1.01 (.48)	0.73 (.63)	1.05 (.53)	0.57 (.41)	1 vs. 4*** 3 vs. 2*, 4***
Anxiety	1.16 (.54)	0.65 (.48)	1.21 (.57)	0.58 (.44)	3 vs. 2***, 4*** 1 vs. 2**, 4***
Perceived control	2.18 (.31)	2.52 (.34)	2.24 (.42)	2.53 (.25)	3 vs. 2***, 4*** 1 vs. 2**, 4***
Teacher report					
Shy	2.68 (1.05)	2.46 (.66)	2.72 (.69)	2.53 (.71)	2 vs. 3*
Inattention	2.95 (1.17)	3.32 (1.17)	3.94 (1.10)	2.81 (1.13)	2, 3 vs. 4*
Academics					
KTEA reading	30.24 (8.65)	33.89 (5.50)	30.47 (7.54)	33.78 (6.32)	3 vs. 2**, 4** 1 vs. 2*, 4*
Context					
Neighbor	1.84 (.57)	1.72 (.66)	1.66 (.58)	1.70 (.63)	*ns*
Racism (7th)	2.15 (1.01)	1.76 (.89)	1.89 (.91)	1.62 (.80)	1 vs. 4*

Note. SPP = socially prescribed perfectionism; SOP-C = self-oriented perfectionism-critical; KTEA = Kaufman Test of Educational Achievement.
*$p < .05$. **$p < .01$. ***$p < .001$.

the Low and Increasing classes ($Z = 3.78$, $p < .001$; $Z = 2.41$, $p = .01$, respectively). The High class also had significantly lower perceived control scores than the Low class ($Z = 3.17$, $p = .002$).

In addition to these self-reported internalizing differences, the High and Decreasing classes also had the lowest academic skills in sixth grade. The High class ($M = 30.50$) had significantly lower mean K–TEA reading scores compared to the Low class ($M = 33.91$; $Z = 2.01$, $p = .04$). The Decreasing class had mean reading scores ($M = 30.06$) that were significantly lower than both the Low and Increasing classes $M = 33.40$; $Z = 3.70$, $p < .001$; $Z = 2.32$; $p = .02$, respectively).

Teacher ratings provided two points of distinction between the Decreasing and High classes. The Decreasing class had significantly worse social (shy) and school problems (inattention) in sixth grade. Their Shy score was significantly higher than the Low and High classes ($Z = 3.66$, $p < .001$; $Z = 2.12$, $p = .03$, respectively). In addition, their Inattention score was significantly higher than the other three classes: Low ($Z = 4.04$, $p < .001$), High ($Z = 2.11$, $p = .04$), and Increasing ($Z = 2.72$, $p = .007$).

In terms of social context, no neighborhood effects were observed; however, the Decreasing class reported significantly higher experiences with racism in seventh grade than the Low and Increasing classes ($Z = 2.93$, $p = .003$; $Z = 2.00$, $p < .05$, respectively).

Self-oriented perfectionism-critical. Many of the same findings regarding the sixth-grade risk factors for High or Decreasing SPP groups were found with the SOP-C analyses. The Decreasing class reported the highest mean depression symptoms in sixth grade (see Table 4). Their depression score ($M = 1.05$) was significantly higher than Low ($M = .57$) and Increasing ($M = .73$) classes ($Z = 5.37$, $p < .001$; $Z = 2.02$, $p < .05$). The High class also had significantly higher mean depression scores (1.01) than the Low class ($Z = 4.42$, $p < .001$). The Decreasing class also had significantly higher anxiety scores than the Low ($Z = 7.13$, $p < .001$) and Increasing ($Z = 3.68$, $p < .001$) classes. The High class was also significantly higher than the Low ($Z = 4.60$, $p < .001$) and Increasing ($Z = 2.91$, $p = .002$) classes. These mood symptoms were confirmed in lower ratings of perceived control for both the High and Decreasing classes. The Decreasing class had significantly lower perceived control scores than the Low ($Z = 3.42$, $p = .001$) and Increasing ($Z = 3.68$, $p < .001$) classes. The High class was also significantly lower than the Low ($Z = 3.75$, $p < .001$) and Increasing ($Z = 2.73$, $p < .001$) classes.

The High and Decreasing classes also had the lowest academic skills. The High class was lower than the Low ($Z = 2.18$, $p = .029$) and Increasing ($Z = 2.09$, $p = .037$) classes. The Decreasing class was lower than the Low ($Z = 2.83$, $p = .005$) and Increasing ($Z = 2.87$, $p = .004$) classes.

Teacher ratings provided a glimpse into the potential impending onset of problems for the Increasing group. They had significantly higher Inattention scores than the Low ($Z = 1.98$, $p < .05$) class. The Decreasing group had the worst Shy and Inattention scores. Their Shy score was significantly higher compared to the Increasing group ($Z = 2.02$, $p = .04$), and their Inattention score was significantly higher than the Low ($Z = 2.47$, $p = .01$) class.

There were no significant neighborhood differences among the groups. However, the High class had significantly higher Racism scores than the Low class ($Z = 2.76$, $p = .004$).

Parallel Process of Co-Occurring Problems

Co-occurrence. The co-occurrence of SPP and SOP-C was evaluated using parallel process analysis. Table 5 presents the estimated frequency and joint probability of membership in trajectory groups. For instance, 289 youth (53%) were simultaneously in the low SPP and SOP-C classes.

Table 5
Co-Occurrence of SPP and SOP-C Trajectories

	Increasing SPP	High SPP	Decreasing SPP	Low SPP
Estimated group membership				
Increasing SOP-C	19	3	6	25
High SOP-C	3	3	3	9
Decreasing SOP-C	6	6	16	50
Low SOP-C	67	13	29	289
Joint probability of SPP and SOP-C				
Increasing SOP-C	0.035	0.005	0.011	0.046
High SOP-C	0.005	0.005	0.005	0.016
Decreasing SOP-C	0.011	0.011	0.029	0.091
Low SOP-C	0.122	0.024	0.053	0.528
Probability of SPP conditional on SOP-C				
Increasing SOP-C	0.358	0.057	0.113	0.472
High SOP-C	0.167	0.167	0.167	0.500
Decreasing SOP-C	0.077	0.077	0.205	0.641
Low SOP-C	0.168	0.033	0.073	0.726
Probability of SOP-C conditional on SPP				
Increasing SOP-C	0.200	0.120	0.111	0.067
High SOP-C	0.032	0.120	0.056	0.024
Decreasing SOP-C	0.063	0.240	0.296	0.134
Low SOP-C	0.705	0.520	0.537	0.775

Note. SPP = socially prescribed perfectionism; SOP-C = self-oriented perfectionism-critical.

Although joint probabilities provide us with information about the probability of membership in more than one class, conditional probabilities may provide more meaningful information about co-occurrence. The lower portion of Table 5 provides two sets of conditional probabilities: the probability of membership in each SPP class conditional on each SOP-C class, and vice versa. For instance, if youth were in either Low SPP or SOP-C classes, they were very likely to be in the other low class (0.73 and 0.78 conditional on SPP and SOP-C, respectively). When looking at joint probabilities, less than 1% of adolescents in the entire sample were in the High SPP symptoms class and the High SOP-C class. In contrast, the conditional probabilities indicate that 17% of youth who were in the High SOP-C class were also in the High SPP class compared to 12% of High SPP youth who were also High SOP-C.

Some unexpected findings emerged from the conditional probabilities. All the maladaptive classes for each process had the highest probability of being in the Low normative class for the

other process (0.47–0.71). This pattern is likely due to the large proportion of youth classified in the Low SPP and SOP-C classes. However, given that each process separately accounted for adverse outcomes, this suggests the value of unique information provided by each. For instance, youth in the High SOP-C class were equally likely to fall in the Increasing, High, or Decreasing SPP classes (17% for each). Youth in the High SPP class were twice as likely to be in the Decreasing SOP-C class (24%) as in the High or Increasing SOP-C classes (12%).

Does either process afford protection over time? For instance, if stable, low SOP-C scores provided protection against worsening SPP we would expect Low SOP-C youth to be more likely to appear in the Decreasing SPP class rather than the Increasing SPP class. In fact, the opposite was true. Those low on SOP-C were more than twice as likely to be in the Increasing SPP class (0.17) as the Decreasing SPP class (0.07). On the other hand, some evidence emerged to suggest that SPP may provide some protection against worsening SOP-C. Youth in the Low SPP class were twice as likely to appear in the Decreasing SPP class (0.13) compared to the Increasing SOP-C class (0.07) and 6 times as likely compared to the High SPP class (0.02). Likewise, those in the Decreasing SPP class were nearly 3 times more likely to be in the Decreasing SOP-C class (30%) as the Increasing SOP-C class (11%). On the other hand, stable high SPP may not interfere with recovery from high SOP-C. Those in the High SPP class were twice as likely to be in the Decreasing SOP-C class as in the High or Increasing SOP-C classes.

The processes appear to be complementary. As expected, those in either Increasing class had the greatest probability of falling in the Increasing class for the opposing process (20% and 36% conditional on SPP and SOP-C, respectively). Increasing SOP-C was more likely to be associated with worsening SPP whereas worsening SPP is as likely to be associated with stable Low SOP-C.

MDD outcomes associated with co-occurring classes. We examined the probabilities of MDD diagnoses associated with the combined classes. These analyses were limited by the small cell size of some of the classes, thus the wide confidence intervals reported here. Still some noteworthy findings emerged. The combined class with the single highest probability of MDD diagnosis was the High SPP, Increasing SOP-C class; 60% of youth in this class were given an MDD diagnosis at some point during the 7-year period. Their odds of diagnosis were 29.41 times higher than the Low SPP, Low SOP-C class (.05; CI = 1.02–1000). Other groups to significantly higher risk of MDD diagnoses compared to the Low, Low class included the High SPP, Low SOP-C (.44; OR = 15.87, CI = 2.63–90.91), the Increasing SPP, Decreasing SOP-C (.39; OR = 12.60, CI = 2.27–69.90), the Decreasing SPP, Increasing SOP-C (.39; OR = 12.87, CI = 1.09–152.52), and the High SPP, High SOP-C (.34; OR = 10.42, CI =1.10–100). Two other classes with high risk for MDD diagnoses included the High SPP, Low SOP-C (.44) and the Low SPP, Increasing SOP-C classes (.39). Their odds of MDD diagnosis were 18.87 (CI = 1.77–200) and 15.15 (CI = 1.40–167) higher than the Decreasing SPP, Low SOP-C class. It is worth noting that all the High SPP classes were among those with high risks for MDD diagnoses.

Discussion

This study may be the first to have examined the natural progression of perfectionism qualities over a 7-year period of adolescence. One notable finding is that perfectionism may be more malleable during this developmental period than commonly conceptualized. Consistent with Flett et al.'s (2002) integrated models emphasis on the importance of adolescence in shaping perfectionism dimensions, some level of growth was evident in all trajectories. Moreover, in contrast with a strict trait perspective, a subset of the sample experienced dramatic changes in their perfectionism profiles over time. The SPP scores for one fourth of participants went from high to low, or vice versa, during the study period. Similarly, over 40% of participants' SOP-C scores had this striking shift. Thus, not only do the results call attention to the emergent qualities of perfectionism during adolescence but also to the possibility that the stability of perfectionism may vary within subgroups. In comparing SPP and SOP-C, there was also less absolute stability among the SPP classes. This may be due to SPP being more influenced by external-contextual factors than SOP-C given that SPP focuses on the perceived perfectionism conveyed by others.

Results focusing on the mental health impact of the various trajectories were partially consistent with our expectations—high and increasing SPP and SOP-C scores were associated with higher depression and anxiety at 12th grade. Those with stable, high scores on either construct were also at greater risk for major depressive disorder during adolescence. Although this was also true for those with increasing SOP-C scores, this was not the case

for youth in the increasing SPP class. This is likely an artifact of the delayed onset for this increasing class relative to the SOP-C group. The uptick in SPP scores for this group did not start until 10th grade, so it gave this group less time during the 7-year study period to present with MDD. An alternate explanation, however, would be that increasing SPP during adolescence is not in itself a risk factor for MDD.

Confirming the distinctiveness of the classes, sixth-grade predictors of the various trajectories also found higher social-emotional symptoms among the high classes. Competency models of depression suggest that academic, emotional, and social deficits during childhood contribute to enduring negative perceptions. Consistent with this model, we found that both classes with high levels of maladaptive perfectionism at baseline (High and Decreasing) on both SOP-C and SPP had evidence of low competencies, that is, lower academic scores and self-perceived control, higher inattention and shyness, and higher levels of anxiety and depression in sixth grade. However, none of the predictors clearly distinguished those who persisted with elevated maladaptive perfectionism beliefs from those who fell to normal levels (i.e., the Decreasing classes). Thus, competency variables may predict maladaptive perfectionism tendencies at middle school entry, and for a subset of youth, tendencies that persist through adolescence (e.g., the High class). However, other variables are needed to explain why maladaptive perfectionism may remit in other youth (e.g., the Decreasing class) during this same time period.

Parallel process analyses revealed the joint and conditional probabilities for the various trajectories across the two processes. These analyses suggested that SPP and SOP-C are complementary but distinct processes. Given that each process was separately associated with adverse outcomes in expected ways, it is important to note that many youth fell into the pathological groupings for only one but not the other process. That is, if only one process were considered, many youth would be deemed to be low risk for MDD even though their profile on the second process might indicate otherwise. Moreover, we found evidence to suggest that considering the co-occurrence of the processes can reveal youth most at risk for major depressive disorder. For instance, 60% of youth with stable high SPP and increasing SOP-C scores met criteria for MDD during the study period, which represented nearly a 30-fold increased risk compared to the normative group. This appears to be a group of youth who are highly and consistently concerned about meeting the perfectionistic expectations of others, while feeling increasingly critical of their own performances. Having persistently high SPP in youth also warrants attention, as regardless of their SOP-C scores, this group tended to have higher risk for MDD diagnosis.

These findings are important both for the early identification of risk and also for the conceptualization of maladaptive perfectionism. Some have questioned whether SPP and SOP-C are unique or overlapping maladaptive processes (see Herman et al., 2011). Here, we found evidence to suggest both constructs are needed for an adequate conceptualization of perfectionism and associated negative outcomes. Researchers should continue to use and examine both of these processes.

The findings suggest that SPP and SOP-C, individually and in combination, have deleterious effects on youth development. Identifying youth with or at risk for these self-perceptions and providing support may reduce the negative effects of these patterns. In particular, youth with persistently high SPP alone or in combination with increasing levels of SOP-C may represent a very high risk group for unipolar depressive episodes. On a positive note, the findings that perfectionism levels were more malleable than often conceptualized suggest that supports and environmental manipulations during adolescence may alter maladaptive perfectionism.

Our study not only expands the current perfectionism literature through examining growth trajectories but also focuses on the African American population, which has been underrepresented in studies on this topic (Bardone-Cone, Weishuhn, & Boyd, 2009; Herman et al., 2011; McCreary et al., 2004; Mobley, Slaney, & Rice, 2005). Consistent with the unified theory, findings suggested that experiences with racism predicted class membership for both processes. Youth reporting higher levels of racism experiences were more likely to be in maladaptive perfectionism classes. On the other hand, neighborhood effects had no relations with class membership on either class. Although the unified theory does not explicitly identify neighborhood disorganization as a distal cause of depression in disadvantaged African Americans, we used it as a proxy for "poverty and restricted economic opportunity," which appear prominently in the model. Unfortunately, in this archival data set, we did not have access to all the variables that would provide a more nuanced test of the culture-specific hypotheses of the unified theory. Although the findings regarding racism are promising, subsequent studies should include other measures consistent with the unified theory including specific cognitive-emotional conse-

quences of oppression such as alienation from dominant culture, internalized racism, chronic stress, and hopelessness.

More information is needed to understand precursors to the trajectories identified in this study. We considered a limited range of predictors in this study, primarily to validate the classes. In general, we found support for the distinction between the classes; however, we were unable make key distinctions that might guide prevention efforts. Of most interest would be factors that distinguished those with stable, high patterns versus those with decreasing patterns and to distinguish stable, low from those with increasing patterns. Prior research has offered some clues that other personality characteristics and family patterns might explain variations in perfectionism during adolescence. For instance, Stoeber, Otto, and Dalbert (2009) found that conscientiousness predicted increases in SOP among adolescents, but neuroticism did not predict any changes in perfectionism—neither SOP nor SPP. In addition, in their three-wave longitudinal study, Soenens et al. (2008) found that parental psychological control (reported by parent and adolescent) at age 15 predicted increased levels of maladaptive perfectionism 1 year later. Including such constructs in future studies of perfectionism could help clarify whether these can distinguish developmental patterns of maladaptive perfectionism.

The interactions among emerging self-perceptions, primary personality qualities, parenting, and educational contexts may provide a more nuanced perspective on predictors of maladaptive perfectionism in African American youth. Youth's self-perceptions and internal expectations only begin to crystallize during late childhood, a process that continues through adolescence. Middle school represents a key transition when students typically experience increasing academic expectations which may present challenges to a student's self-beliefs. Perfectionism beliefs are likely altered when self-perceptions and aspirations are incongruent with actual performance or with the perceptions of significant others during this period. Student personal qualities (such as conscientiousness; Stoeber et al., 2009), parental expectations, and teacher support may modify the effect of these incongruent messages on perfectionism. Moreover, sociocontextual aspects of urban schools may thwart adaptive perfectionism when there is a mismatch between a student's aspirations and the school resources that are available to support those aspirations. In sum, future studies may need to consider more dynamic aspects of the social ecology that may contribute to perfectionism beliefs than were available in this study.

These sociocontextual factors may also be needed to fully examine gender differences in patterns of perfectionism, such as the different rates of office discipline referrals and different types of teacher and parent expectations experienced by males and females. Only one gender difference emerged in this study. Males were more likely to be in the decreasing SOP-C class. The finding is at least partially consistent with prior research showing males are less prone toward self-critical attribution biases than females (Frey & Ruble, 1987). Perhaps this tendency serves as a protective factor for males to lower self-critical perfectionism over time. Regardless, the finding encourages future research continue to examine gender differences in perfectionism patterns.

One limitation of this study is that the class indicators were given by youth report only. Although self-ratings of perfectionism remain the standard used by most studies of the construct, future studies are needed to assess any behaviors associated with perfectionism either as observed by significant others or by direct observations by researchers. Until such studies are conducted, the perfectionism construct will remain largely defined as a cognitive self-construal process rather than, as many authors contend, an observable trait. An additional limitation is that we were unable to include measurement of self-oriented striving in this study because the measure was dropped after sixth grade as part of an effort to reduce participant burden in completing the comprehensive assessments. A future study is needed to determine if striving aspects of perfectionisms are similarly malleable during adolescence. Another measurement-related concern is the modest internal consistency of the SOP-C. Even with this measurement error, the solutions for SOP-C had good model fit and adequate levels of entropy. Finally, it is important to note that this was a fairly specific sample so it remains unknown if the findings will generalize to other settings.

On the other hand, our measurement strategy for defining predictors was a key strength of this study. We used multiple informants (teachers, self, clinicians) and multiple methods (self-reports, interviews, performance) at two time points to move beyond prior perfectionism research that has been plagued by method and source bias. Most prior studies have relied on self-ratings to define perfectionism and its correlates. Some other notable strengths of the study include the longitudinal design, relatively large sample of an understudied population, and the use of a sophisticated method (GMM). Continued investigations of developmental aspects of perfectionism will help better define the construct and its impact on youth outcomes.

References

American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders,* 4th ed. Washington, DC: Author.

Arbuckle, J. L. (1996). Full information estimation in the presence of incomplete data. In G. A. Marcoulides & R. E. Schumacker (Eds.), *Advanced structural equation modeling: Issues and techniques* (pp. 243–277). Mahwah, NJ: Erlbaum.

Arpin-Cribbie, C. A., Irvine, J., Ritvo, P., Cribbie, R. A., Flett, G. L., & Hewitt, P. L. (2008). Perfectionism and psychological distress: A modeling approach to understanding their therapeutic relationship. *Journal of Rational-Emotive & Cognitive Behavior Therapy, 26,* 151–167. doi:10.1007/s10942-007-0065-2

Bardone-Cone, A. M., Weishuhn, A. S., & Boyd, C. A. (2009). Perfectionism and bulimic symptoms in African American college women: Dimensions of perfectionism and their interactions with perceived weight status. *Journal of Counseling Psychology, 56,* 266–275. doi:10.1037/a0015003

Bauer, D. J., & Curran, P. J. (2003). Overextraction of latent trajectory classes: Much ado about nothing? Reply to Rindskopf (2003), Muthen (2003), and Cudeck and Henly (2003). *Psychological Methods, 8,* 384–393. doi:10.1037/1082-989X.8.3.384

Bieling, P. J., Israeli, A., Smith, J., & Antony, M. M. (2003). Making the grade: The behavioural consequences of perfectionism in the classroom. *Personality and Individual Differences, 35,* 163–178. doi:10.1016/S0191-8869%2802%2900173-3

Boone, L., Soenens, B., Braet, C., & Goossens, L. (2010). An empirical typology of perfectionism in early-to-mid adolescents and its relation with eating disorder symptoms. *Behaviour Research and Therapy, 48,* 686–691. doi:10.1016/j.brat.2010.03.022

Castro, J. R., & Rice, K. G. (2003). Perfectionism and ethnicity: Implications for depressive symptoms and self-reported academic achievement. *Cultural Diversity and Ethnic Minority Psychology, 9,* 64–78. doi:10.1037/1099-9809.9.1.64

Chang, E. C., Watkins, A., & Banks, K. H. (2004). How adaptive and maladaptive perfectionism relate to positive and negative psychological functioning: Testing a stress-mediation model in Black and White female college students. *Journal of Counseling Psychology, 51,* 93–102. doi:10.1037/0022-0167.51.1.93

Cole, D. A., Jacquez, F. M., & Maschman, T. L. (2001). Social origins of depressive cognitions: A longitudinal study of self-perceived competence in children. *Cognitive Therapy & Research, 25,* 377–395. doi:10.1023/A:1005582419077

Cox, B. J., & Enns, M. W. (2003). Relative stability of dimensions of perfectionism in depression. *Canadian Journal of Behavioural Science, 35,* 124–132. doi:10.1037/h0087194

Crum, R. L., Lillie-Blanton, M., & Anthony, J. C. (1996). Neighborhood environment and opportunity to use cocaine and other drugs in late childhood and early adolescence. *Drug & Alcohol Dependence, 43,* 155–161.

Elliot, D. S., Huizinga, D., & Ageton, S. S. (1985). *Explaining delinquency and drug use.* Beverly Hills, CA: Sage.

Essau, C. A., Leung, P. W., Conradt, J., Cheng, H., & Wong, T. (2008). Anxiety symptoms in Chinese and German adolescents: Their relationship with early learning experiences, perfectionism, and learning motivation. *Depression and Anxiety, 25,* 801–810. doi:10.1002/da.20334

Flett, G. L., Hewitt, P. L., Boucher, D. J., Davidson, L. A., & Munro, Y. (2000). *The Child and Adolescent Perfectionism Scale: Development, validation, and association with adjustment.* Unpublished manuscript.

Flett, G. L., Hewitt, P. L., Oliver, J. M., & Macdonald, S. (2002). Perfectionism in children and their parents: A developmental analysis. In G. L. Flett & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 89–132). Washington, DC: American Psychological Association.

Frey, K. S., & Ruble, D. N. (1987). What children say about classroom performance: Sex and grade differences in perceived competence. *Child Development, 58,* 1066–1078.

Frost, R. O., Heimberg, R. G., Holt, C. S., Mattia, J. I., & Neubauer, A. L. (1993). A comparison of two measures of perfectionism. *Personality and Individual Differences, 14,* 119–126. doi:10.1016/0191-8869(93)90181-2

Guo, J., Wall, M., & Amemiya, Y. (2006). Latent class regression on latent factors. *Biostatistics, 7,* 145–163. doi:10.1093/biostatistics/kxi046

Hammack, P. L. (2003). Toward a unified theory of depression among urban African American youth: Integrating socioecologic, cognitive, family stress, and biopsychosocial perspectives. *Journal of Black Psychology, 29,* 187–209. doi:10.1177/0095798403029002004

Harrell, S. P. (2000). A multidimensional conceptualization of racism-related stress: Implications for the well-being of people of color. *American Journal of Orthopsychiatry, 70,* 42–57.

Hawley, L. L., Ho, M.-H. R., Zuroff, D. C., & Blatt, S. J. (2006). The relationship of perfectionism, depression, and therapeutic alliance during treatment for depression: Latent difference score analysis. *Journal of Consulting and Clinical Psychology, 74,* 930–942. doi:10.1037/0022-006X.74.5.930

Herman, K. C., & Ostrander, R. O. (2007). The effects of attention problems on depression: Developmental, cognitive, and academic pathways. *School Psychology Quarterly, 22,* 483–510. doi:10.1037/1045-3830.22.4.483

Herman, K. C., Ostrander, R. O., & Tucker, C. M. (2007). Do family environments and negative cognitions of adolescents with depressive symptoms vary by ethnic group? *Journal of Family Psychology, 21,* 325–330.

Herman, K. C., Trotter, R., Reinke, W. M., & Ialongo, N. (2011). Developmental origins of perfectionism among African American youth. *Journal of Counseling Psychology, 58,* 321–334. doi:10.1037/a0023108

Hewitt, P. L., & Flett, G. L. (1991). Perfectionism in the self and social contexts: Conceptualization, assessment,

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Dark Personality Traits and Impulsivity Among Adolescents: Differential Links to Problem Behaviors and Family Relations

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Research on how dark personality traits develop and relate to risky behaviors and family relations during adolescence is scarce. This study used a person-oriented approach to examine (a) whether distinct groups of adolescents could be identified based on their developmental profiles of callous-unemotional (CU), grandiose manipulative (GM), and dysfunctional impulsivity (DI) traits and (b) whether these groups differ in their problem behaviors and parent–adolescent relationship quality. Latent class growth analyses on 4-wave data of 1,131 Dutch adolescents revealed 3 personality profiles: (1) a dark impulsive group (13.9%), with high scores on all 3 traits (CU, GM, and DI) that were stable over time; (2) an impulsive group (26.1%), with high and increasing levels of impulsivity and relatively low scores on CU and GM; and (3) and a low risk group (60.0%), with relatively low levels on all 3 personality characteristics, with impulsivity decreasing over time. Compared with adolescents in the low risk group, adolescents in the dark impulsive and impulsive groups reported higher initial levels of substance use, sexual risk behaviors, permissive sexual attitudes, parent–adolescent conflict, and lower parent–adolescent satisfaction, as well as greater increases in sexual risk behavior over time. Compared with adolescents in the impulsive group, those in the dark impulsive group showed the highest levels of risk behaviors. Hence, dark personality traits coupled with impulsivity may be indicative of an earlier and more severe trajectory of problem behaviors that may differ from the trajectory of youth who are only impulsive.

General Scientific Summary

This study identified 2 subgroups of adolescents that are at higher risk of engaging in risk behaviors on the basis of their self-reported psychopathic personality traits and impulsivity. The first group (high on callous-unemotional, grandiose-manipulative, and impulsivity) show early and escalating levels of substance use and sexual risk behaviors, whereas the second group (high on impulsivity only) also shows higher but less severe levels for substance use and sexual risk behaviors. Including measures of psychopathy such as callous-unemotional, or grandiose-manipulative traits, in addition to impulsivity, to community studies would help identify adolescents at greatest risk for early and severe risk taking behaviors.

Keywords: grandiose manipulative, callous-unemotional, impulsivity, adolescence, latent class growth analyses

Although it is widely recognized that children and adolescents with psychopathic (dark) personality traits are at increased risk for exhibiting antisocial behavior, conduct problems, delinquency and/or (sexual) aggression, and substance use disorders (e.g., Chabrol, van Leeuwen, Rodgers, & Sejourne, 2009; Frick, Cornell, Barry, Bodin, & Dane, 2003; McMahon, Witkiewitz, Kotler, & the Conduct Problems Prevention Research Group, 2010), there is relatively little research on how these traits develop and whether they relate to the development of problem behaviors such as substance use or sexual risk behaviors before

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Data for the present study were collected as part of a larger longitudinal study conducted in the Netherlands titled "Project STARS" (i.e., Studies on Trajectories of Adolescent Relationships and Sexuality), which was funded by the Dutch Organization for Scientific Research (NWO) and the Fund for Scientific Research of Sexuality (FWOS; NWO Grant 431-99-018). Portions of this research have been presented as a poster at the 2017 Biennial Meeting of the Society for Research in Child Development, Austin, Texas.

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they escalate into clinical disorders. This lacuna is surprising given the strong body of research that shows that dark personality traits have been associated with a number of negative outcomes among young adults such as binge drinking (Luhtanen & Crocker, 2005), general substance use (Buelow & Brunell, 2014), participation in high risk sports (Buelow & Brunell, 2014), aggressive driving (Malta, Blanchard, & Freidenberg, 2005), sexual drive (Baughman, Jonason, Veselka, & Vernon, 2014), and risky sexual behaviors (Martin, Benotsch, & Lance, 2013). Moreover, most research on children and adolescents focuses on either callous unemotional traits or impulsivity, with only a limited number of studies including multiple dark personality traits at once. The present research focuses on callous-unemotional (CU), grandiose manipulative (GM), and dysfunctional impulsivity (DI) traits, as these characteristics have been used to reflect the core dimensions of psychopathy (e.g., Cooke & Michie, 2001; Frick, Bodin, & Barry, 2000; van Baardewijk et al., 2010). We investigated whether a school-based sample of adolescents followed across four measurement waves could be classified into subgroups based on the beginning levels and change profiles of these three personality traits and to what extent these groups differed in substance use, sexual risk behaviors, and family relationship qualities.

The present research takes a person-oriented perspective to account for the fact that although distinct, these traits are often modestly correlated (Jonason & Tost, 2010; Jones & Paulhus, 2011; O'Connor, Humayun, Briskman, & Scott, 2016). A person-oriented approach attempts to identify how constellations of traits within individuals are organized and groups of individuals are identified who have similar personality profiles. In this way, a person-oriented approach takes into account how traits conjointly operate within the same individual (Egan, Chan, & Shorter, 2014). A variable-centered approach, in contrast, focuses on differences among individuals on a given personality trait and examines how these traits are related to problem behaviors. Correlations among the traits can lead to issues of collinearity when used simultaneously as predictors in the same regression analysis; moreover, even when two or more variables are correlated with an outcome behavior, it is not certain whether these associations operate similarly for all individuals within the sample. That is, a variable-centered approach assumes that any association found between variables applies similarly to everyone in the sample, whereas a person-oriented approach does not. CU traits refer to an affective style that is characterized by low levels of empathy or guilt for wrong doing and restricted or shallow affect (Frick, Ray, Thornton, & Kahn, 2014), whereas GM traits reflect an interpersonal style characterized by arrogance, manipulation, lying, and superficial charm (Orue, Calvete, & Gamez-Guadix, 2016). Finally, dysfunctional impulsivity reflects a behavioral style that is characterized by making decisions or taking actions with little or no consideration of the consequences, particularly when the consequences are detrimental (Dickman, 1990). Impulsivity has often been associated with many of the problem behaviors that increase during adolescence (Dir, Coskunpinar, & Cyders, 2014; Stautz & Cooper, 2013), and most research that focuses on this trait among community samples does not simultaneously investigate other dark personality characteristics.

Three previous cross-sectional studies have attempted to identify subtypes of adolescents on the basis of these three personality dimensions, representing a Swedish community sample (Andershed, Kerr, Stattin, & Levander, 2002), incarcerated German male offenders (Andershed, Köhler, Eno Louden, & Hinrichs, 2008), and Dutch adolescents in residential care for behavioral problems (Nijhof et al., 2011). Three common groups of adolescents were identified: a normative/low risk group (24% to 51% of the adolescents sampled) that scored low on all three characteristics; an impulsive group (17% to 38%) that scored high on impulsivity and moderate on CU traits and GM traits; and a psychopathic group (10% to 29%) that scored high on all three traits. Both the psychopathic and impulsive groups showed higher risks for externalizing problem behaviors, delinquency, conduct disorders (Andershed et al., 2002, 2008; Nijhof et al., 2011), and cannabis use compared with the low risk group (Andershed et al., 2008; Nijhof et al., 2011). In general, the psychopathic group showed higher levels of acting out problems compared with the impulsives (Andershed et al., 2002, 2008; Nijhof et al., 2011) and were more likely to report hard substance use or polysubstance use (Andershed et al., 2008), whereas the impulsive group showed a higher tendency for internalizing problems (Nijhof et al., 2011).

Although cross-sectional studies are useful for identifying subgroups of adolescents on the basis of their current personality characteristics, longitudinal studies are needed to determine the degree to which these personality subtypes remain the same across time or whether other subgroups representing change profiles are apparent. Early theorizing on adult psychopathic traits has often assumed that these characteristics are early emerging characteristics that, once developed, would be quite stable from childhood to adulthood (Salihovic, Özedemir, & Kerr, 2014). The only study to examine longitudinal trajectories of psychopathic traits using a person-oriented approach followed a community sample of Swedish 13 to 15 year olds four times annually (Salihovic et al., 2014). Four groups of adolescents were identified: a low-decreasing group (28%) that exhibited low initial levels of CU, GM, and impulsive traits that decreased across the four waves, a moderate-decreasing group (35%) that showed moderate levels of all traits that decreased across time (with higher levels of impulsivity relative to the other traits), a moderate-stable group (25%) that showed moderate levels of all traits that did not change across time (also with higher relative levels of impulsivity), and a high-decreasing group (12%) that showed the highest levels of all traits across all waves of the study with CU traits and impulsivity showing slight decreases over time. All four groups differed in their initial levels and degree of change in delinquency and parenting across time. The low decreasing and moderate decreasing groups showed low initial levels of delinquency and no change in delinquency across time; these groups also had parents who exhibited the high levels of positive parenting and the low and stable levels of negative parenting. The moderate stable and high decreasing groups showed the highest levels of delinquency with the moderate stable group increasing in delinquency across time. Moreover, these groups experienced more difficult relationships with their parents. In comparing the results from this longitudinal study to the 3 cross-sectional studies, the low-decreasing and moderate-decreasing groups are similar to the low risk groups found in the cross-sectional studies in terms of developmental outcomes, whereas the high-decreasing group is most similar to the

psychopathic group. The moderate stable group showed higher levels of delinquency that worsened over time and is most equivalent to the impulsive group. Thus, although promising more research is needed to determine whether three or four is the optimal number of personality profiles.

The current research extends prior research in several ways. First, with the exception of Salihovic et al. (2014), most studies that examined psychopathic profiles used a one-time assessment of the dark personality traits. Although high levels of stability of all three traits among school-age children have been found (Frick, Kimonis, Dandreaux, & Farell, 2003), there could be substantial interindividual variability in the developmental trajectories of these traits particularly during adolescence. Recent longitudinal studies have found an increase in impulsivity from ages 10 through 14 and a subsequent decrease (Littlefield, Stevens, Ellingson, King, & Jackson, 2016; Shulman, Harden, Chein, & Steinberg, 2015), particularly on measures that focus on premeditation or urgency; subgroups showing either declines or stability in impulsivity across adolescence (Harden & Tucker-Drob, 2011; Quinn & Harden, 2013; Salihovic et al., 2014) have also been found. Variability in trajectory analyses for callous/unemotional among children ranging from 7 to 12 years old has also been found (Fontaine, McCrory, Boivin, Moffitt, & Viding, 2011), and Salihovic et al.'s trajectory analyses found both stable and decreasing trajectories for both CU traits and GM traits. Thus, the current study draws from a 4-wave longitudinal study of a community sample of Dutch adolescents and attempts to identify whether the same stable subtypes of adolescents could be identified or whether different or additional subtypes could be identified on the basis of the levels and change profiles of CU, GM, and dysfunctional impulsivity (DI) traits.

Second, prior research focused primarily on externalizing problems, conduct problems and delinquency and more serious substance use issues (illegal drugs or substance use problems). This leaves open the question as to whether differences between these groups also exist for less problematic levels of substance use or other problem behaviors. In the current study, we focus on two developmentally relevant behaviors that most, if not all, adolescents are confronted with: substance use and sexual risk behaviors. Most research that examines the association between psychopathic traits and sexual behavior among adolescents has focused on male sexual offenders (e.g., Caputo, Frick, & Brodsky, 1999). Nevertheless, among community samples, all three traits were independently associated with adolescent sexual risk taking (McCauley, Shadur, Hoffman, MacPherson, & Lejuez, 2016; Rucević, 2010), but when combined in a regression analysis, only impulsivity remained as a significant predictor (Rucević, 2010). Moreover, impulsivity (but not CU nor GM) was found to correlate with adolescent boys' symptoms of compulsive use of sexually explicit Internet material (SEIM; Doornwaard, van den Eijnden, Baams, Vanwesenbeeck, & ter Bogt, 2016). In the current study we focused on three types of sexual risk behavior: permissive sexual attitudes, sexual risk behaviors that could lead to either a sexually transmitted infection or pregnancy, and compulsive SEIM use.

Third, in addition to examining the behavioral correlates of the personality profiles we also examined how parent–adolescent relationship quality relates to the personality profiles across the study period. As reviewed above, only the research by Salihovic and colleagues (2014) investigated whether adolescents with differing trajectories of pyschopathic traits also experienced differences in parental behavior. Other research also confirms the salient role of family risk factors in predicting changes in psychopathic traits across time and even bidirectional relationships between family functioning and personality traits (Kiff, Lengua, & Zalewski, 2011; Thomaes, Brummelman, Reintjes, & Bushman, 2013; Waller, Gardner, & Hyde, 2013). For example, children exposed to high levels of physical punishment have been found to exhibit increasing levels of CU traits over time (Fontaine et al., 2011; Lynam, Loeber, & Stouthamer-Loeber, 2008; Pardini, Lochman, & Powell, 2007), whereas exposure to higher levels of warmth and involvement predicted decreases in CU traits (Pardini et al., 2007). Among adolescents, parent hostility at age 12 predicted higher levels of manipulative traits at age 14 (Wetzel, & Robins, 2016). Impulsivity in middle childhood has been linked with greater family conflict in late childhood, which in turn predicted greater impulsivity in late adolescence (Elam et al., 2016). Together, these results suggest that the parent–child relationship affects and may be affected by whether the child exhibits dark personality traits.

Current Study

Using a four-wave, 6-month interval, longitudinal design, with a sample of 1,131 Dutch adolescents (11 to 18 years old) we address three aims. First, using latent class growth analyses we examined whether distinct groups of adolescents could be identified on the basis of the levels and change profiles of the three personality traits. Second, we examined whether these profile groups differed in their levels and change in problem behaviors, focusing on substance use and sexual behaviors (sexual risk behavior, permissive sexual attitudes and the compulsive use of SEIM). Third, we examined whether adolescents in these groups differ in parent-relationship quality, focusing on satisfaction and conflict.

Hypotheses

On the basis of prior findings of the modest correlations among CU, DI, and GM (Fontaine et al., 2011; Harden & Tucker-Drob, 2011; Quinn & Harden, 2013) and the latent class/cluster analyses using similar scales (Andershed et al., 2002, 2008; Nijhof et al., 2011; Salihovic et al., 2014), we expected that a minimum of 3 classes would be identified but that additional groups might be identified on the basis of how the personality characteristics changed across time. That is, we expected to find at least 3 (relatively stable) groups, specifically: a group of individuals who would show high scores on all 3 characteristics across the four waves of measurements, a group of adolescents who would show relatively high scores on impulsivity and moderate or low scores on CU and GM, and a low risk group who would show low scores on all three traits. Other groups are also possible, but we do not make predictions about outcomes.

On the basis of prior findings that have used either a person-oriented or dimensional perspective to examine how dark personality traits are related to risk behaviors, we expected to find differences in problem behaviors and parent–adolescent relationship quality across the three a priori hypothesized profiles. Specifically, we expected that individuals who score high on all three

personality dimensions to show the highest level of substance use and the poorest relationship quality with parents (low satisfaction and high conflict), compared with any other group. We expect that adolescents who are stably high on all three personality traits and those who are stably high on impulsivity to show similar elevated levels of sexual risk behavior (permissive attitudes, risky sexual behavior, and compulsive use of sexually explicit Internet material), and these levels would be higher than the group that are low on all traits.

Method

Sample and Participants

The present study used data from Project STARS (Studies on Trajectories of Adolescent Relationships and Sexuality), a longitudinal study of 1,297 adolescents attending regular education in the Netherlands (Reitz et al., 2015). Starting from the Fall of 2011, four waves of data were collected at 6-month intervals. Participants were recruited from the last year of elementary school (6th grade) through the 10th grade of secondary school. Given that several outcome variables (e.g., sexual behaviors and drug use) were only assessed among the secondary school students, data from the elementary school students were excluded from the current analyses. This resulted in a final sample of 1,131 adolescents who ranged in age from 11 to 18 years (M = 13.95, SD = 1.18) at Wave 1. Fifty-three percent of the sample consisted of boys. Fifty-six percent of the participating adolescents followed the high education track (i.e., senior general education or preuniversity education) and 37.8% followed the low education track (i.e., prevocational education). The majority of the sample had a Dutch (79.2%) or other Western (11.0%) ethnic background. Nineteen percent of the adolescents reported that their parents were divorced at the first wave.

Bias checks. A total of 815 (72.0%) participants had complete data (four waves); 190 (16.8%) had data on three waves, 91 (8.0%) had data on two waves, and 35 (3.2%) had data on one wave. To investigate potential bias in the current analyses, we compared those adolescents who provided responses at Wave 4 with those who did not participate at Wave 4 on all key variables used here. Adolescents who missed participation in Wave 4 were older (B = .37, $p < .001$) and more likely to binge drink (B = .25, p = .001) at Wave 1. There were no differences in gender, personality traits, other substance use, parent–adolescent relationship, sexual risk behavior, permissive sexual attitudes, and compulsive SEIM use ($ps > .05$).

Procedure

Participants were recruited from four secondary schools in large cities and small municipalities in different areas of the Netherlands. Before the first measurement, eligible adolescents and their parents received information describing the aims of the study, confidentiality safeguards and procedures for declining or ending participation. Of the approached adolescents, fewer than 7% decided not to participate or were not allowed by their parents to take part in the study. At each wave, adolescents completed a computer-based, Dutch questionnaire at school during regular school hours. Researchers and trained research assistants were present to supervise the data collection (i.e., introduce the project and the procedure, answer questions, and ensure maximum privacy from teachers and other students). Adolescents received book gift certificates of increasing values after each completed questionnaire. An ethical protocol was developed should participants have any problems of questions concerning issues in this study. This study was approved by the ethics board of the Faculty of Social and Behavioral Sciences of Utrecht University.

Measures

To curb the length of the online questionnaire, and to minimize potential data loss due to weariness, we limited the number of items for some scales (psychopathic traits, impulsivity, permissive sexual attitudes, and compulsive SEIM use) by using a planned missingness design (Graham, Taylor, Olchowski, & Cumsille, 2006) at the outset of the study. In this design, participants were randomly assigned to one of three groups, which completed a different combination of three or four items from the original scale. As the study progressed, adolescents became more proficient and faster at completing the questionnaires and therefore it was decided that for T3 and T4, full versions of the questionnaires would be used. Planned missing T1 and T2 items were subsequently imputed using expectation-maximization estimation (Dempster, Laird, & Rubin, 1977) in SPSS Version 23 (IBM Corp., 2015).

Psychopathic traits. CU and GM traits were assessed using the respective subscales from the Youth Psychopathic Traits Inventory–Short Version (Van Baardewijk et al., 2010). The Callous-Unemotional subscale consists of six statements reflecting remorseless, unemotional, or callousness beliefs (e.g., "If other people have problems, it usually is their own fault and therefore you should not help them"). The Grandiose-Manipulative subscale consists of six items reflecting dishonest charm, manipulative, and grandiose beliefs and behaviors (e.g., "I have the ability to con people by using my charm and smile"). Adolescents were asked to indicate how well each statement reflects what they generally think or feel using a 4-point scale (1 = *does not apply at all*, 4 = *applies very well*). CU and GM traits scores showed good internal consistency (range α = .74–.87). A planned missingness design at Time 1 (T1) and Time 2 (T2) was used in which adolescents completed a set of three of the six items.

Impulsivity. Adolescents' level of impulsivity was assessed with the five-item Eysenck Impulsiveness Scale (Eysenck & Eysenck, 1978; Vitaro, Arseneault, & Tremblay, 1997). Adolescents rated on a 5-point scale (1 = *completely disagree*, 5 = *completely agree*) the extent to which they agreed with statement about themselves (e.g., "I usually do and say things without thinking about it"; range α = .74–.88). A planned missingness design at T1 and T2 was used in which adolescents completed a set of three of the five items.

Substance use. Adolescents were asked about their use of different substances with four items adapted from Malmberg and colleagues (2010, 2013). For alcohol use, adolescents were asked to indicate which answer best described their experience: 0 = *I've never drank alcohol, not even a sip*; 1 = *I have drunk alcohol once or twice*; 2 = *I drink alcohol once or twice a month*; 3 = *I drink alcohol once or twice a week*; 4 = *I drink alcohol daily*. If participants reported having ever had alcohol, they were presented with the following item concerning binge drinking: "How many

times in the last month did you drink five or more alcoholic drinks in a row? For example, at a party or during one night." Answer categories ranged from 0 = *never* to 6 = *nine times or more.* Adolescents were also asked to indicate their experience with smoking tobacco and smoking marijuana. Answer categories were as follows: 0 = *I have never smoked/smoked marijuana, not even a puff*; 1 = *I smoked/smoked marijuana once or twice*; 2 = *I smoke/smoke marijuana once or twice a month*; 3 = *I smoke/smoke marijuana once or twice a week*; 4 = *I smoke at least once a day.* All use scores were dichotomized (0 = never used/never binged, 1 = ever used/binged) and then summed for each measurement wave (minimum = 0, maximum = 4).

Risky sexual behavior. The level of sexual risk behavior was assessed with three items. First, adolescents were asked about whether they had ever engaged in sexual behavior: "Have you ever had sex with another person? With sex we mean everything from touching or caressing to intercourse." (0 = *no*, 1 = *yes*). If adolescents indicated having had sex, they were presented with two additional items about preventing sexually transmitted infections (STIs) and pregnancy: (1) When I have sex, I use a condom to prevent STIs; (2) When I have sex, I use contraception (girls)/protection (boys) to prevent pregnancy. Response categories for these additional items ranged from 1 = *never*, 5 = *always or almost always*, to 6 = *not applicable*. Participants who reported "not applicable," were recoded as missing. All other scores were reverse-coded. A composite risk score was created by summing the two items about preventing pregnancy and STIs, and when adolescents had not had sex, they received a score of 0 (no sexual risk behavior).

Permissive sexual attitudes. The endorsement of permissive sexual attitudes was assessed with an adapted version of the Brief Sexual Attitudes Scale (Hendrick, Hendrick, & Reich, 2006). A sample item is "I don't need to be in a relationship to have sex with someone." Answer categories ranged from 1 = *completely disagree*, 6 = *completely agree* (range α = .73–.83. A planned missingness design at T1 and T2 was used in which adolescents completed a set of three of the five items.

Compulsive SEIM use. Compulsive use of sexually explicit Internet use was assessed with six items from the Compulsive Internet Use Scale (Meerkerk et al., 2009), which were modified to assess symptoms of compulsive searching for and viewing of pornography on the Internet, instead of general compulsive Internet use symptoms. A sample item is "How often do you get too little sleep as a result of searching for or viewing pornography on the internet?" Adolescents rated each item in terms of frequency on a 6-point scale (0 = *never*, 1 = *rarely*, 2 = *sometimes*, 3 = *regularly*, 4 = *often*, 5 = *very often*). A mean score was constructed by averaging the scores on the items. A planned missingness design at T1 and T2 was used in which adolescents completed a set of four of the six items. Because of the low frequency of compulsive SEIM use, the reliabilities of the (imputed) scores at T1 (α = .52) and T2 (α = .36) were quite low, compared with high reliabilities at T3 (α = .91) and T4 (α = .93).

Parent–adolescent relationship quality. The quality of adolescents' relationship with parents was assessed with the satisfaction and conflict subscales of the Network of Relationships Inventory (NRI; Furman & Buhrmester, 2009). Each subscale consisted of three items. A sample item for the satisfaction subscale was "How satisfied are you with the relationship with your mother (father)?" and for the conflict subscale "How much do you and your mother (father) argue with each other?" (1 = *little or none*, 6 = *the most*). Adolescents could choose to respond about either their mother or father, based on which parent was most involved in their care and with whom they spent the most time. Most adolescents reported on the mother–adolescent relationships (81.5% at T1) but reports about the father–adolescent relationship were also included; hence, responses were treated together as the parent–adolescent relationship. Mean scores across the three items were used (range α = .93–.95 for satisfaction and .77–.95 for conflict.

Data Analysis

Using latent class growth analyses (LCGA), we extracted classes of adolescents on the basis of their beginning levels of dark personality characteristics (intercepts) and their change over time (linear slopes). These analyses were conducted in Mplus (Version 7.4; Muthén & Muthén, 2014).[1] Six fit statistics and substantive interpretation and/or practical considerations were used to determine the optimal number of latent classes in personality traits (impulsivity, CU, and GM). First, the Vuong-Lo-Mendell-Rubin (VLMR; Lo, Mendell, & Rubin, 2001) test in which a nonsignificant *p* value indicates that a model with one less class would fit better. Second, the Bayesian information criterion (BIC), with lower values indicating a better fit. Third, the bootstrapped likelihood ratio test in which a significant values indicates the fit could be improved by adding another class (Nylund, Asparouhov, & Muthén, 2007). Fourth, we used the adjusted Lo-Mendell-Rubin (LMR; Lo et al., 2001) to test whether decreasing the number of classes by one would improve model fit. If the adjusted LMR is significant, this indicates that the model has a better fit than a model with one less class. Fifth, average latent profiles posterior probabilities which assess the probability that cases were consistently placed in each profile, with a value of .7 being acceptable with values closer to 1 suggesting better reliability of classification. Sixth, for *entropy*, which refers to the accuracy of the classification of individuals in latent classes, values of .8 or higher indicate a good classification (Celeux & Soromenho, 1996). Previous studies have identified three (Andershed et al., 2002, 2008; Nijhof et al., 2011) or four dark personality types (Salihovic et al., 2014); therefore, our latent class solutions were tested against three- and four-class solutions, although we began with a one class model with classes added iteratively until the addition of a class did not improve or detracted from the model. At each stage, we considered the theoretical meaningfulness of the classes, interpretability, previous findings and the practical constraint that class size should be no smaller than 5% of the sample. There is no consensus as to which indicator is the best overall measure of goodness of fit (Nylund et al., 2007). Once the number of classes was determined, we tested whether the personality types differed from one another on the personality characteristics in terms of the initial levels (intercept) and change (slope) using multigroup models in Mplus and follow-up Wald tests of parameter constraints to compare estimates of intercepts and slopes between personality types.

[1] It should be noted that LCGA sets the variance of the intercepts and slopes within each class to zero, imposing homogeneity within each class. This approach assumes homogeneity within classes. GMMs (not constraining intercepts and slopes) did not converge.

To examine whether the identified personality types differed in their levels and change in problem behaviors, data were analyzed in two ways. First, a series of latent growth curve models were conducted in Mplus in which we examined the level and change of risk behaviors and parent–adolescent relationship quality over time. Maximum likelihood estimation for robust standard errors was used as the estimator and full information maximum likelihood was used to handle missing data. Second, we assessed whether the personality types differed from one another in terms of level (intercept) and change (linear slope) with multigroup models in Mplus and follow-up Wald tests.

Results

Longitudinal Personality Profiles

Using LCGA, and assessing the fit statistics (see Table 1), there was no overall consensus as to whether the two-, three- or four-class solution was the best fitting solution, although most indicators supported the three-class model. The VLMR and adjusted LMR both indicated that the three-class solution was the best fitting solution and both the Average posterior probability and entropy measures also indicated that this was a good model. The BIC continued to improve with each added class although the largest drop in BIC occurred between the second and third class. Given these results and the match between the classes that were found and the cross-sectional studies, the three-profile solution was retained. These classes were characterized by examining the distribution of Impulsivity, CU, and GM intercept and slope means (see Table 2; Figure 1). The first group (the dark impulsive profile) consisted of 157 adolescents (13.9%) who had high scores on all three traits (impulsivity, CU, and GM) that showed no significant change across time. The second group (the impulsive profile) consisted of 296 adolescents (26.1%) who had relatively high levels of impulsivity at Wave 1 that significantly increased across time, with relatively low, stable scores on CU and GM. The third group (the low risk profile) consisted of 678 adolescents (60.0%) who showed low levels on all three personality characteristics, with impulsivity significantly decreasing across time. We tested for quadratic effects in the slopes as well but these were not significant. An analysis of variance comparing the three profile groups on age $F(2, 1128) = 7.87$, $p < .001$ revealed that adolescents in the dark impulsive group were slightly older (14.28, $SE = .09$) than those in the impulsive ($M = 13.96$, $SE = .07$), or low risk ($M = 13.87$, $SE = .05$) group at Wave 1. Therefore, age was used as a covariate in subsequent analyses.

Table 1
Fit Statistics for Latent Class Growth Analysis Solutions (N = 1,131)

Class	VLMR p	BIC	BLRT p	Adjusted LMR	AvePP	Entropy
2	<.001	32,252.59	<.001	**<.001**	**.95**	**.86**
3	**.168**	31,685.78	<.001	.173	**.90**	.80
4	.506	**31,300.67**	<.001	.510	.87	.78

Note. Values in boldface type represent indices showing best fit for a specific number of classes. VLMR = Vuong-Lo-Mendell-Rubin likelihood ratio test; BIC = Bayesian information criterion; BLRT = bootstrapped likelihood ratio test; Adjusted LMR = Lo-Mendell-Rubin adjusted likelihood ratio test; AvePP = average of the posterior probabilities.

Dark Personality Types in Relation to Problem Behavior and Parent–Adolescent Relationship Quality

Unconditional intercept and slope estimates from the LGMs for the risk behaviors and parent–adolescent relationship are presented in Table 3. Results of the multigroup LGMs assessing differences between personality groups on intercept and slope estimates for substance use, sexual risk and parent–adolescent relationship quality are also presented in Table 3. The estimated means of risk behaviors and parent–adolescent relationship quality over time per personality profile are illustrated in Figure 2.

Substance use and sexual risk behavior. The multigroup LGM on substance use (Figure 2a) revealed that all three profile groups significantly differed from each other on initial levels of substance use with adolescents in the dark impulsive profile showing the highest initial level of substance use, followed by those in the Impulsive profile, with those in the low risk profile showing the lowest levels. These differences across the three groups were maintained across the four waves, although all three groups showed an increase in substance use over the course of the study. Concerning sexual risk, adolescents in both the dark impulsive and impulsive profiles showed a higher initial level of sexual risk behavior, compared with those in the low risk profile, as well as a stronger increase of sexual risk behavior over time (Figure 2b). All three groups differed from each other on permissive sexual attitudes, with adolescents in the dark impulsive profile showing the most permissive attitudes, followed by those in the impulsive profile, with those in the low risk profile showing the least permissive sexual attitudes. Moreover, those in the dark impulsive profile also showed a stronger increase in permissiveness compared with those in the impulsive and low risk profiles (Figure 2c). Finally, no significant differences among the profile groups on either initial levels or degree of change in compulsive SEIM use among boys were found (Figure 2d). Girls' levels of compulsive SEIM use were too low and did not change over time.

Parent–adolescent relationship quality. The multigroup LGMs on parent–adolescent relationship quality (satisfaction and conflict) showed that adolescents in the dark impulsive and impulsive profiles had lower initial levels of satisfaction compared with those in the low risk profile, and these differences were maintained over time. That is, adolescents in the three profiles did not differ in terms of degree of change although all groups experienced a decrease in satisfaction in their relationship across the study (Figure 2e). Finally, all three groups differed from each other on parent–adolescent conflict, with adolescents in the dark impulsive profile showing the highest initial level of conflict, followed by those in the Impulsive profile, with those in the low risk profile showing the lowest level of conflict. Adolescents did not differ in change of conflict over time, with conflict levels remaining stable across the four waves (Figure 2f).

Discussion

Drawing from a normative sample of Dutch high school students, the current study examined whether distinct groups of adolescents could be identified based on the levels and change

Table 2
Mean and Standard Errors of Intercepts and Slopes of Impulsivity, Callous–Unemotional (CU), and Grandiose–Manipulative (GM), for the Three-Class Solution

Trajectory classes	*n* (%)	Intercept impulsivity (*SE*)	Slope impulsivity (*SE*)	Intercept CU (*SE*)	Slope CU (*SE*)	Intercept GM (*SE*)	Slope GM (*SE*)
Dark impulsive	157 (13.9)	$.81\ (.15)^{***}{}_{a}$	$.02\ (.04)_{ab}$	$.88\ (.13)^{***}{}_{a}$	$.08\ (.08)_{ab}$	$1.38\ (.32)^{***}{}_{a}$	$.02\ (.07)_{a}$
Impulsive	296 (26.1)	$.64\ (.12)^{***}{}_{a}$	$.08\ (.03)^{*}{}_{a}$	$-.17\ (.16)_{b}$	$.08\ (.05)_{a}$	$-.09\ (.08)_{b}$	$.04\ (.04)_{a}$
Low risks	678 (60.0)	$.43\ (.05)^{***}{}_{b}$	$-.04\ (.01)^{**}{}_{b}$	$-.21\ (.04)^{***}{}_{b}$	$-.02\ (.01)_{b}$	$-.28\ (.04)^{***}{}_{c}$	$-.01\ (.01)_{a}$

Note. Different subscript letters indicate a significant ($p < .05$) difference between groups using Wald tests.
$^{*}p < .05$. $^{**}p < .005$. $^{***}p < .001$.

profiles of CU, GM, and impulsive personality characteristics. Three subgroups of adolescents were identified which we labeled as low risks, dark impulsives, and impulsives. Most of the adolescents in our sample (60%) exhibited low levels on all three personality traits (low risk profile) with decreases in impulsivity across time. Adolescents in this group also exhibited low levels of problem behaviors and had the highest quality parent–child relationship (high satisfaction and low conflict). The second most common subgroup was the impulsive profile (26%). Adolescents with this profile had relatively high levels of impulsivity that increased across time and moderate and stable levels of CU and GM. Compared with the low risk group, these adolescents reported higher levels of sexual risk behavior, and poorer satisfaction and more conflict in their relationship with their parents. Moreover, this group also showed more increases in substance use and risky sexual behavior. Adolescents in the third subgroup (dark impulsive profile; 14%) exhibited relatively higher levels of all three personality traits that remained stable across the study. Compared with low risks, they exhibited higher initial levels on all problem behaviors and also showed greater increases in risky sexual behavior and permissive sexual attitudes over time. They also showed lower initial levels of satisfaction in their relationship with their parents compared with adolescents in the low risk group. This group also showed higher initial levels of substance use and more permissive sexual attitudes compared with the impulsive group and these differences were maintained across the 2 years of the study.

The three dark personality subgroups we identified were consistent with groups found in prior cross-sectional studies (Andershed et al., 2002, 2008; Nijhof et al., 2011) with the exception being that two of our groups showed changes in impulsivity over time. Contrary to prior research that found either stability or decreases in impulsivity among middle adolescents (Harden & Tucker-Drob, 2011; Quinn & Harden, 2013; Salihovic et al., 2014), adolescents with an impulsive profile showed an increase in impulsivity, whereas adolescents in the low risk profile decreased and those in the dark impulsive profile remained stable and high. Moreover, across all three subgroups both CU and GM traits were stable. These findings are in contrast to the longitudinal profiles identified by Salihovic et al. (2014) in which three of their four groups showed decreases on most traits across the four waves (3 years) of their study but are consistent with other studies that focused on CU traits (e.g., Pardini & Loeber, 2008) or a composite measure of psychopathic traits (Lynam et al., 2008). One potential reason for the discrepancy of our results with Salihovic et al. is the shorter time interval used in our study both between assessments (6 months as opposed to 1 year) and the overall time interval (1.5 years between the first and fourth assessment compared with 3 years). Such a time interval might account for why we found less change but our finding concerning an increase in impulsivity among adolescents in the impulsive profile is striking. A potential reason for this discrepancy is that our impulsivity measure focused on a general impulsivity measure that taps the subcomponents of lack of premeditation and urgency, both of which have been found to first increase during early adolescence and then decrease during middle adolescence. In contrast, the impulsivity measure used in prior person-centered analyses derived from the Youth Psychopathic Traits Inventory (van Baardewijk et al., 2010), which includes subcomponents reflecting thrill seeking, irresponsibility (reflecting a disregard for rules), as well as a general lack of

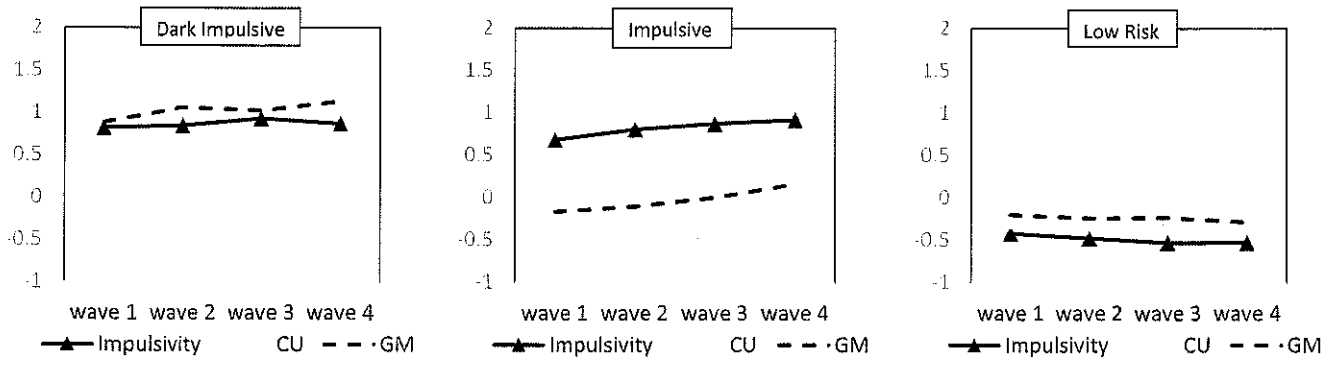

Figure 1. Standardized mean levels of personality traits across four measurement waves for three personality types (dark impulsive, impulsive, low risk). CU = Callous–Unemotional; GM = Grandiose–Manipulative.

Table 3
Unconditional and Multigroup Latent Growth Curve Models for Risk Behaviors and Parent–Adolescent Relationship for Dark Personality Types (Standard Error)

Risk behavior	Intercept *M*	Intercept variance	Slope *M*	Slope variance
		Unconditional models		
Substance use	1.30 (.04)***	1.29 (.07)***	.13 (.01)***	.05 (.01)***
Sexual risk behavior	.27 (.03)***	.69 (.06)***	.13 (.02)***	.12 (.02)***
Permissive sexual attitudes	2.39 (.03)***	.37 (.04)***	−.02 (.01)	.05 (.01)***
Compulsive SEIM use[a]	1.18 (.11)***	.19 (.38)	.08 (.05)	.09 (.09)
Parent–adolescent satisfaction	4.94 (.03)***	.51 (.04)***	−.08 (.01)***	.03 (.01)***
Parent–adolescent conflict	2.69 (.02)***	.34 (.03)***	.01 (.01)	.04 (.01)***
		Multigroup models		
		Dark impulsives		
Substance use	2.20 (.11)***$_a$	1.59 (.23)***	.11 (.03)**$_a$	.04 (.02)
Sexual risk behavior	.53 (.10)***$_a$	1.24 (.26)***	.31 (.06)***$_a$	.28 (.09)**
Permissive sexual attitudes	2.76 (.08)***$_a$	.46 (.08)	.17 (.04)***$_a$	—[b]
Compulsive SEIM use[a]	1.37 (.27)***$_a$	—[b]	.09 (.12)$_a$	.08 (.02)**
Parent–adolescent satisfaction	4.67 (.08)***$_a$	.61 (.12)***	−.08 (.03)*$_a$	.03 (.02)
Parent–adolescent conflict	3.09 (.08)***$_a$	.46 (.13)**	.02 (.04)$_a$	.09 (.03)*
		Impulsives		
Substance use	1.56 (.07)***$_b$	1.18 (.13)***	.16 (.02)***$_a$	.03 (.02)*
Sexual risk behavior	.33 (.07)***$_a$	.91 (.16)***	.20 (.04)***$_a$	.21 (.05)***
Permissive sexual attitudes	2.52 (.06)***$_b$	.48 (.09)***	−.02 (.03)$_b$	.08 (.02)***
Compulsive SEIM use[a]	1.33 (.23)***$_a$	1.52 (1.09)	−.04 (.08)$_a$	.18 (.13)
Parent–adolescent satisfaction	4.77 (.06)***$_a$	.70 (.08)***	−.07 (.02)**$_a$	.06 (.02)***
Parent–adolescent conflict	2.81 (.05)***$_b$	.44 (.07)***	.01 (.02)$_a$	.05 (.02)**
		Low risks		
Substance use	.97 (.04)***$_c$	.95 (.07)***	.13 (.01)***$_a$	.05 (.01)***
Sexual risk behavior	.17 (.03)***$_b$	.39 (.05)***	.07 (.02)***$_b$	.05 (.01)***
Permissive sexual attitudes	2.24 (.03)***$_c$	.29 (.05)***	−.06 (.01)***$_b$	.03 (.01)**
Compulsive SEIM use[a]	1.12 (.10)$_a$	—[b]	.05 (.04)$_a$	.02 (.00)***
Parent–adolescent satisfaction	5.08 (.03)***$_b$	.35 (.04)***	−.08 (.01)***$_a$	.02 (.01)**
Parent–adolescent conflict	2.54 (.03)***$_c$	.20 (.03)***	.00 (.01)$_a$	.02 (.01)*

Note. Age is included in each model. Different subscript letters indicate a significant ($p < .05$) difference between groups using Wald tests. SEIM = sexually explicit Internet material.
[a] SEIM is among boys ($n = 304$). [b] Constrained to zero because of convergence issues due to small cell sizes and low prevalence of behavior.
* $p < .05$. ** $p < .005$. *** $p < .001$.

impulse control may show sharper changes. There is a growing consensus that the multidimensional structure of impulsivity should not be ignored (Cyders & Coskunipar, 2011; Whiteside & Lynam, 2001) and that clear, unidimensional constructs related to impulsive action is one way that inconsistencies across studies could be better understood and avoided (Cyders, 2015). These contrasting results indicate that the question of whether psychopathic traits should be characterized as highly stable at any given developmental period is still not answered and may be sample, subsample, and construct specific. Therefore, the question of whether psychopathy measures should be used to inform decisions that will have long-term consequences for youthful offenders (Cauffman, Skeem, Dmitrieva, & Cavanaugh, 2016) is also in need of subsequent longitudinal research.

The finding of three (and not four) profile groups in our study of Dutch high school students is consistent with previous cross-sectional studies, supporting the existence of the same three subtypes among different populations: male and female Dutch adolescents admitted to compulsory residential treatment (Nijhof et al., 2011), a Swedish community sample of adolescents (Andershed et al., 2002), and incarcerated German youth (Andershed et al., 2008). Although samples drawn from other populations might still find additional profiles, our findings support the idea that at the very least these three profiles are likely to be found and that in particular adolescents who are high on all three traits are likely to be involved in more problem behaviors (particularly initiation of substance use and sexual risk) and to begin this involvement at an earlier age.

On the basis of prior findings that have used either a person-oriented or dimensional perspective to examine how dark personality traits are related to risk behaviors, we expected to find differences in problem behaviors and parent–adolescent relationship quality across the three a priori hypothesized profiles. Specifically, we expected that individuals who scored high on all three personality dimensions (dark impulsives) to show the highest level of substance use and the poorest relationship quality with parents compared with any other group. The results confirmed our expectations with respect to substance use (Andershed et al., 2008). The

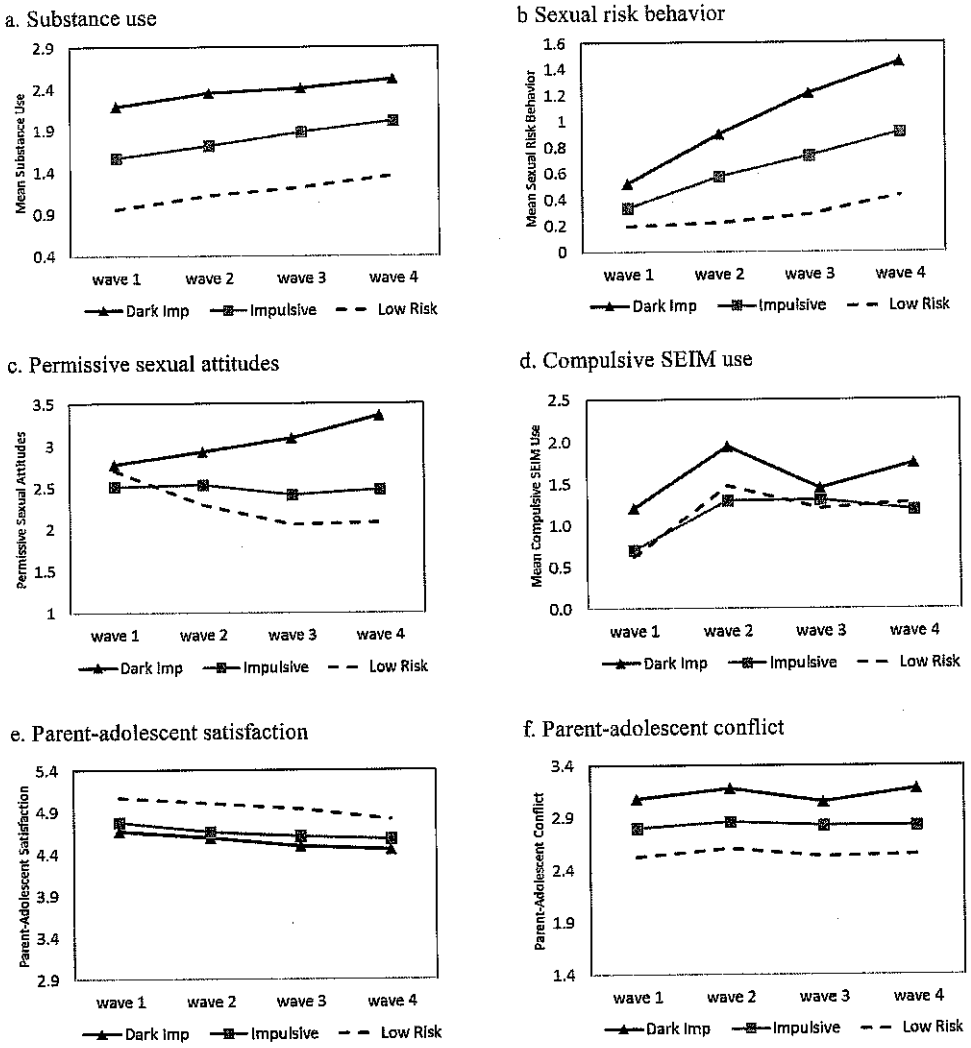

Figure 2. Estimated means of risk behaviors and parent–adolescent satisfaction and conflict for three personality types, across four measurement waves. SEIM = sexually explicit Internet material.

finding that the dark impulsives are at the start of the study already showing comparatively high levels of substance use (and other problem behaviors) suggest that research on the joint contribution of all three traits should even be conducted with younger adolescents and even elementary aged children. Wymbs et al. (2012) found that high levels of callous-unemotional traits at 6th grade prospectively predicted alcohol and marijuana onset and use at 9th grade.

Although we did not expect adolescents in the dark impulsive and impulsive groups to differ from each other on sexual risk behaviors, we did find that adolescents in these groups showed higher initial levels of sexual risk behavior and greater increases in sexual risk and permissive sexual attitudes over time compared with adolescents with a low risk personality profile. Moreover, adolescents in the dark impulsive group showed the strongest increase in permissive sexual attitudes. These results confirm and extend previous variable-centered research that has found that GM and CU and impulsive personality characteristics are associated with adolescent sexual risk taking (McCauley et al., 2016; Rucević, 2010) but that when considered together only impulsivity was a significant predictor (Rucević, 2010). Our person-centered approach shows that for a subgroup of adolescents it is the combination of all three traits that is associated with the highest levels of sexual risk taking and permissive sexual attitudes, whereas for another subgroup it is predominantly impulsivity that is associated with sexual risk taking. Thus, a person-centered analysis may find different results compared with a variable-centered approach particularly when interactions among personality constructs are not considered. Thus, latent class analysis can also serve to identify potential personality characteristics that may potentiate each other when found at high levels within the same individual. These finding highlight the importance of considering not just the independent effects of these traits but their interaction. Although the current study focused on psychopathic traits other dark personality traits (such as Machiavellianism or narcissism) could also be included in future studies. Whether and how these early signs of sexual risk taking also map onto sexual coercion

or other forms of sexual violence is an important area for future research given dark personality traits have been linked to sexual offending (Caputo et al., 1999). The fact that we did not find that the groups differed on compulsive use of sexually explicit Internet material may be because of the age of the sample or the fact that we are measuring compulsive use rather than just degree of sexual media use or the content of that media such as violent or nonviolent sexual media (Baer, Kohut, & Fisher, 2015).

Finally, consistent with the results of Salihovic and colleagues (2014) as well as other research that used a variable-centered approach, we found that adolescents with the highest psychopathic traits and those with high levels of impulsivity reported poorer relationships with their parents compared with the low risks and these differences were maintained across time. It is not clear whether it is the personality traits, the problem behaviors or a combination of both that is driving these results. Prior research using cross-lagged panel designs to tease apart direction of effects has found that parental behavior is more a reaction rather than a predictor of psychopathic traits (e.g., Salihovic, Kerr, Özdemir, & Pakalniskiene, 2012). Given the relatively high stability of psychopathic personality traits found in our sample, our results also are suggestive of a reactive effect but whether this is a reaction to the traits or the problem behaviors is still not clear. Nonetheless, additional research is needed such as a randomized-controlled trial of an intervention targeted at either parental behaviors or adolescent personality traits would be needed to tease apart a stronger causal relation and direction of effects. Most research that finds stronger predictive links for parenting behavior in relation to psychopathic traits finds these associations among younger adolescents and school-age children (e.g., Fontaine et al., 2011; and see Frick et al., 2014 for a review).

The current study has some limitations that should be considered. First, we used adolescent self-reports on their own personality traits and behaviors as well as their reports on their relationships with their parents which increases the likelihood of shared-method variance. Although self-reports have the advantage of giving insight into how adolescents subjectively perceive themselves and their relationships, adolescent personality characteristics may be related to how adolescents perceive their parents. Multi-informant designs on adolescent behaviors, traits and relationships or observational designs to capture adolescents' relationship with their parents would be able to tease apart shared method variance effects from other effects. Second, the sampled adolescents responded based on their relationship with either their mother or father; however, relationships with fathers and mothers are sometimes suggested to have different functions (Duchesne & Ratelle, 2014; Rubin et al., 2004), although the quality of these relationships are often highly correlated (e.g., Salihovic et al., 2014). Future studies that collect data about adolescents' relationship with both parents could make meaningful comparisons between effects of these two relationships, or between same-sex and other-sex parent–child dyads. A third issue is that we only followed the sample across 2 academic years with approximately 18 months in between the first and last wave of measurement. This means that for our youngest participants the apex of their risk behaviors probably has not yet been attained and such activities such as risky sexual activities or substance use may show even stronger effects in older samples or among those followed over longer periods of time. It could very well be that adolescents in our Impulsive profile group represent individuals whose impulse control is still immature but that over time it will improve and risky behaviors will subside. That is, longer term follow-up studies are needed to examine whether this subgroup of adolescents represent those individuals who show adolescence-limited risk taking whereas those adolescents who show high and stable levels of all three traits represent those who individuals who will carry their problem behaviors into adulthood. Fourth, our results are based on a convenience sample of relatively homogeneous group of Dutch adolescents recruited through high schools. It may be that youth with more severe forms of personality characteristics or problem behaviors were underrepresented in our sample because of their higher likelihood of having school problems or disliking school. Fifth, results concerning compulsive SEIM use needs to be interpreted with caution, given the low reliabilities of the scale for the first two waves of the study. These low reliabilities could have contributed to the lack of variance at the initial measurement wave but could also be reflective of the low frequency of this behavior in our sample. Finally, the nature of our design, although longitudinal, is still correlational and therefore the direction of effects or causal relationships cannot be established.

Conclusion

Despite these limitations, the present study has a number of strengths that deserve acknowledgment. First, although previous studies have examined the stability and correlates of individual psychopathic traits in adolescence the majority of studies have examined the stability of various measures of CU (Obradović, Pardini, Long, & Loeber, 2007; Pardini & Loeber, 2008) or impulsive traits individually (Steinberg et al., 2008). The current study studied the joint development of CU, GM, and impulsive traits among a large longitudinal community sample of Dutch high school students followed over four measurement waves. Moreover, we examined whether adolescents with different combinations of these traits also differed on two developmentally relevant behaviors: substance use initiation and sexual (risk) behaviors rather than measures of deviancy. We identified three longitudinal personality profiles that were highly consistent with subgroups identified in previous cross-sectional studies (Andershed et al., 2008; Nijhof et al., 2011). Second, our results confirm the stability of CU and GM traits during adolescence and the malleability of impulsivity. Third, our results suggest that adolescents who have high levels of CU and GM traits that are already coupled with high levels of impulsivity may be at risk of an earlier and more severe trajectory of problem behaviors that may differ from the trajectory of risky behaviors that characterize youth who are only impulsive. Most community studies of adolescent risk taking that include personality assessments primarily focus on impulsivity or other measures of self-regulation. The current study highlights the importance of including other dark personality traits in these studies to identify youth who are most at risk.

References

Andershed, H., Kerr, M., Stattin, H., & Levander, S. (2002). Psychopathic traits in non-referred youths: A new assessment tool. In E. Blaauw, & L. Sheridan (Eds.), *Psychopaths: Current international perspectives* (pp. 131–158). The Hague, the Netherlands: Elsevier.

Andershed, H., Köhler, D., Eno Louden, J., & Hinrichs, G. (2008). Does the three-factor model of psychopathy identify a problematic subgroup of young offenders? *International Journal of Law and Psychiatry, 31,* 189–198. http://dx.doi.org/10.1016/j.ijlp.2008.04.003

Baer, H. L., Kohut, T., & Fisher, W. A. (2015). Is pornography use associated wtih anti-woman sexual aggression? Re-examining the confluence model with third variable considerations. *The Canadian Journal of Human Sexuality, 24,* 160–173. http://dx.doi.org/10.3138/cjhs.242-A6

Baughman, H. M., Jonason, P. K., Veselka, L., & Vernon, P. A. (2014). Four shades of sexual fantasies linked to the dark triad. *Personality and Individual Differences, 67,* 47–51. http://dx.doi.org/10.1016/j.paid.2014.01.034

Buelow, M. T., & Brunell, A. B. (2014). Facets of grandiose narcissism predict involvement in health-risk behaviors. *Personality and Individual Differences, 69,* 193–198. http://dx.doi.org/10.1016/j.paid.2014.05.031

Caputo, A. A., Frick, P. J., & Brodsky, S. L. (1999). Family violence and juvenile sex offending: The potential mediating role of psychopathic traits and negative attitudes toward women. *Criminal Justice and Behavior, 26,* 338–356. http://dx.doi.org/10.1177/0093854899026003004

Cauffman, E., Skeem, J., Dmitrieva, J., & Cavanaugh, C. (2016). Comparing the stability of psychopathy scores in adolescents versus adults: How often is "fledgling psychopathy" misdiagnosed? *Psychology, Public Policy, and Law, 22,* 77–91. http://dx.doi.org/10.1037/law0000078

Celeux, G., & Soromenho, G. (1996). An entropy criterion for assessing the number of clusters in a mixture model. *Journal of Classification, 13,* 195–212. http://dx.doi.org/10.1007/BF01246098

Chabrol, H., van Leeuwen, N., Rodgers, R., & Sejourne, N. (2009). Contributions of psychopathic, narcissistic, Machiavellian, and sadistic personality traits to juvenile delinquency. *Personality and Individual Differences, 47,* 734–739. http://dx.doi.org/10.1016/j.paid.2009.06.020

Cooke, D. J., & Michie, C. (2001). Refining the construct of psychopathy: Towards a hierarchical model. *Psychological Assessment, 13,* 171–188. http://dx.doi.org/10.1037/1040-3590.13.2.171

Cyders, M. A. (2015). The misnomer of Impulsivity: Commentary on "Choice Impulsivity" and "Rapid-Response Impulsivity" articles by Hamilton and colleagues. *Personality Disorders: Theory, Research, and Treatment, 6,* 204–205.

Cyders, M. A., & Coskunpinar, A. (2011). Measurement of constructs using self-report and behavioral lab tasks: Is there overlap in nomothetic span and construct representation for impulsivity? *Clinical Psychology Review, 31,* 965–982.

Dempster, A. P., Laird, N. M., & Rubin, D. B. (1977). Maximum likelihood incomplete data via EM algorithm. *Journal of the Royal Statistical Society Series B: Methodological, 39,* 1–38.

Dickman, S. J. (1990). Functional and dysfunctional impulsivity: Personality and cognitive correlates. *Personality Processes and Individual Differences, 58,* 95–102. http://dx.doi.org/10.1037/0022-3514.58.1.95

Dir, A. L., Coskunpinar, A., & Cyders, M. A. (2014). A meta-analytic review of the relationship between adolescent risky sexual behavior and impulsivity across gender, age, and race. *Clinical Psychology Review, 34,* 551–562. http://dx.doi.org/10.1016/j.cpr.2014.08.004

Doornwaard, S. M., van den Eijnden, R. J. J. M., Baams, L., Vanwesenbeeck, I., & ter Bogt, T. F. M. (2016). Lower psychological well-being and excessive sexual interest predict symptoms of compulsive use of sexually explicit Internet material among adolescent boys. *Journal of Youth and Adolescence, 45,* 73–84. http://dx.doi.org/10.1007/s10964-015-0326-9

Duchesne, S., & Ratelle, C. F. (2014). Attachment security to mothers and fathers and the developmental trajectories of depressive symptoms in adolescence: Which parent for which trajectory? *Journal of Youth and Adolescence, 43,* 641–654. http://dx.doi.org/10.1007/s10964-013-0029-z

Egan, V., Chan, S., & Shorter, G. W. (2014). The Dark Triad, happiness and subjective well-being. *Personality and Individual Differences, 67,* 17–22. http://dx.doi.org/10.1016/j.paid.2014.01.004

Elam, K. K., Wang, F. L., Bountress, K., Chassin, L., Pandika, D., & Lemery-Chalfant, K. (2016). Predicting substance use in emerging adulthood: A genetically informed study of developmental transactions between impulsivity and family conflict. *Development and Psychopathology, 28,* 673–688. http://dx.doi.org/10.1017/S0954579416000249

Eysenck, S. B. G., & Eysenck, H. J. (1978). Impulsiveness and venturesomeness: Their position in a dimensional system of personality description. *Psychological Reports, 43,* 1247–1255. http://dx.doi.org/10.2466/pr0.1978.43.3f.1247

Fontaine, N. M., McCrory, E. J., Boivin, M., Moffitt, T. E., & Viding, E. (2011). Predictors and outcomes of joint trajectories of callous-unemotional traits and conduct problems in childhood. *Journal of Abnormal Psychology, 120,* 730–742. http://dx.doi.org/10.1037/a0022620

Frick, P. J., Bodin, S. D., & Barry, C. T. (2000). Psychopathic traits and conduct problems in community and clinic-referred samples of children: Further development of the psychopathy screening device. *Psychological Assessment, 12,* 382–393. http://dx.doi.org/10.1037/1040-3590.12.4.382

Frick, P. J., Cornell, A. H., Barry, C. T., Bodin, S. D., & Dane, H. A. (2003). Callous–unemotional traits and conduct problems in the prediction of conduct problem severity, aggression, and self-report of delinquency. *Journal of Abnormal Child Psychology, 31,* 457–470.

Frick, P. J., Kimonis, E. R., Dandreaux, D. M., & Farell, J. M. (2003). The 4 year stability of psychopathic traits in non-referred youth. *Behavioral Sciences & the Law, 21,* 713–736. http://dx.doi.org/10.1002/bsl.568

Frick, P. J., Ray, J. V., Thornton, L. C., & Kahn, R. E. (2014). Can callous-unemotional traits enhance the understanding, diagnosis, and treatment of serious conduct problems in children and adolescents? A comprehensive review. *Psychological Bulletin, 140,* 1–57. http://dx.doi.org/10.1037/a0033076

Furman, W., & Buhrmester, D. (2009). Methods and measures: The network of relationships inventory: Behavioral systems version. *International Journal of Behavioral Development, 33,* 470–478. http://dx.doi.org/10.1177/0165025409342634

Graham, J. W., Taylor, B. J., Olchowski, A. E., & Cumsille, P. E. (2006). Planned missing data designs in psychological research. *Psychological Methods, 11,* 323–343. http://dx.doi.org/10.1037/1082-989X.11.4.323

Harden, K. P., & Tucker-Drob, E. M. (2011). Individual differences in the development of sensation seeking and impulsivity during adolescence: Further evidence for a dual systems model. *Developmental Psychology, 47,* 739–746. http://dx.doi.org/10.1037/a0023279

Hendrick, C., Hendrick, S. S., & Reich, D. A. (2006). The brief sexual attitudes scale. *Journal of Sex Research, 43,* 76–86. http://dx.doi.org/10.1080/00224490609552301

IBM Corp. (2015). IBM SPSS Statistics for Windows, (Version 23.0). Armonk, NY: Author.

Jonason, P. K., & Tost, J. (2010). I just cannot control myself: The Dark Triad and self-control. *Personality and Individual Differences, 49,* 611–615. http://dx.doi.org/10.1016/j.paid.2010.05.031

Jones, D. N., & Paulhus, D. L. (2011). The role of impulsivity in the Dark Triad of personality. *Personality and Individual Differences, 51,* 679–682. http://dx.doi.org/10.1016/j.paid.2011.04.011

Kiff, C. J., Lengua, L. J., & Zalewski, M. (2011). Nature and nurturing: Parenting in the context of child temperament. *Clinical Child and Family Psychology Review, 14,* 251–301. http://dx.doi.org/10.1007/s10567-011-0093-4

Littlefield, A. K., Stevens, A. K., Ellingson, J. M., King, K. M., & Jackson, K. M. (2016). Changes in negative urgency, positive urgency, and sensation seeking across adolescence. *Personality and Individual Differences, 90,* 332–337. http://dx.doi.org/10.1016/j.paid.2015.11.024

Lo, Y., Mendell, N. R., & Rubin, D. B. (2001). Testing the number of components in a normal mixture. *Biometrika, 88,* 767–778. http://dx.doi.org/10.1093/biomet/88.3.767

Luhtanen, R. K., & Crocker, J. (2005). Alcohol use in college students: Effects of level of self-esteem, narcissism, and contingencies of self-worth. *Psychology of Addictive Behaviors, 19,* 99–103. http://dx.doi.org/10.1037/0893-164X.19.1.99

Lynam, D. R., Loeber, R., & Stouthamer-Loeber, M. (2008). The stability of psychopathy from adolescence into adulthood—The search for moderators. *Criminal Justice and Behavior, 35,* 228–243. http://dx.doi.org/10.1177/0093854807310153

Malmberg, M., Kleinjan, M., Overbeek, G., Vermulst, A. A., Lammers, J., & Engels, R. C. (2013). Are there reciprocal relationships between substance use risk personality profiles and alcohol or tobacco use in early adolescence? *Addictive Behaviors, 38,* 2851–2859. http://dx.doi.org/10.1016/j.addbeh.2013.08.003

Malmberg, M., Overbeek, G., Monshouwer, K., Lammers, J., Vollebergh, W. A., & Engels, R. C. (2010). Substance use risk profiles and associations with early substance use in adolescence. *Journal of Behavioral Medicine, 33,* 474–485. http://dx.doi.org/10.1007/s10865-010-9278-4

Malta, L. S., Blanchard, E. B., & Freidenberg, B. M. (2005). Psychiatric and behavioral problems in aggressive drivers. *Behaviour Research and Therapy, 43,* 1467–1484. http://dx.doi.org/10.1016/j.brat.2004.11.004

Martin, A. M., Benotsch, E. G., & Lance, S. P. (2013). Transmission risk behaviors in a subset of HIV-positive individuals: The role of narcissistic personality features. *Personality and Individual Differences, 54,* 256–260. http://dx.doi.org/10.1016/j.paid.2012.09.006

McCauley, K. L., Shadur, J. M., Hoffman, E. M., MacPherson, L., & Lejuez, C. W. (2016). Adolescent callous-unemotional traits and parental knowledge as predictors of unprotected sex among youth. *Behavior Modification, 40,* 70–96. http://dx.doi.org/10.1177/0145445515615355

McMahon, R. J., Witkiewitz, K., & Kotler, J. S., & the Conduct Problems Prevention Research Group. (2010). Predictive validity of callous-unemotional traits measured in early adolescence with respect to multiple antisocial outcomes. *Journal of Abnormal Psychology, 119,* 752–763. http://dx.doi.org/10.1037/a0020796

Meerkerk, G. J., Van Den Eijnden, R. J., Vermulst, A. A., Garretsen, H. F., Vermulst, A. A., & Garretsen, H. F. L. (2009). The Compulsive Internet Use Scale (CIUS): Some psychometric properties. *Cyberpsychology & Behavior, 12,* 1–6. http://dx.doi.org/10.1089/cpb.2008.0181

Muthén, L. K., & Muthén, B. (2014). *Mplus version 7.3.* Los Angeles, CA: Author.

Nijhof, K. S., Vermulst, A., Scholte, R. H. J., van Dam, C., Veerman, J. W., & Engels, R. C. (2011). Psychopathic traits of Dutch adolescents in residential care: Identifying subgroups. *Journal of Abnormal Child Psychology, 39,* 59–70. http://dx.doi.org/10.1007/s10802-010-9445-7

Nylund, K. L., Asparouhov, T., & Muthén, B. O. (2007). Deciding on the number of classes in latent class analysis and growth mixture modeling: A Monte Carlo simulation study. *Structural Equation Modeling, 14,* 535–569. http://dx.doi.org/10.1080/10705510701575396

Obradović, J., Pardini, D. A., Long, J. D., & Loeber, R. (2007). Measuring Interpersonal Callousness in boys from childhood to adolescence: An examination of longitudinal invariance and temporal stability. *Journal of Clinical Child and Adolescent Psychology, 36,* 276–292.

O'Connor, T. G., Humayun, S., Briskman, J. A., & Scott, S. (2016). Sensitivity to parenting in adolescents with callous/unemotional traits: Observational and experimental findings. *Journal of Abnormal Psychology, 125,* 502–513. http://dx.doi.org/10.1037/abn0000155

Orue, I., Calvete, E., & Gamez-Guadix, M. (2016). Gender moderates the association between psychopathic traits and aggressive behavior in adolescents. *Personality and Individual Differences, 94,* 266–271. http://dx.doi.org/10.1016/j.paid.2016.01.043

Pardini, D. A., Lochman, J. E., & Powell, N. (2007). The development of callous-unemotional traits and antisocial behavior in children: Are there shared and/or unique predictors? *Journal of Clinical Child and Adolescent Psychology, 36,* 319–333. http://dx.doi.org/10.1080/15374410701444215

Pardini, D. A., & Loeber, R. (2008). Interpersonal callousness trajectories across adolescence—Early social influences and adult outcomes. *Criminal Justice and Behavior, 35,* 173–196. http://dx.doi.org/10.1177/0093854807310157

Quinn, P. D., & Harden, K. P. (2013). Differential changes in impulsivity and sensation seeking and the escalation of substance use from adolescence to early adulthood. *Development and Psychopathology, 25,* 223–239. http://dx.doi.org/10.1017/S0954579412000284

Reitz, E., van de Bongardt, D., Baams, L., Doornwaard, S., Dalenberg, W., Dubas, J., . . . Deković, M. (2015). Project STARS (Studies on Trajectories of Adolescent Relationships and Sexuality): A longitudinal, multi-domain study on sexual development of Dutch adolescents. *European Journal of Developmental Psychology, 12,* 613–626. http://dx.doi.org/10.1080/17405629.2015.1018173

Rubin, K. H., Dwyer, K. M., Kim, A. H., Burgess, K. B., Booth-Laforce, C., & Rose-Krasnor, L. (2004). Attachment, friendship, and psychosocial functioning in early adolescence. *The Journal of Early Adolescence, 24,* 326–356. http://dx.doi.org/10.1177/0272431604268530

Rucević, S. (2010). Psychopathic personality traits and delinquent and risky sexual behaviors in Croatian sample of non-referred boys and girls. *Law and Human Behavior, 34,* 379–391. http://dx.doi.org/10.1007/s10979-009-9196-6

Salihovic, S., Kerr, M., Özdemir, M., & Pakalniskiene, V. (2012). Directions of effects between adolescent psychopathic traits and parental behavior. *Journal of Abnormal Child Psychology, 40,* 957–969. http://dx.doi.org/10.1007/s10802-012-9623-x

Salihovic, S., Özedmir, M., & Kerr, M. (2014). Trajectories of adolescent psychopathic traits. *Journal of Psychopathology and Behavioral Assessment, 36,* 47–59. http://dx.doi.org/10.1007/s10862-013-9375-0

Shulman, E. P., Harden, K. P., Chein, J. M., & Steinberg, L. (2015). Sex differences in the developmental trajectories of impulse control and sensation-seeking from early adolescence to early adulthood. *Journal of Youth and Adolescence, 44,* 1–17. http://dx.doi.org/10.1007/s10964-014-0116-9

Steinberg, L., Albert, D., Cauffman, E., Banich, M., Graham, S., & Woolard, J. (2008). Age differences in sensation seeking and impulsivity as indexed by behavior and self-report: Evidence for a dual systems model. *Developmental Psychology, 44,* 1764–1778.

Stautz, K., & Cooper, A. (2013). Impulsivity-related personality traits and adolescent alcohol use: A meta-analytic review. *Clinical Psychology Review, 33,* 574–592. http://dx.doi.org/10.1016/j.cpr.2013.03.003

Thomaes, S., Brummelman, E., Reintjes, A., & Bushman, B. J. (2013). When narcissus was a boy: Origins, nature, and consequences of childhood narcissism. *Child Development Perspectives, 7,* 22–26. http://dx.doi.org/10.1111/cdep.12009

Van Baardewijk, Y., Andershed, H., Stegge, H., Nilsson, K. W., Scholte, E., & Vermeiren, R. (2010). Development and tests of short versions of the Youth Psychopathic Traits Inventory and the Youth Psychopathic Traits Inventory–Child Version. *European Journal of Psychological Assessment, 26,* 122–128. http://dx.doi.org/10.1027/1015-5759/a000017

Vitaro, F., Arseneault, L., & Tremblay, R. E. (1997). Dispositional predictors of problem gambling in male adolescents. *The American Journal of Psychiatry, 154,* 1769–1770. http://dx.doi.org/10.1176/ajp.154.12.1769

Waller, R., Gardner, F., & Hyde, L. W. (2013). What are the associations between parenting, callous-unemotional traits, and antisocial behavior in youth? A systematic review of evidence. *Clinical Psychology Review, 33,* 593–608. http://dx.doi.org/10.1016/j.cpr.2013.03.001

Wetzel, E., & Robins, R. W. (2016). Are parenting practices associated with the development of narcissism? Findings from a longitudinal study

of Mexican-origin youth. *Journal of Research in Personality, 63,* 84–94. http://dx.doi.org/10.1016/j.jrp.2016.05.005

Whiteside, S. P., & Lynam, D. R. (2001). The five factor model and impulsivity: Using a structural model of personality to understand impulsivity. *Personality and Individual Differences, 30,* 669–689. http://dx.doi.org/10.1016/S0191-8869(00)00064-7

Wymbs, B. T., McCarty, C. A., King, K. M., McCauley, E., Vander Stoep, A., Baer, J. S., & Waschbusch, D. A. (2012). Callous-unemotional traits as unique prospective risk factors for substance use in early adolescent boys and girls. *Journal of Abnormal Child Psychology, 40,* 1099–1110. http://dx.doi.org/10.1007/s10802-012-9628-5

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RELATIONSHIP BETWEEN PERSONALITY TRAITS, ATTACHMENT STYLES AND LIFE SATISFACTION AMONG ADOLESCENTS

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ABSTRACT

Adolescence is an important developmental stage for every individual as it is a transition period from childhood to adulthood. Hence, many variables contribute to the feelings of life satisfaction among adolescents. It is therefore prudent to investigate what adolescents deem as important in influencing their life satisfaction. The objective of this study was to examine the relationship between personality traits, attachment styles with adolescents' life satisfaction. A total of 315 respondents aged between 18 to 21 years old participated in this study. Three standardized instruments were used and they are: the NEO Five Factor Inventory (NEO-FFI) to measure personality, the Attachment Style Questionnaire (ASQ) and the Satisfaction with Life Scale (SWLS). Results showed that there were significant relationships between personality traits of extraversion, openness and conscientiousness with life satisfaction. The findings also indicated significant correlations between attachment styles of confidence and relationship with life satisfaction. In addition, results showed that there were significant relationships between most of the personality traits with attachment styles. In conclusion, adolescents who were satisfied with their lives were those who have personality traits of extraversion, openness and conscientiousness and secure attachment style. These findings give important insights in understanding the well-being of adolescents.

Keywords: personality; extraversion; conscientiousness; attachment style; life satisfaction

INTRODUCTION

Adolescence is an important developmental stage for every individual as it is a transition period from childhood to adulthood. It is the one stage most marked by rapid and tumultuous transition (Brockman, 2003; Cook & Furstenberg, 2002). While the transition is unavoidable, the speed and magnitude of these changes overtax the capacity for many young people to cope (Collins, 2001; Davis, 2003; Jessor, 1993).

In the course of these physical, cognitive and emotional developmental processes, these individual differences coupled with attachment styles may influence the psychological well-being of adolescents. Our behavior in adult relationships is based on our experiences in the early years of life with our parents or caregivers. According to the theory of attachment styles, the kinds of

bonds we form early in life influence the kinds of relationships we form as adults. The theory was first formulated by John Bowlby (1973; 1980; 1982; 1988) who charted the process of close relationships in parent-infant interactions and disruptions, illuminated by three phases in the child's response – protest, despair and detachment. Bowlby's (1973) work on affectional bonds stated that the quality of early relationships would exert long-term influence on personality and on the subsequent relationships through different styles. This style is called attachment style.

Ainsworth (1989) developed the theory further by identifying secure and insecure attachment styles in infants which typified certain ways of responding to brief laboratory controlled separation from mother. These were secure, insecure anxious-ambivalent and insecure anxious-avoidant. These styles have been further examined in adulthood by Main and others in relation to parenting (George, Kaplan & Main, 1984).

Hazan and Shaver (1987) identified three styles of close relationships based on the chi ldhood ones – preoccupied, avoidant and secure which they assessed in a self-report questionnaire which included a brief vignette on each style which respondents had to choose as most like them. This was tested on a sample of 620 individuals self-selected through answering a magazine advert asking about partner relationships. Each of the styles identified was characterized in terms of level of comfort with closeness and level of autonomy. A desire for intimate relationships, a balance of closeness and autonomy, and feeling comfortable with a degree of dependency were all associated with secure attachment style. The preoccupied or anxious-ambivalent styles were characterized by a greater need for close relationships, proximity and high dependency. Avoidant attachment styles were associated with maintaining distance and feeling of discomfort with intimacy and high self-reliance.

There is a large literature on close relationships and its relation to personality, self-criticism and dependency, dysfunctional attitudes and perfectionism (Wei, Mallinckrodt, Larson & Zakalik, 2005; Luecken, 2000; Murphy & Bates, 1997). Close relationships of adults is associated with psychopathology such as depression and other mental disorders (Mickelson et al., 1997). There are fewer studies focusing on depression and other psychiatric disorders but these show a relationship between insecure close relationships style and disorder (Hammen et al., 1985; Gerlsma & Luteijn, 2000). Whilst rather more studies find anxious styles more predictive (Gerlsma & Luteijn, 2000; Wei et al, 2005) some find avoidant style confers risk (McCarthy & Taylor, 1999; Cassidy, 1994) and some identify fearful style as the most vulnerable (Murphy & Bates, 1997). This inconsistency is likely to relate to the variety of measures used, the distinction between depression and anxiety disorder outcomes, and the frequent use of cross-sectional study where close relationship ratings may be contaminated by the disorder (Bifulco et al., 2002a; 2002b).

Prior studies have documented robust relationships between global positive affect and the Big Five trait Extraversion, as well as secure adult attachment style (e.g., Costa & McCrae, 1980; McCrae & John, 1992; Simpson, 1990; Torquati & Rafaelli, 2004; Watson & Clark, 1997). One of the most robust findings in the literature on affect and personality is the

strong correlation between dispositional global positive affect and the Big Five factor Extraversion (e.g., Costa & McCrae, 1980; John, 1990; Larsen & Ketelaar, 1989; McCrae & John, 1992; Watson & Clark, 1997). Extraversion scores predict frequency and intensity of felt positive emotion, as well as reactivity to positive feedback (Larsen & Ketelaar, 1989; Meyer & Shack, 1989; Watson & Clark, 1997).

Prior studies have found that insecure attachment is associated with higher levels of negative affect, especially in the context of romantic relationships (e.g., Feeney & Kirkpatrick, 1996; Simpson, 1990). Insecure attachment style also predicts increased vulnerability to affective disorders, including depression and anxiety (Roberts, Gotlib & Kassel, 1996). Less is known about the relationship between attachment style and the experience of positive emotions in adulthood. A few studies have found that securely attached individuals do experience more positive emotion than insecurely attached individuals, particularly in the context of romantic relationships (e.g., Simpson, 1990; Torquati & Raffaelli, 2004).

A growing body of evidence suggests links between the dimensions of insecure attachment and psychological distress. For example, studies have shown that insecure adult attachment is related to negative affect (Simpson, 1990); lower levels of emotional adjustment (Rice, FitzGerald, Whaley & Gibbs, 1995; Rice & Whaley, 1994); depression, anxiety, and hostility (Priel & Shamai, 1995; Mikulincer, Florian & Weller, 1993; Robert, Gotlib & Kassel, 1996); shame, anger, fear of negative evaluation, and pathological narcissism (Wagner & Tangney, 1991); and interpersonal problems and core relationship conflicts (Bartholomew & Horowitz, 1991; Horowitz, Rosenberg & Bartholomew, 1993; Mallinckrodt & Wei, 2000). In general, previous studies have shown that securely attached persons are significantly less anxious, depressed, and angry and have less interpersonal distress than those with either anxious or avoidant attachment (for a review, see Lopez & Brennan, 2000).

The main objectives of this research therefore, are: (1) to examine the relationship between personality traits and attachment styles, (2) to examine the relationship between personality traits and life satisfaction among adolescents, and (3) to examine the relationship between attachment styles and life satisfaction among adolescents.

MATERIALS AND METHOD

The participants in this study were 315 respondents aged between 18 to 21 years old. Three standardized instruments were used and they are:

i. The NEO Five Factor Inventory (NEO-FFI) to measure five traits of personality namely neuroticism, extraversion, openness, agreeableness and conscientiousness. This inventory consists of 60 items with 12 items for each dimension. Respondents answered to the statements using a five-point Likert scale from 1=Strongly Disagree

to 5=Strongly Agree. Reliability analysis showed that the scale has moderate reliability for its dimensions ranging from alpha .52 to .79 while alpha for all items was .81.

ii. The Attachment Style Questionnaire (ASQ) consists of 40 items measuring five dimensions namely confidence, discomfort, relationship, approval and preoccupied. The dimensions of confidence and approval can be categorized as the secure attachment style. The inventory uses a six-point Likert scale with 1=Strongly Disagree to 6=Strongly Agree. The reliability of the instrument showed moderate reliability for its dimension ranging from alpha .55 to .72 while alpha for all items was .84.

iii. The Satisfaction with Life Scale (SWLS). This scale consists of five positively worded items that measure general life satisfaction. The responses use seven point Likert scale with 1=Strongly Disagree to 7=Strongly Agree. The reliability of this scale was moderate with alpha Cronbach of .60.

RESULTS AND DISCUSSION

Table 1 shows the results of respondents' demographic profile. A total of 111 (35.2%) respondents were 18 years old, 66 (21%) were 19 years old, 112 (35.6%) were 20 years old and 26 (8.3%) were 21 years old. A total of 185 respondents were male (58.7%), while 130 respondents (41.3%) were female. Based on ethnic distribution, 273 respondents (86.6%) were Malays, 9 Chinese (2.9%), 32 Indians (10.2%), and I from other ethnicities (0.3%).

Table 1: Respondents' demographic profile

Demography		Frequency	Percentage
Age	18	11	35.2
	19	66	21.0
	20	11	35.6
	21	26	8.3
Gender	Male	18	58.7
	Femal	13	41.3
Ethnicity	Malay	27	86.6
	Chines	9	2.9
	Indian	32	10.2
	Others	1	0.3

The first objective of this study was to the relationship between personality traits and attachment styles. Results showed in Table 2 found that neuroticism was significantly related with three dimensions of attachment style namely discomfort, r=.301, p<0.0001; approval, r=.363, p<0.0001; and preoccupied, r=.385, p<0.0001. Extraversion was significantly correlated with confidence, r=.420, p<0.0001, and relationship, r=.131, p<0.0001. Openness was correlated with

all dimensions of attachment style with confidence, r=.291, p<0.0001; discomfort, r=.200, p<0.0001; relationship, r=.207, p<0.0001; approval, r=.139, p<0.05; and preoccupied, r=.161, p<0.05. Agreeableness on the other hand was significantly correlated with relationship, r=-.202, p<0.0001; and preoccupied, r=-.160, p<0.0001. Finally, conscientiousness was significantly correlated with four dimensions of attachment style and they are, confidence, r=.430, p<0.0001; discomfort, r=.133, p<0.05; relationship, r=.130, p<0.05; and approval, r=.148, p<0.05.

Table 2: Results of correlation between personality traits and attachment styles

	1	2	3	4	5	6	7	8	9	10
Neuro. (1)	-									
Open. (3)	-.101	-								
Agree. (4)	.046	.359**	-							
Consci. (5)	-.164*	.462**	-.028	-						
Confid. (6)	.068	.420**	.291**	.019	-					
Discom. (7)	.301**	.007	.200**	-.144	.430**	-				
Relat. (8)	.132	.131*	.207**	-.133*	.133*	.162*	-			
Approv. (9)	.363**	.046	.139*	-.044	.130*	.232**	.344**	-		
Preocc. (10)	.385**	.066	.161*	-.160*	.148*	.163*	.577**	.293**	.589**	-

*p<0.05
**p<0.0001

The second objective was to examine the relationship between personality traits and life satisfaction among adolescents. Results in Table 3 showed that there was significant and negative correlation between neuroticism and life satisfaction, r=-.126, p<0.05. There was also significant correlation between extraversion and life satisfaction, r=.195, p<0.05. A significant and positive correlation was also observed between openness and life satisfaction, r=.239, p<0.05. Finally, results also showed a positive and significant correlation between conscientiousness and life satisfaction. Results however showed no significant correlation between agreeableness and life satisfaction.

Table 3: Results of correlation between personality traits and life satisfaction

	1	2	3	4	5	6
Neuro. (1)	-					
Extrov. (2)	-.101	-				
Open. (3)	.046	.359**	-			
Agree. (4)	-.164*	.032	-.028	-		
Consci. (5)	-.126*	.462**	.445**	.222**	-	
Life (6)		.195**	.239**	.005	.265**	-

The third objective examined the relationship between attachment style and life satisfaction among adolescents. Results in Table 4 showed that there were significant correlations between two dimensions of attachment style and life satisfaction namely, confidence, r=.267, p<0.0001 and relationship, r=.169, p<0.05. There were however no significant correlations between discomfort, approval and preoccupied.

Table 4: Results of correlation between attachment style and life satisfaction

	1	2	3	4	5	6
Conf. (1)	-					
Disc. (2)	.162	-				
Relat. (3)	.232**	.344**	-			
Appr. (4)	.163*	.577**	.293**	-		
Preocc.	.214**	.468**	.282**	.589**	-	
Life (6)	.267**	.021	.169*	-.078	-.082	-

CONCLUSION

This study aimed to examine the relationship between personality traits, attachment style and life satisfaction among adolescents. Findings indicated that adolescents who experienced life satisfaction were those who have emotional stability, extravert, open and conscientious. In addition, those who have confident and relationship attachment style has higher life satisfaction

REFERENCES

Ainsworth, M.D. (1989). Attachments beyond infancy. *American Psychologist,* 44, 709-716.

Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a model. *Journal of Personality and Social Psychology*, 61, 226–244.

Bifulco, A., Moran, P.M., Ball, C. & Bernazzani, O. (2002a) Adult attachment style I: Its relationship to clinical depression. *Social Psychiatry and Psychiatric Epidemiology*, 37, 50-59.

Bifulco, A., Moran, P.M., Ball, C. & Lillie, A. (2002b) Adult attachment style II: Its relationship to psychosocial depressive-vulnerability. *Social Psychiatry and Psychiatric Epidemiology*, 37, 60-67.

Bowlby, J. (1973). *Attachment and loss: Vol. 2. Separation: Anxiety and anger*. New York: Basic Books. Bowlby, J. (Eds.). (1980). *Attachment and loss. Vol. 3 Loss, sadness and depression*. New York: Basic Books. Bowlby, J. (1982) *Attachment and loss: Vol.1 Attachment* (2nd Edition). New York, Basic Books.

Bowlby, J. (1988) *A secure base: Parent-child attachment and healthy human development*. New York, Basic Books.

Brockman, D. D. (2003) *From late adolescence to young adulthood*. Madison CT: International Universities Press. Cassidy, J. (1994). Emotion regulation: Influences of attachment relationships. In N. Fox (Ed.), The development of emotion regulation. *Monographs of the Society for Research in Child Development*, 59, (2-3, Serial No. 240),228-249.

Collins, M. E. (2001) Transition to adulthood for vulnerable youths: A review of research and implications for policy. *Social Service Review*, 75, 271-291.

Cook, T. D. & Furstenberg, F. F. (2002) Explaining aspects of transition to adulthood in Italy, Sweden and Germany and the United States: A cross-disciplinary case synthesis approach. *Annals of the American Academy of Political and Social Science*, 580, 257-287.

Costa, P. T., & McCrae, R. R. (1980). Influence of extraversion and neuroticism on subjective well-being: Happy and unhappy people. *Journal of Personality and Social Psychology*, 38, 668–678.

Davis, M. (2003) Addressing the needs of youth in transition to adulthood. *Administration and Policy in Mental Health*, 30, 495-509.

Feeney, B. C., & Kirkpatrick, L. A. (1996). The effects of adult attachment and presence of romantic partners on physiological responses to stress. *Journal of Personality and Social Psychology*, 70, 255–270.

George, C., Kaplan, N. & Main, M. (1984). Adult Attachment interview protocol. Unpublished manuscript, University of California, Berkeley.

Gerlsma, C. & Luteijn, F. (2000). Attachment style in the context of clinical and health psychology: a proposal for the assessment of valence, incongruence, and accessibility of attachment representations in various working models. *British Journal of Medical Psychology*, 73, 15–34.

Hammen, C., Marks, T., Mayol, A. & deMayo, R. (1985). Depressive self-schemas, life stress, and vulnerability to depression. Journal *of Abnormal Psychology,* 94(3), 308-319.

Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, 52, 511–524

Horowitz, L. M., Rosenberg, S. E., & Bartholomew, K. (1993). Interpersonal problems, attachment styles, and outcome in brief dynamic psychotherapy. *Journal of Consulting and Clinical Psychology*, 61, 549–560.

Jessor, R. (1993) Successful adolescent development among youth in high risk settings. *American Psychologist*, 48, 117-126.

John, O. P. (1990). The ''big five'' factor taxonomy: Dimensions of personality in the natural language and in questionnaires. In L. A. Pervin (Ed.), *Handbook of personality: Theory and research* (pp. 66–100). New York: Guilford.

Larsen, R. J., & Ketelaar, T. (1989). Extraversion, neuroticism, and susceptibility to positive and negative mood induction procedures. *Personality and Individual Differences*, 10, 1221–1228.

Lopez, F. G., & Brennan, K. A. (2000). Dynamic processes underlying adult attachment organization: Toward an attachment theoretical perspective on the healthy and effective self. *Journal of Counseling Psychology*, 47, 283–301.

Luecken, L.J. (2000). Attachment and loss experiences during childhood are associated with adult hostility, depression, and social support. *Journal of Psychosomatic Research*, 49, 85-91.

Mallinckrodt, B., & Wei, M. (2000, June). Attachment, social competencies, and characteristic patterns of interpersonal problems. In B. M. Strauss (Chair), *Relationship of attachment, interpersonal perceptions and problems*. Symposium conducted at the annual meeting of the Society for Psychotherapy Research, Chicago, IL.

McCarthy, G. & Taylor, A, (1999) Avoidant/ambivalent attachment style as mediator between abusive childhood experiences and adult relationship difficulties. *Journal of Child Psychology and Psychiatry*, 40(3), 465-477.

McCrae, R. R., & John, O. P. (1992). An introduction to the five factor model of personality. *Journal of Personality*, 60, 175–216.

Meyer, G. J., & Shack, J. R. (1989). The structural convergence of mood and personality: Evidence for old and new''directions''. *Journal of Personality and Social Psychology*, 57, 691–706.

Mickelson, K.D., Kessler, R.C. & Shaver, P.R. (1997). Adult attachment in a nationally representative sample. *Journal of Personality and Social Psychology*, 73(5), 1092-1106.

Mikulincer, M., Florian, V., & Weller, A. (1993). Attachment styles, coping strategies, and post-traumatic psychological distress: The impact of the Gulf War in Israel. *Journal of Personality and Social Psychology*, 64, 817–826.

Murphy, B. & Bates, G.W. (1997) Adult attachment style and vulnerability to depression. *Personality and Individual Differences*, 22(6), 835-844.

Priel, B., & Shamai, D. (1995). Attachment style and perceived social support: Effects on affect regulation. *Personality & Individual Difference*, 19, 235–241.

Rice, K. G., & Whaley, T. J. (1994). A short-term longitudinal study of within-semester stability and change in attachment and college student adjustment. *Journal of College Student Development*, 35, 324–330.

Rice, K. G., FitzGerald, D. P., Whaley, T. J., & Gibbs, C. L. (1995). Cross-sectional and longitudinal examination of attachment, separation–individuation and college student adjustment. *Journal of Counseling & Development*, 73, 463–474.

Robert, J. E., Gotlib, I. H., & Kassel, J. D. (1996). Adult attachment security and symptoms of depression: The mediating roles of dysfunctional attitudes and low self-esteem. *Journal of Personality and Social Psychology*, 70, 310–320.

Simpson, J. A. (1990). Influence of attachment styles on romantic relationships. *Journal of Personality and Social Psychology*, 59, 971–980.]

Torquati, J. C., & Raffaelli, M. (2004). Daily experiences of emotions and social contexts of securely and insecurely attached adults. *Journal of Adolescent Research*, 19, 740–758.

Wagner, P. E., & Tangney, J. P. (1991). Affective style, aspects of the self, and psychological symptoms.

Unpublished manuscript, Department of Psychology, George Mason University, Fairfax, VA.

Watson, D., & Clark, L. A. (1997). Extraversion and its positive emotional core. In L. A. Pervin & O. P. John (Eds.), *Handbook of Personality Psychology* (pp. 767–793). New York: Guilford.

Wei, M., Mallinckrodt, B., Larson, L.M. & Zakalik, R.A. (2005) Adult attachment, depressive symptoms, and validation from self versus others. *Journal of Counseling Psychology*, 52(3), 368-377.

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PROFESSIONAL EXCHANGE

Psychopharmacology and Mental Health Practice: An Important Alliance

Kevin P. Kaut

Many mental health professionals are concerned about an increasingly "medicalized" society, driven in part by significant growth in biomedical research and biological perspectives on psychological disorders. The modern medical era, which has endorsed reductionism as the principal way of viewing many health conditions, offers many options for treating psychiatric diagnoses. Pharmacology is a major influence in psychiatric treatment decisions, and despite questions by mental health practitioners about reliance on drugs (Murray, 2009), psychopharmacology provides helpful alternatives. However, pharmacological options for mental health concerns should not be considered in isolation, and the use of drug treatments for cognitive, emotional, and behavioral disorders warrants careful contextual analysis. Mental health practitioners are encouraged to view pharmacology within a comprehensive sociohistorical framework that recognizes the value of a reductionist perspective as part of psychology's rich cognitive and behavioral contributions to contemporary mental health assessment and intervention.

> The past 40 years have produced remarkable medicines that can ameliorate much of the symptomology and suffering that accompanies both acute episodes and chronic persistence of ... central nervous system disorders. (Julien, 1998, p. 430)

It would be difficult to overestimate the significance of pharmacology in our lives today. Drugs are nearly ubiquitous in the modern medical and social landscape, from the ever-expanding selection of medications, prescription and nonprescription, to the growing impact abused drugs are having on individuals, families, and society (Fogarty & Lingford-Hughes, 2004). For better or worse,

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drugs will continue to play a major role in health care. One of the major challenges for mental health practitioners—particularly given advances in medicine, pharmacology, and managed care (Nys & Nys, 2006)—is the need to continually update how they conceptualize client mental health needs and intervention strategies within a rapidly changing environment (Cohen, 1993).

Despite the tremendous emphasis in health care on biomedicine, particularly pharmacology, concerns have recently been raised about the role of drug therapy in mental health (Jureidini & Tonkin, 2006; Murray, 2009; see also Peele, 1981). The criticism is not necessarily about the impact pharmacology has in general, at least not with the application of pharmacological interventions to the treatment of medical conditions for which there are known biological causes and targeted drug mechanisms. Instead, concerns about the expansion of *psycho*-pharmacology seem to reflect fundamental questions about how we view or understand mental health conditions, and the extent to which the biomedical approach to treatment should be unquestioningly applied to all types of psychiatric diagnoses.

Naturally, such questions relate in part to how we as professionals view the nature of mental and affective processes and the relative emphasis we place on reductionism (i.e., observable behavior reduced to neurobiological mechanisms) versus more global socially and environmentally associated influences on behavior (see Peele, 1981). Our definitions, typically constructed out of educational background, personal beliefs, and professional experience, influence mental health delivery. Even in considering mental health assessment models that advocate an appreciation of bio-psycho-social-spiritual facets of behavior (Hoffman, 2000; Kaut, 2005), most practitioners bring to a therapeutic relationship or an applied client context biases that constrain how they view mental health conditions and treatments. For instance, some professionals advocate for pharmacological strategies in appropriate situations, while others might be reluctant to consider drugs as a responsible aspect of therapy.

In addition to professional perspectives that can impact mental health decision-making, we must recognize the role of public perception itself: Clients bring to mental health scenarios their own understandings—and misunderstandings—of behavior, medicine, and treatment (Cohen, 1993; see also Kaut & Dickinson, 2007). Client understanding of mental health issues likely reflects socially biased attitudes and media-driven conceptualizations of psychological conditions. Again, modern perspectives of biomedicine, including our understanding of the brain, drugs, and behavior (Cohen, 1993; Drevets, 2000) significantly affects how people approach mental health issues—most notably whether they request treatments and comply with treatment recommendations. Uptake of mental and behavioral health services is certainly influenced by a growing awareness of modern medicine, but the extent to which the medical model (that disorders are biological manifestations) determines the future of

mental health treatment depends on careful consideration and a willingness to accept the realities of today's pharmacological milieu.

The principal goals of this article are to underscore the clinical utility of psychopharmacology in mental health and to encourage mental health professionals to evaluate their own understanding of mental health conditions and treatments as biomedical discoveries and potential clinical applications are expanding. I view pharmacology as an essential component in mental health treatment (see Kaut & Dickinson, 2007) and believe the advances of modern neuroscience and psychopharmacology are creating new opportunities for treating a variety of psychological and behavioral issues. Naturally, some professionals might express concern about the appropriateness and efficacy of psychoactive drug treatments amidst the growth of the pharmaceutical industry, particularly where the financial cost (and gains) of drug research, development, and implementation is so high. It is here that mental health professionals, especially those directly involved in client care, must analyze mental health research and practice and consider ways to judiciously incorporate the results of the growth of psychopharmacology into the services they provide.

This article will sequentially address the following:

1. The contextual basis of pharmacology and the need to identify a framework for placing mental health within a much larger psychopharmaceutical industrial culture (Murray, 2009)
2. Modern reductionism as a philosophical perspective that guides belief in the medical model; practitioners and researchers alike must be challenged to critically evaluate the relationship between neural reductionism and mental health
3. Recommendations for mental health counselors based on endorsement of reductionism and the embrace of pharmacology within a more inclusive bio-psycho-social context.

PSYCHOPHARMACOLOGY AND THE MODERN MENTAL HEALTH CULTURE

A brief consideration of a relatively recent—possibly watershed—historical debate at the confluence of pharmacology and mental health practice may be relevant here. Nearly two decades ago the American Psychological Association (APA) undertook an extensive initiative to promote prescription privileges for qualified psychologists (see DeLeon & Wiggins, 1996; DeNelsky, 1996; Lorion, 1996). Although not directly relevant for most mental health care providers, raising the issue helped shape a discussion about changes in how mental health care was being delivered. The ensuing debate stimulated much

discourse about the qualifications of psychologists to write prescriptions (e.g., Gutierrez & Silk, 1998; Robiner et al., 2003; Sammons, Gorny, Zimmer, & Allen, 2000). It also helped bring attention to pharmacology as a useful tool in mental health treatment.

Whatever a counselor's personal or professional position may be on the merits of psychologists as prescribers, pharmacological treatment of psychiatric conditions remains an important contemporary mental health issue (Barnett & Neel, 2000). Looking back, it would seem that advocacy for prescription privileges was predicated at least in part on a reductionist perspective (see Sammons & Brown, 1997), thus substantiating a belief in the relevance and effectiveness of pharmacology for the treatment of mental health concerns. Moreover, and central to my position here, this debate underscored the ever-growing influence of pharmacology in modern health care and reinforced the link between psychoactive drugs and mental health interventions. Today, because drugs are commonly recommended for a variety of mental health clients in community mental health centers, public schools, university counseling centers, and medical facilities, their use often intersects with emotional and behavioral issues.

Unequivocally, the prescription privilege debate affected relatively few professionals and seems to have faded into relative obscurity. Nevertheless, its essence still has implications for all types of mental health professionals. Concern with the interface between drugs, the brain, and behavior is not limited just to psychiatrists or general medical practitioners. Biomedical research is progressively deepening our appreciation of the biological foundations of human cognition, emotion, and behavior (e.g., Drevets, 2000; Ochsner & Gross, 2005; Steele, Currie, Lawrie, & Reid, 2007; see also Machamer & Sytsma, 2007). Modern advances in areas like medical and behavioral genetics, neuroscience, and pharmacology may impact how we understand behavior (e.g., Raine, 2008) and how we treat conditions ranging from attention deficit disorder (Fone & Nutt, 2005; Mazei-Robison, Couch, Shelton, Stein, & Blakely, 2005) to schizophrenia (Rhen & Rees, 2005). Scientific progress can thus affect professionals at every level of human service (including educators) where mental health may be at issue.

No matter how exciting advances in biomedical and pharmacological research may be, there is always a need for caution along with optimism and for a tempered approach to the acceptance of scientific applications. Enthusiasm about the promise of biomedical science is not intended to suggest that all treatments for psychological diagnoses should be approached first through a biomedical lens. Indeed, it is here that the work of Murray (2009) can be of particular value for mental health professionals—but with a measure of scientific balance.

Understanding the Pharmacological Context

Murray (2009) offers a unique perspective on what he terms the psychopharmaceutical industrial complex (PPIC) and expresses considerable concern about endorsement of the "disease model" as a way of understanding and treating psychiatric conditions. His description of the PPIC reflects skepticism about the enormous influence the pharmaceutical industry has on mental health practice; moreover, he questions the prevailing concept of mental health conditions as "biological manifestations"—a perspective he suggests serves merely to reinforce adoption of a restrictive biomedical lens through which we evaluate (or potentially *mis*-evaluate) clients.

Although a complete review of Murray's work is beyond the scope of this paper, his concern about the potential for pharmacology to shape mental health practice is particularly worth discussing. Logically, endorsement of a disease model or a highly reductionist perspective of psychological disorders presupposes the need to link diagnosis (e.g., major depressive disorder [MDD]) with underlying causes (e.g., serotonin, norepinephrine, or dopamine insufficiency) and specific pharmaceutical interventions (e.g., Cymbalta®; Wellbutrin®). This synergy between behavior, disease, and treatment reflects the very essence of reductionism and is a driving force in the pharmaceutical industry's approach to psychiatric conditions. However, such synergy also requires careful evaluation if it is to be a primary explanation for, and approach to, the treatment of psychological disorders.

In his contribution to the debate about the role of pharmacology in mental health treatment, Murray (2009; see also Kaut & Dickenson, 2007) rightly identifies a need for caution and an attitude of skepticism when evaluating pharmaceutical claims. However, his notion that the PPIC operates according to cult-like principles, somewhat insidiously biasing the perspective of consumers and professionals alike and potentially maintaining them in a cycle of pharmacological dependence, warrants further consideration that may suggest a more measured approach.

Here I would emphasize that psychoactive medications, which are but a small component of the pharmaceutical industry's interest in health care, reflect less what he termed a "cult" and much more a modern *culture*. The contemporary medical context in which we live is pervaded by pharmacology. Rather than criticizing the pharmaceutical industry, I suggest, there is more to be gained by trying to understand the pharmacological context of mental health (see Figure 1), which can provide insight into how best pharmacology can influence mental health practice.

Figure 1. The Pharmacology-Client Interface (PCI) in Context

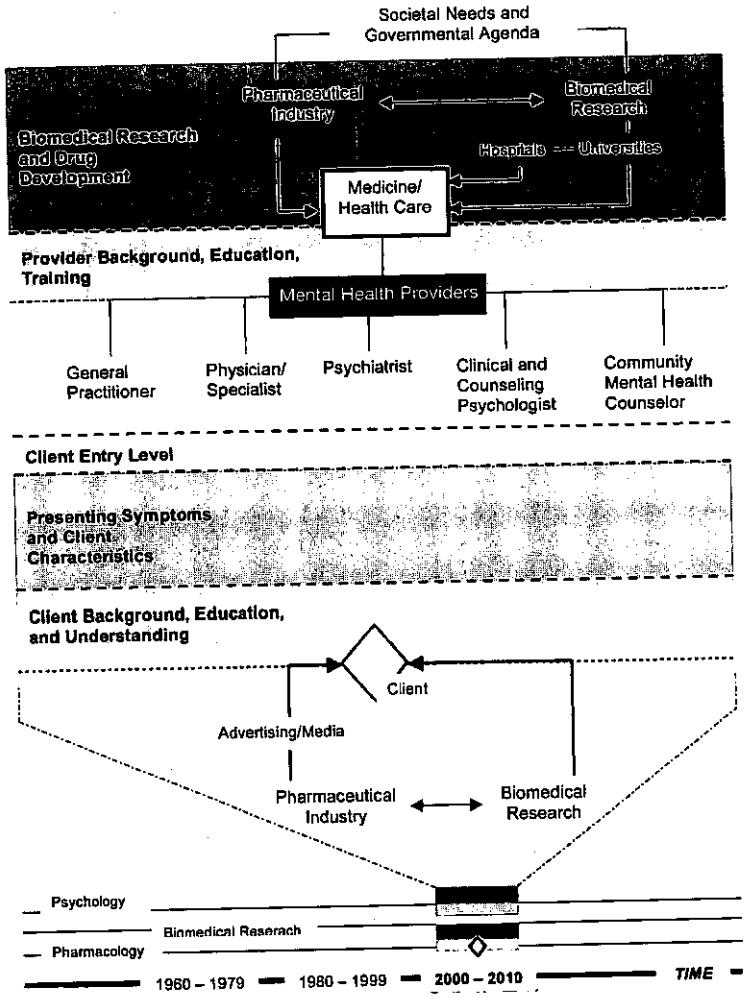

Figure 1. The time dimension (bottom) represents the sociohistorical context influencing developments in psychology, biomedical research, and pharmacology. In seeking mental health support (i.e., client entry level), a client experiencing specific symptoms at a particular point in personal and social history is influenced by intra-individual characteristics (e.g., cognitions, emotional stability, problem-solving style) and external moderators (e.g., background, education, understanding of mental health issues). Background, education, and training subject mental health practitioners to various influences (pressures) for treatment selection (e.g., drugs). The mental health context is influenced by biomedical research, in hospitals, universities, *and* the pharmaceutical industry. Societal and governmental priorities influence the research and development context (top); and client awareness of disorders and treatments is shaped by his or her attitudes toward drug treatment options (pharmaceutical advertisements, media, and "medicalization" of health issues) (bottom).

An Ecological Framework

I find it helpful here to begin with an ecological framework, modeled in part on the work of Bronfenbrenner and its application to various other issues in human development (Campbell, Dworkin, & Cabral, 2009; Swick & Williams, 2006). A key application borrowed from ecological theory is the notion of a chronosystem level of analysis (Figure 1, bottom), which suggests the need to understand human development—and the factors influencing behavior—through the lens of both a person's own developmental history and the larger sociohistorical context. Applied here, this suggests to me that the multiple levels and varied contexts illustrated in Figure 1 must be considered within our contemporary historical era—an era marked by unique and significant advances in our understanding of genetics, physiology, brain, and behavior (e.g., Raine, 2008). Through this context many individuals, each with their own unique developmental histories, seek and receive mental health interventions.

Our sociohistorical context has changed markedly even in the last half century, and the ways in which we can view psychological conditions continue to change with advances in psychology, biomedicine, and pharmacology. Some 30 years ago Peele (1981) commented on this influence of reductionism in psychology and identified the growing recognition of brain science as an influence on mental health practice:

> The area of psychology in which this shift is most apparent is that having to do with psychopathologies and their treatment. The study of neurosciences is now often the one common link in training programs for counseling, clinical, and educational psychology, as psychology practitioners come to believe that such grounding is necessary for their work. (p. 810)

This influence of modern neuroscience and related instruction in the biological bases of behavior is reflected in Figure 1, where medical professionals (general practitioners, medical specialists, psychiatrists) and mental health practitioners (clinical and counseling psychologists, community counselors, social workers) represent the first line of client interface with mental health treatment options. It is at this entry point, particularly with medical professionals, that individuals presenting with mental health concerns (e.g., anxiety, depression, bipolar symptoms, thought disorder) are typically introduced to pharmacology. Given the modern scientific and medical context that influences the education, training, and professional perspectives of providers of health care, particularly mental health care)—plus the impact modern medicine has on patient/client understanding—it is reasonable to expect that medications would be part of today's discussions about treatment.

The Client in Context

Recognition of the modern medical context is not intended to advocate blind

acceptance of the disease model for mental health; rather, the objective is to identify variables influencing the beliefs, expectations, and decisions associated with psychological conditions and treatments. Accordingly, mental health providers must first think about how clients conceptualize health conditions in general. For example, the use of prescription medications to treat physical conditions or ailments is reasonably well accepted. Today's patients, no matter what their conditions, are accustomed to leaving a doctor's office, hospital, or medical center with prescriptions. The contemporary availability of drugs to address a host of medical concerns—infections, inflammatory conditions, pain, cardiac issues, cholesterol problems, and blood pressure regulation, for instance—would seem to support public acceptance of the broad role pharmacology has in managing virtually *all* health concerns. It is thus understandable that clients might view the use of medications as sufficient for treating mental health concerns (a perspective I do not endorse entirely).

Murray (2009), borrowing from Gosden & Beder (2001), places considerable blame on pharmaceutical companies and their relationship with psychiatry, research institutes, public media, and the federal government for public acceptance of, and reliance on, drug use in mental health practice. Essentially, he argues that the relationship promotes a context that subverts client agency (responsibility for health care independence) and undermines the breadth of mental health interventions.

I see this differently. I would advocate that the elements in Figure 1 (each represented to some degree in the model Murray uses) reflect productive (though imperfect) components of an *evolving mental health care system* (see below). As providers deal in many different contexts with client mental health issues (e.g., childhood ADHD, adult major depression, drug abuse, workplace or school-related anxiety), decisions to treat with medications, or the need to monitor drug effects as part of treatment, can be construed as emerging under the influence of selective pressures that influence the provider and similar pressures that affect client willingness to accept pharmacotherapy (see Table 1; also Kaut & Dickinson, 2007). Rather than criticizing the pharmaceutical industry, it might be better to identify issues that shape the perspectives of mental health providers *and* clients as they consider treatment alternatives.

In this microcontext (client interacting with mental health provider), practitioners should think carefully about factors that affect client beliefs about mental health and associated interventions (see Table 1). Whether a client is taking, seeking, or avoiding medications, it is helpful to understand what motivates or influences that approach. More important, providers must be sensitive to how *their own* training and background affect decision-making. Certainly, the pharmaceutical industry as a major player in drug development, distribution, and information dissemination exerts a significant influence on medicine and health care delivery (Figure 1; Healy, 2009; see web review in endnote 1).[1] However,

Table 1. Considerations Influencing Practitioner and Client Decision-Making in Mental Health Treatment

Treatment Issue	Considerations for Mental Health Provider	Considerations for Client
Nature of condition or symptoms	What is indicated by the present symptoms or behaviors?	Does the client have any insight into the symptoms or behaviors in question?
	What variables might influence development of these behaviors?	Does the client understand the potential influences on behavior?
Pharmacology as a treatment option	What drug approaches are typically used?	What does the client know about drug therapy?
	What do I understand about drug treatments for the condition in question?	What factors influence the client's *knowledge* of drug therapy?
	What is my personal bias concerning drug therapy in general?	Does the client have specific *beliefs* about medications for psychological conditions?
	How does pharmacology fit within my model of human behavior?	What are the client's *expectations* about drug therapy?
Therapeutic drug and behavior monitoring	How should this drug impact behavior over time?	How is this drug likely to affect client behavior?
	Are there time limits to using this drug?	Are there side effects or interactions that should be known?

the uptake of pharmacological resources is multidimensional; it is not necessarily driven solely by an industrial objective. To extend the comments of Peele (1981; see above), some practitioners will naturally be influenced by biomedical research that informs their current understanding of brain, behavior, and pharmacology (see Drevets, 2000; Ebert, 2002; Nandham, Jhaveri, & Bartlett, 2007; Pilc, Chaki, Nowak, & Witkin, 2008; Preskorn, 2006). Such a context is much broader, and deeper, than the pharmaceutical enterprise alone.

Essentially, the way we view mental health issues should reflect the synergy in biological, psychological, and behavioral research (Hoffman, 2000; Kaut, 2005). Over the last half century, advances in our understanding of the biological underpinnings of behavior seem to have somewhat exceeded the relative contributions of disciplines, such as behavioral interventions or psychotherapy.[2] The micro-context surrounding the client-practitioner interface may thus be

heavily influenced by the impact of neuroscience research and biological reductionism in general. To me, this is an appropriate and logical consequence of our research, development, and education.

The Evolution of Pharmacological Thinking

Unlike Murray (2009), I consider research and development by the pharmaceutical industry and allied health entities to be a positive driving force in human health and wellness (see Figure 1, top section). Without their investment in basic and applied research for a great number of conditions—including psychological disorders—advances in our understanding of how to treat such conditions would be drastically limited. In some ways, the emergence of pharmacological alternatives for mental health disorders has been evolutionary, with treatment options that have succeeded and failed throughout previous decades analogous to functional adaptations and failures to environmental pressures. Drug therapies change (see Julien, 2008) as new medications "adapt" to pressures for more efficacious treatments, fewer side effects, and more symptom specificity (Preskorn, 2006; Slattery, Hudson, & Nutt, 2004). Typically, the drugs reaching the market treat specific conditions more appropriately, safely, and competitively than other drugs. The pharmaceutical industry is under enormous pressure to design, produce, and monitor pharmaceutical products, and the product pipelines of the major pharmaceutical companies are impressive.[3] Given the extensive research, development, and financial requirements for bringing a drug to market (Berkowitz & Katzung, 1998), I have confidence in the integrity of the modern pharmacological enterprise and believe it contributes in important ways to today's biomedical context.

Understandably, part of this context is established and moderated by priorities of government and other institutions that reflect our interest in science and medical research (e.g., hospitals, universities, research foundations; see Figure 1). Such priorities influence how federal funds are allocated and to some extent which issues are investigated. Few would question why conditions like HIV/AIDS, cancer, spinal cord injury, genetic disorders, Parkinson's disease, and Alzheimer's disease have high priority today. We tend to view these and many other disorders through a biomedical lens, which magnifies the salience of reductionism and certainly influences the way we educate and train professionals to evaluate, diagnose, treat, and monitor physical maladies. This pervasive philosophy of reductionism adds yet another contemporary pressure that helps shape research priorities, methods, and ultimately knowledge.

When I also look at research to identify and clarify biological mechanisms associated with various psychological conditions and drug therapies (see Table 2 and the next section), I believe firmly that *pharmacological thinking*, predicated on a bio-psycho-social base, can be beneficial in preparing future mental health practitioners. By this, I mean a reasonable understanding of cognitive,

affective, and behavioral neuroscience (or neuropsychology; see Banich, 2004; Zillmer, Spiers, & Culbertson, 2008) and how pharmacology influences diverse aspects of health and behavior (for an excellent and readable reference, see Julien, Advokat, & Comaty, 2008). Appreciation for the way drugs are researched and brought to the clinical market can also offer a helpful perspective on pharmacological research and drug efficacy (e.g., Berkowitz & Katzung, 1995).

Table 2. Biomedical Research and Psychological Disorders

Biological Level[1]	Putative Brain-Behavior Mechanism[2,3]
Systems–structures	Limbic system^{MDD}
	Amygdala$^{MDD, ANX}$
	Nucleus accumbens^{MDD}
	Hippocampus$^{MDD, SCZ}$
	Prefrontal cortex^{MDD}
	Anterior cingulate$^{MDD, BD}$
	Striatum (basal ganglia)^{MDD}
	Thalamus^{MDD}
Cellular–physiological	5-HT transporters (SSRI/TCA)^{MDD}
	NE transporters (SSRI/TCA)^{MDD}
	DA transporters^{MDD}
	5-$HT_{1A, 2C, 2A, 7}$ receptors^{MDD}
	NK_1 receptor^{MDD}
	Substance-P^{MDD}
	$CRH_{1,2}$^{MDD}
	GABA receptors^{ANX}
	Glutamate (metabotropic receptors)^{MDD}
	NMDA receptor (glutamate)^{MDD}
	Neurotrophins (growth factors)^{MDD}
Intracellular-genomic	Lithium ($Li+$)^{BD}
	PAP phosphatase^{BD}
	Cyclic AMP response protein (CREB)^{MDD}
	BDNF (growth factor)
	Neurogenesis (new cell growth)
	Synaptic remodeling

[1]Biological levels correspond to Figure 2.
[2]Superscripts: ANX: Anxiety disorders; BD: Bipolar disorder; MDD: Major depressive disorder; SCZ: Schizophrenia.
[3]BDNF: Brain-derived neurotrophic factor; CRH: Corticotropin-releasing hormone; DA: Dopamine; GABA: Gamma aminobutyric acid; NE: Norepinephrine; NK: Neurokinin; NMDA: N-methyl-D-aspartate; PAP: 3'(2')-phosphoadenosine-5'-phosphate.

Insights into the science behind pharmacology can be of particular benefit, especially when practitioners can extrapolate from them conceptual frameworks (Figures 1 and 2) and practical considerations to help them better evaluate medications that will inevitably be part of mental health interventions. While I do not believe that recovery rates for psychological disorders will necessarily parallel advances in biomedicine, I believe that as biomedical knowledge of psychological disorders increases, so too will the potential to better understand etiologies, appreciate person-environment interactions, and consider new treatment strategies. Here again it is helpful to identify how a spirit of reductionism—judiciously incorporated into approaches to research, education, and professional training—affects the way we view mental health conditions and how we evaluate the range of solutions available to promote best practices in mental health care.[4]

Figure 2. The Biology-Environment Interface

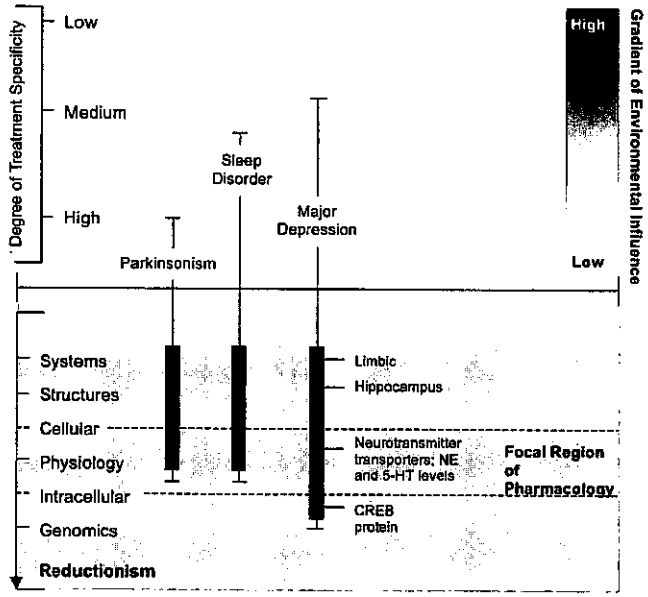

Figure 2. Some conditions are conceptualized as having more treatment specificity when a drug with a known mechanism of action is the most effective treatment for the behavior in question. Other conditions might be viewed as positioned somewhere along a continuum of treatment specificity and the corresponding gradient of environmental influence. For many conditions, pharmacological specificity might be considered moderate to low, reflecting a greater influence of individual, situational, or environmental factors.

REDUCTIONISM AS A POSITIVE INFLUENCE IN MENTAL HEALTH

As a psychologist, I teach students to appreciate the complexities of human behavior and respect the diverse influences on behavioral development over time. Psychology enjoys a rich tradition of behaviorism in psychology (Bolles, 1993), not to mention the substantial influence of cognitive psychology in its efforts to help scientists peer into what was known as the "black box." However, I caution students to anchor their models of human behavior in the modern context of significant developments in the natural sciences. The black box, formerly "mind," is now "brain," and (to extend the metaphor) it is filled with smaller and more integrated mini-boxes that collectively yield what we identify as the thinking, feeling, and behaving brain.

As a neuroscientist I expect students to understand the biological bases of behavior, with particular attention to the systems level of analysis and the genetic and molecular aspects of human experience.[5] Reductionism can of course be viewed with skepticism, and rightly so, as it tends to medicalize many conditions and treats the complexity and richness of human behavior as reducible to progressively smaller parts (Cohen, 1993). This emphasis on internal rather than external factors has naturally enjoyed the support of the pharmaceutical industry (see Cohen) and tends to reduce psychological conditions to quantifiable, measurable, and natural components (Nys & Nys, 2006). Such an approach "[detaches a] disease from a patient's natural history"' (Nys & Nys, p.111), which essentially minimizes clinical judgment and a holistic perspective of client health and illness (see also Murray, 2009).

Cartesian duality, which separates the natural (biological) components of behavior from the more uniquely human dimensions of thought, feeling, and memory (spirit, soul, transcendent aspects), must be viewed with skepticism. On the one hand there is a need to recognize "mind" as a reflection of "brain," but on the other we must recognize the uniqueness of individual history, culture, environment, and even behavior on the development of adaptive and maladaptive tendencies. A conceptual framework (see Kaut & Dickinson, 2007; also Kaut, 2006) therefore serves to clarify the interface between biology and environment in shaping behavior (see Figure 2).

Disorders as Diseases

The belief that behavioral and psychological disorders can be reduced to biochemical disturbances is naturally linked to the expectation that treatments will correct the biochemical dysfunction or imbalance (Nys & Nys, 2006). The fundamental premise (and criticism) of this medical or disease model is the assumption that all conditions are reducible to specific biological mechanisms (see Nys & Nys). The problem with this model is not the expectation that disorders, or selected features of disorders, are manifestations of biological system

dysfunction (imbalances); it lies in the failure to identify the limits of reductionism and the inherent opportunities for a holistic approach—even when pharmacology is part of the treatment algorithm.

The Biology-Environment Interface

When a disorder has a known biological mechanism, we might suppose a highly specific relationship between the behavior of interest, a biological target, and the mechanism of treatment (Figure 2). For example, Parkinson's disease follows from a drastic reduction in dopamine activity in cells making up a specific structure (the substantia nigra) that regulates a particular system in the brain (the basal ganglia). Dopamine-enhancing drugs (e.g., Sinemet®, Stalevo) directly influence motor activity in a dose-dependent manner. In such cases, the gradient of environmental influence would be fairly low insofar as treatment of the condition per se is concerned. However, there may still be a need for mental and behavioral health interventions to promote or enhance adaptive behavior.[6]

In other conditions, such as sleep disorders, the relationship between known biological elements and the behavior itself might be less specific. A number of prescription medications are available to promote and sustain sleep; typically they manipulate the GABAergic system in the arousal circuits of the brain (Prosom®, Dalmane®, Restoril®, Lunesta®; see also Julien et al., 2008). Nevertheless, sleep architecture is complex and is multiply determined by various neurotransmitter systems and brain circuits. Moreover, stress, activity levels, dietary habits, and other manageable environmental issues can be targeted to help bring about sustainable change in sleep behaviors.

The point here is that a reductionist perspective alone is unlikely to offer singular solutions to the more complex conditions that afflict the cognitive and affective integrity of the human brain. Nevertheless, for many psychological disorders, including attention deficit disorder, major depression, anxiety, bipolar disorder, obsessive-compulsive disorder, and schizophrenia (American Psychiatric Association [DSM-IV-TR], 2000), a variety of genetic, structural, and physiological issues might be addressed. Even when the relationship between biological mechanisms and behavioral symptoms seems low to moderate (e.g., MDD; Figure 2), the biomedical approach can offer significant insights into the etiology and nature of such conditions (Drevets, 2000; Fitzgerald, Laird, Maller, & Daskalakis, 2008; Gupta, Elheis, & Pansari, 2004).[7]

Support for Reductionist Beliefs

My training as a psychologist emphasized the research, theories, and applications of cognitive and behavioral approaches to child development and disorders. As a practicing school psychologist, I recognized environmental, social, and behavioral contingencies that might influence manifestation of certain

disorders in children. Nevertheless, somewhere during my formal education I acquired an appreciation for the biological correlates of many cognitive, educational, and emotional disorders. In practice, this was reinforced by reading case histories, having discussions with parents and with other professionals, and dealing with use of medication to manage challenging behaviors.

As a neuroscientist, my training exposed me to the richness of neurobiology and the intricate relationship between brain and behavior. Through coursework with medical students, seminars, and my own research (Kaut & Bunsey, 2001; Kaut, Bunsey, & Riccio, 2003) I glimpsed how modern education—driven by biomedicine—influences the knowledge, beliefs, and values of professionals (see Figure 1). Society at large may have been similarly influenced, affecting the expectations of patients and clients dealing with health, including mental health, issues.

Although I often expect students to appreciate the synergy between biological and environmental factors in producing a given psychological outcome (Kaut, 2005, 2006; Kaut & Dickinson, 2007), my proclivity is to consider the weight of evidence concerning the biological foundations of behavior. Medical and mental health professionals can understandably be influenced by their experience in educational systems shaped by a growing biomedical research agenda and an emphasis on the disease model as a way of understanding human disorders.

The Value of the Modern Research Agenda

Critics of the medical or disease model so pervasive in mental health today sometimes suggest that many medical treatments have questionable efficacy (Murray, 2009). There is particular concern that clients seeking mental health treatments are encouraged to suspend critical thinking about the reality of pharmacological treatments:

> Anecdotal evidence suggests that psychiatric consumers rarely criticize the chemical imbalance theory despite not having their chemicals measured, as would be done with diabetes, to verify that there is indeed a brain imbalance. (Murray, 2009, p. 297)

Certainly, there is always the need for caution when incorporating pharmacology into a mental health treatment program, and Murray's concerns are in part well-founded. However, such criticisms might also lead to the erroneous belief that research is not seriously looking for, or successfully identifying, the biological mechanisms underlying many mental disorders. Table 2 (modeled after the reductionist elements shown in Figure 2) offers a limited perspective on research linking psychological disorders with biological mechanisms; it is intended here to underscore the value of pharmacological interventions as treatment strategies.

The Neurochemistry of Emotion. The complexities inherent in mental health research and treatment are well-represented in the case of mood disorders, particularly MDD (see Figure 2). The notion of chemical imbalance is embodied in the biogenic amine theory of depression that implicates the neurotransmitters norepinephrine (NE), serotonin (5-HT), and dopamine (DA) (Ebert, 2002; Julien, 2008); the theory has long been central to the development of tricyclic antidepressants (TCAs); serotonin selective reuptake inhibitors (SSRIs); monoamine oxidase inhibitors (MAOIs); and newer-generation serotonin and norepinephrine reuptake inhibitors (SNRIs). Though their efficacy, selectivity, and patterns of over-use have been questioned (Juereidini & Tonkin, 2006), these drugs are still widely marketed and are among the medications most frequently prescribed (Abilify®, Cymbalta®, Effexor XR®, Lexapro®; see rxlist.com).

Further research to expand understanding of antidepressant mechanisms is therefore important (Table 2). Apart from clarifying the blockade of neurotransmitter reuptake in TCAs, SSRIs, and SNRIs (e.g., Preskorn, 2006; Slattery et al., 2004), researchers have also identified new serotonergic receptor targets (e.g., 5-HT variants) and have suggested as potential targets for antidepressant activity receptors for glutamate (i.e., NMDA; Petrie, Reid, & Stewart, 2000; Pilc, Chaki, Nowak, & Witkin, 2008); substance-P (neurokinin-1 [NK1]; Adell et al., 2005); and even stress-related hormones (corticotropin-releasing hormone [CRH]; Taylor, Fricker, Devi, & Gomes, 2005).

This limited review is intended to underscore how contemporary research continues to investigate the chemistry (e.g., "imbalance") of psychological disorders and offers support for the focal mechanisms of pharmacotherapy (neurotransmitter activity; see Figure 2). Naturally, there are concerns about the potential for abuse by pharmaceutical companies in the way drugs are clinically evaluated and "proven" to be selective and effective for psychological conditions (Healy, 2004). However, it is hoped that diverse lines of research across the world will provide convergent support (or the lack thereof) for pharmacological claims. In this way, drugs are subject to rigorous and incisive studies concerning the many known, and potentially new, targets for therapeutic agents (e.g., Adell et al., 2005).

In the true spirit of reductionism (see Table 2), representative studies continue to test theories of depression (e.g., biogenic amine), yielding intriguing insights into the cell-signaling pathways affected by psychoactive drugs (Slattery, Hudson, & Nutt, 2004; Taylor et al., 2005). Collectively, such efforts have extended our understanding of how genetic activity (e.g., cyclic AMP response element binding protein [CREB]; Blendy, 2006; Yamada, Yamada, & Higuchi, 2005; see also Adell et al., 2005) triggers intracellular cascades resulting in the neuronal growth factors (e.g., brain-derived neurotrophic factor [BDNF]; Altar, 1999; Duman & Monteggia, 2006; Taylor et al., 2005), protein

synthesis, and cellular changes associated with better behavior (Yamada et al., 2005).

A Context for Reductionism. Clearly the precise causes of such psychological disorders as depression, anxiety, bipolar disorder, and schizophrenia have yet to be determined. And I would agree with Murray (2009) that there are no tests of neurotransmitter levels or receptor-mediated effects that would confirm a given diagnosis; diagnosis is not yet precise. Even with the tremendous research advances suggesting neurological regions and systems affected by psychological disorders (Table 2, Figure 2), there is no clinical utility in prescribing MRI, CT, or PET scans to identify structural or functional alterations in limbic anatomy, hippocampal volume, or amygdala reactivity (Addell et al., 2005; Drevets, 2000). And despite our understanding of the role served by the prefrontal cortex in emotional behavior and mood in general, there is insufficient evidence to support evaluation of this and other regions of the brain (e.g., nucleus accumbens, basal ganglia) involved in affect and emotional regulation. Here, in the midst of so many advances in biomedical knowledge, reductionism (like the disease model) is limited and must be judiciously integrated into a more holistic (e.g., ecological) clinical perspective.

THE DISEASE MODEL IN CONTEXT: RECOMMENDATIONS FOR MENTAL HEALTH PRACTICE

> Formerly the magic was in the therapist; he or she might also give pills, but these were an extension of his or her impact on us.... Therapists have forgotten how to manipulate their impact on patients. With the focus both doctor and patient have on the pill, neither heeds the context in which the patient has become distressed. (Healy, 2009, p. 24)

The disease model, buttressed by the influence of biomedical research, professional education (e.g., universities, hospitals, see Figure 1), the media, and the health care industry itself (Cohen, 1993), will continue to be part of the mental health system. And it should. But it need not be the primary perspective with which individual providers render their services. It can be part of a larger approach where well-informed clinicians draw from a variety of treatment approaches to best serve each client. Graduate students in training need to become knowledgeable in the range of treatment options available to a client and carefully consider where pharmacotherapy might fit into the treatment plan.

Here clinical judgment is of paramount importance. Such judgment requires an informed professional perspective balanced by openness to therapeutic alternatives. Toward this end, I offer recommendations for promoting eclecticism in clinical practice, while emphasizing the need for mental health providers ultimately to recognize the potential value of pharmacology in client care. (The

conceptual models in Figures 1 and 2 and the suggestions in Table 1 can also provide anchors for thinking about how biomedicine influences or might influence mental health care.)

1. Take a Position on Drugs in Mental Health.

My intent is to avoid another piece that merely advocates the need to integrate pharmacology into practice (Kaut & Dickinson, 2007). What is necessary is critical examination of one's beliefs about the nature of human cognition and emotion, coupled with a deeper examination of how reductionism fits within this model (Cohen, 1993; Nys & Nys, 2006; Peele, 1981). I begin with the fundamental assumption that biology is the essence of our functional being, but as we develop our biological inheritance interacts in complex ways with environmental circumstances. Even in the womb the nervous system can be influenced or otherwise shaped by the uterine environment and maternal physiology (e.g., stress, anxiety; DiPietro, 2004; Dipietro, Costigan, & Gurewitsch, 2003). Beyond development, various conditions have differing levels of biological specificity (see Figure 2) that *always* reflect the need to consider the "gradient of environmental influence" resulting in behavioral manifestations. Pharmacology should be part of an individual's model somewhere, even if only in a limited way.

2. Recognize the Benefits and Limitations of Pharmacology.

Building on the previous recommendation, it is important to recognize that drug therapies can have tremendous benefits for some clients (Julien et al., 2008), sometimes being central to the resolution of symptoms (high treatment specificity, Figure 2), but for others the use of medications might address only certain aspects of a disorder or be of clinical use for only a limited time. Antidepressants or anxiolytics, for example, might help a client manage difficult affect-driven physiological manifestations, which might then facilitate therapeutic work dealing with adaptive behaviors and cognitions (i.e., higher gradient of environmental influence, Figure 2). The "magic" (Healy, 2009) is neither in the drug nor the therapist; rather, the therapeutic process yields its greatest proximal and long-term impact when multiple treatment pieces fit together cooperatively. Therapeutic success is an emergent property, better viewed as the unveiling of new adaptations as balance is restored to cognitive, affective, environmental, and biological processes.

I have rarely if ever experienced a clinical situation where clients were pressured to take medications or intentionally driven to dependence on pharmacology (see Murray, 2009), but I recognize the potential for abuse and certainly understand that some individuals might be more vulnerable to such abuses than others. Clearly, the astute clinician must be aware of a client's medication

history and carefully consider how and why medications are used (see Table 1). Awareness of a drug's intended effects, side effects, and possible interactions with other drugs is imperative (see www.RxList.com; www.drugs.com).[8]

3. Educate Practitioners.

Education of mental health providers that takes into account advancing knowledge is particularly important. Frankly, better approaches to education about mental health issues is needed for many professionals, including physicians, psychologists, community mental health providers, and social workers. Advocacy for mental health provider education and training in psychopharmacology was clearest during the APA endorsement of prescription privileges (see Gutierrez & Silk, 1998; Kaut & Dickinson, 2007; Scovel, Christianson, & England, 2002; see also Snibbe, 1975), but attention to training in pharmacology has apparently subsided. Yet the need is growing.

Training for Psychologists and Counselors. Finding space in professional training curricula is difficult, but change must begin there. However, rather than specific courses or course sequences (Fox, Schwelitz, & Barclay, 1992), what might work better is a systematic attempt to integrate pharmacological knowledge into the curriculum as a whole. The graduate program with which I am affiliated has little freedom for additional coursework—or at least for coursework not directly related to core faculty interests. In such cases psychopharmacology can become relegated to a position of minimal impact, despite anecdotal evidence that students involved in clinical practica and internships often comment that pharmacology is pervasive in their client contact hours (see Scovel et al., 2002).

With a minimal amount of curricular time and careful consideration of topical areas of opportunity, biomedical principles and pharmacological issues can be incorporated into a great many content areas, such as assessment, vocational behavior, individual differences, ethics, and practicum experiences themselves. What is required is coordination among faculty and a willingness to seriously identify content that will have the greatest real-world influence. Again, regardless of one's specific position on the use of medications in mental health practice, I strongly advocate for background in at least three areas: (a) reductionism and the disease model (see Engel, 1977; Kaut & Dickinson, 2007); (b) the clinical interface between psychological diagnoses and neural science (e.g., Drevets, 2000; see also APA, 2000); and (c) appropriate use, potential misuse, and warnings associated with psychoactive medications.

Training for Medical Personnel. Unequivocally, one of the greatest needs in mental health today is for education of primary care physicians. Patients with mental health or related concerns often turn first to their general practitioner (Figure 1), who might prescribe any number of medications to treat symptoms associated with sleep problems (Lunesta®), depression (Cymbalta®), anxiety

(Paxil®), or sexual dysfunction (Cialis®). Any of these conditions might have an etiology for which psychological intervention might be indicated. While I fully endorse the use of medications for any one of the conditions mentioned, I also believe in the need to evaluate diagnoses according to the Figure 2 framework. My concern is not necessarily with psychiatry (but see Nys & Nys, 2006); rather, the point of entry through general practitioners reflects a place where education about disorders and referral networks can affect the greatest number of patients *and* providers who deal with mental health issues.

4. Educate the Public.

Mental health practitioners are information providers (Ingersoll & Brennan, 2001; Kaut & Dickinson, 2007) who must educate the public about mental health conditions. For most people the media significantly affect how psychological conditions are viewed. Television advertisements for such problems as allergies (Claritin®), insomnia (Lunesta®), gastric reflux (Prilosec®), erectile dysfunction (Cialis®, Viagra®), social anxiety (Paxil®), depression (Abilify®, Cymbalta®, Wellbutrin®), and cholesterol (e.g., Crestor®, Lipitor®, Zocor®) actually educate the public about physical and mental health while offering a biomedical (pharmacological) perspective on preferred treatment options.

I support what to some seems to be a pharmacological intrusion into the public's living rooms. Normalizing certain disorders—even depicting individuals suffering from them—can help persons struggling with similar issues. Such advertisements, by reinforcing the disease model for virtually all health conditions, essentially direct the public to the *lower half* of Figure 2 as a way of understanding clinical disorders. This might be beneficial in helping them to identify the nature of various conditions; however, the possibility for misconceptions can potentially undermine holistic mental health perspectives (Healy, 2009; Murray, 2009).

Informing the Consumer. Education will help the public to understand the multiple dimensions surrounding mental health issues and treatments (Figure 2). The inability to identify a neurochemical imbalance (see Murray, 2009, p. 297) should in no way undermine consideration of pharmacological approaches to mental health issues. Practitioners must exercise good judgment in facilitating client understanding and refrain from minimizing or criticizing a particular treatment approach. The mental health disciplines have a rather unfortunate history of perpetuating untestable assumptions about human nature (e.g., psychodynamic forces) and incorporating them into long-term investments in treatment (e.g., psychotherapy). Nevertheless, there is value in some aspects of such theoretical approaches to behavior (e.g., defense mechanisms; unconscious activity), although there is considerably more support for pharmacological perspectives on mental health treatment—even if chemical tests are unavailable.[9]

Certainly, members of the public do not need either a mental health degree or an education in physiology or biology. Yet exposing them to certain principles seems advantageous. The way to educate the public is not through newspapers (e.g., letters to the editor; see Murray, 2009) or even the electronic media. Such efforts must begin at the K-12 level, where young people can learn how to evaluate claims, ask questions, seek information, and make informed decisions. As professionals and educators, we should be less concerned with telling individuals *what* to think than with helping them understand *how* to think.

A model of human behavior, one that reinforces the interface between biology and environment (Figure 2; see also Hoffman, 2000; Kaut, 2005, 2006; Kaut et al., 2003; Kaut & Dickinson, 2007), is typical of my own instructional work and central to my work in behavioral health (e.g., end-of-life intervention, genetic testing, head trauma/concussive head injury, pharmacology). Models are excellent instructional aids and can help students, and providers, critically examine mental health treatments. Ultimately, a conceptual model (see Figures 1 and 2 here) can be used to generate questions for both provider and client that promote awareness, insight, and increased responsibility for treatment adherence and compliance. Helping clients work through a series of questions about both drug and non-drug therapies (see Table 1), while placing their mental health issues within a biopsychosocial context (Figure 2) can be educational. Most important, clarifying a client's understanding of treatment options—and the role of pharmacology in treatment—can be an adaptive approach to developing an informed consumer and can have long-term problem-solving advantages.

5. Contextualize Mental Health Treatments.

Above all, I encourage practitioners to view mental health interventions within a larger context—one embedded in what Bronfenbrenner likened to a sociohistorical developmental timeframe (e.g., Swick & Williams, 2006). The pattern of development for each client intersects with a larger medical-health context comprised of physicians, mental health professionals, social and cultural influences, and a historical timeframe. One of the distinguishing characteristics of our own period in history is the advanced pharmacological milieu that pervades mental health treatment.

It is important to advocate assiduously for traditional mental health practice (cognitive and behavioral therapies), which includes establishing relationships with other mental health disciplines. Rather than undermining the approach of professions like psychiatry (Cohen, 1993; Nys & Nys, 2006) it is most helpful to identify the strengths of different perspectives (e.g., general practitioner, psychiatrist, community counselor) and seek to integrate their unique health emphases into a unified framework for serving diverse client needs (see

Figure 1). One of the indicators for the future success of mental health will be the degree of synergy between psychological disciplines, in both research and practice. Recognizing how various professions contribute to mental health practice (see Figure 1) and understanding how modern pharmacology influences treatment perspectives and preferences can facilitate practitioner and client awareness of the role drugs and traditional psychotherapies have in treatment options and the success of treatment.

The goal of mental health care is to provide the most effective and durable treatment for clients. Depending on the etiology, intensity, and duration of symptoms, pharmacology is likely to be part of a treatment approach for many of today's clients. Given the extensive research into the underpinnings of mental disorders and into drug treatments, pharmacology *should* be part of modern therapies, and mental health practitioners should adapt accordingly. The pharmaceutical industry is a major influence in modern health care. As Healy (2009) noted, the failure is when practitioner *and* patient *both* become focused on the pill (p. 24, emphasis added). Pharmaceutical companies will continue to do what they are essentially intended to do—design, develop, produce, and market drugs. Accordingly, mental health practitioners (perhaps psychology professionals in particular) should be vigilant about their focus on "the pill" and help clients understand both the potential benefits and the limitations of drug therapy (as well as traditional psychotherapies).

I do not believe pharmaceutical companies are the problem. What Murray (2009) refers to as the PPIC contributes enormously to the greater good of society. Nor are physicians, notably psychiatrists, necessarily the problem. Frankly, I see modern psychopharmacology as more a solution to psychological disorders. Yet selecting (or at least integrating) a medication approach to behavior requires openness, scientific awareness, clinical insight, and attention to treatment monitoring (see Julien, 2008). Though drugs are well-established in the modern biomedical context, drugs alone are not always well-suited to a given client. Therefore, mental health practitioners must conceptualize the pharmaceutical-client interface (Figure 1) as a function of modern reductionism, while recognizing the limits of drug specificity in relation to what I term the gradient of environmental influence (Figure 2) for each condition.

Indeed, contextual analysis is the clinical advantage of mental health providers—something that drugs independently cannot provide. Management of client mental health is thus a privileged aspect of a profession that skillfully recognizes how to identify the relative influence on behavior of various internal and external variables (Figure 2) while helping clients understand the role of different treatment options (see, Table 1) in the development of adaptive behavior (see DeNelsky, 1996).

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Comparison between paroxetine and behaviour therapy in patients with posttraumatic stress disorder (PTSD): A pilot study

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Antidepressants and cognitive-behavioural therapy (CBT) have been reported to decrease severity of psychopathology in PTSD-patients. To date, no study has been carried out which compares psychopharmacological and psychotherapeutic treatments. In a randomized pilot study, PTSD-patients were treated either with paroxetine or CBT. Diagnoses were made by structured clinical interviews (ADIS, CAPS). The duration of treatment was 3 months; the paroxetine dosage was 10–50 mg; exposure and cognitive restructuring were the main elements in cognitive-behavioural therapy. Twenty-one patients were included. Drop-outs in both groups occurred within the first 2 weeks. Paroxetine and CBT significantly decreased PTSD-symptoms (CAPS) as well as concurrent depression (MADRS) after 3 months treatment. At 6 month follow-up, symptoms of PTSD had slightly increased in the paroxetine group and further decreased in the cognitive-behavioural therapy group. (*Int J Psych Clin Pract* 2004; 8: 19–23)

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INTRODUCTION

Civilian traumatic events such as accidents, sexual and non-sexual violence often occur in our society.[1] Immediately following the trauma or with delay individuals may respond by exhibiting a variety of symptoms indicative of stress reaction. In most patients symptom frequency and intensity decrease within days or weeks. However, a substantial minority develop chronic and debilitating symptoms of posttraumatic stress disorder (PTSD). According to DSM-IV,[2] PTSD is a condition which develops after severe trauma with symptoms of (1) reexperiencing the traumatic event, (2) avoiding thoughts, feelings or situations which disorder is often associated with major depression, which can complicate the course and increase the severity of the illness.

Epidemiological data[1] reveal that 5% of the male and 10% of the female US population have a lifetime diagnosis of PTSD. Although a number of published studies indicate that both pharmacotherapy[3–11] and psychotherapy[12,13] can be effective treatments for PTSD, to date no study has compared these two treatment approaches (for reviews, see Refs. 14–17).

Cognitive-behavioural therapy (CBT) with prolonged exposure in sensu and exposure in vivo has been shown to be effective in rape victims,[12,13] but there is very limited

addition, exposure therapy is limited in its availability to PTSD patients. Despite its general efficacy the challenges of exposure therapy can lead to a worsening of psychopathology[18] in single patients.

Tricyclic antidepressants (amitriptyline, imipramine) or MAO inhibitors (phenelzine) have shown significant but only limited efficacy on PTSD symptoms.[19–21] However, side effects of these medications may negatively effect patients' compliance. The more recently developed selective serotonin reuptake inhibitors (SSRIs) are better tolerated due to a more favorable side effect profile and are safer in overdose than the older compounds. For the SSRIs fluoxetine,[5,22] sertraline[3,4,6–9] and paroxetine[10,11] efficacy in decreasing PTSD symptoms and good tolerability have been shown in controlled studies. The SSRI paroxetine has been demonstrated to be one of the more versatile drugs of this class and is currently registered in the US and several European countries for the treatment of depression, panic disorder, obsessive-compulsive disorder, social phobia, generalized anxiety disorder and PTSD.[10,11]

In this pilot study we evaluated the efficacy, tolerability and safety of paroxetine and cognitive-behavioural therapy in the treatment of PTSD with comorbid depression. We compared these treatments after 3 months and after a 6-month follow-up period.

METHODS

Design

This study was an open, randomized, parallel-group comparison of paroxetine and CBT. The treatment duration was 12 weeks. Cognitive-behavioural therapy was conducted by clinical psychologists who had been trained onsite by Edna Foa (E.N., H.R.) and who were supervised by an experienced CBT therapist (J.A.). The psychopharmacological treatment was conducted by a senior psychiatrist who was also the principal investigator (U.F.). Paroxetine dosing began at 10 mg/day for 1 week and from the beginning of week 2 could be increased weekly by 10-mg increments at the discretion of the investigator according to clinical response and tolerability. The maximum individual dosage of paroxetine ranged from 20 to 50 mg (mean 28 mg). Medication management included thorough psychoeducation regarding the nature of the disorder and strategies for dealing with side-effects. Elements of exposure were omitted from the drug treatment in order to differentiate clearly between both treatment approaches. Cognitive-behavioural therapy was based on the structured manual of Foa et al,[12] comprising psychoeducation, behavioural assessment, relaxation training, stress inoculation training, exposure in sensu (prolonged exposure) and in vivo as well as cognitive restructuring. CBT and medication-management sessions were conducted weekly manualized) CBT. A follow-up assessment was conducted 6 months after the end of treatment.

Patients

Patients were recruited from a specialized outpatient PTSD treatment center. Patients 18 years and older fulfilling DSM-III-R criteria for chronic PTSD were randomized to either paroxetine or cognitive-behavioural therapy. The patients also met the diagnosis of major depressive episode ($n = 6$ in the paroxetine group; $n = 5$ in the CBT group), dysthymia ($n = 2$ in the paroxetine group; $n = 2$ in the CBT group) or did not meet the criteria for a depressive disorder although they exhibited depressive symptoms ($n = 2$ in the CBT group).

Patients were excluded if they were pregnant or suffered from severe illness or injuries which are contraindications for drug or behavioural therapy treatment. Patients were also excluded if they had suicidal ideation, had abused alcohol or drugs in the last 6 months prior to the study, had a history of schizophrenia or bipolar disorder or had received treatment with SSRIs or MAO inhibitors 6 weeks prior to study entry.

The study was carried out at the Department of Psychiatry of the University of Freiburg, Germany. All patients signed written informed consent; the study was approved by the local ethics committee.

Assessments

The following diagnostic and efficacy measures were employed: the Clinician Administered PTSD Scale (CAPS-1 and CAPS-2)[23] for diagnosis and severity of PTSD, the German version of the Anxiety Disorders Inventory Schedule ADIS[24] for lifetime psychiatric diagnoses. In PTSD, depressive and anxiety symptoms often are difficult to distinguish from each other. We therefore chose two separate clinician-rated instruments to measure depressive and anxiety symptoms, the Montgomery Asberg Depression Rating Scale (MADRS)[25] and the Hamilton Rating Scale for Anxiety (HAMA).[26]

Patient-rated instruments were the Posttraumatic Stress Scale PSS ([27,28]) and the Beck Depression Inventory BDI ([29]). A record was provided for the assessment of all spontaneous reports of adverse symptoms due to paroxetine. Laboratory testing at baseline and during treatment as well as weekly examinations of side effects were used to monitor the tolerability and safety of paroxetine. All efficacy assessments were performed at baseline, weeks twelve and at 6-month follow-up.

Statistics

Group differences at the 12-week endpoint were calculated by ANOVA (two-factor design with repeated measures). The data of the patients who discontinued were excluded from

groups. All analyses were performed using Statistical Package for the Social Sciences (SPSS), Version 6.1.3.

RESULTS

PATIENTS

Twenty-one patients were included in the study (10 patients CBT, 11 patients paroxetine). In the paroxetine group the mean age was 44.0 ± 18.8 years, and there were seven male and four female patients. In the behavioural therapy group the mean age was 41.2 ± 9.3 years with two male and eight female patients. The difference in age between both groups was not significant ($t(19) = 0.74$, $P = 0.46$). The most frequent traumatic events were serious accidents, sexual or non-sexual violence. The mean time since the index trauma was the same in both treatment groups: 34 ± 35 months in the paroxetine group, 34 ± 25 months in the cognitive-behavioural group, respectively.

EFFICACY

At the 3-month endpoint, relative to baseline symptoms of PTSD as measured by the CAPS and the PSS decreased significantly ($P = 0.001$) in both treatment groups (Table 1). Table 1 also shows that there were significant reductions in depressive (MADRS) and anxiety (HAMA) symptoms ($P = 0.001$). The improvement in depressive symptoms is reflected more by the changes in the clinician-rated MADRS ($P = 0.001$) than in the patient-rated BDI ($P = 0.05$). No statistically significant differences were observed between the treatment groups in any of the efficacy ratings. Nonetheless, the improvement in PTSD symptomatology as assessed by the patient-rated PSS was twice as great in the cognitive-behavioural therapy group than in the paroxetine group. Improvement in PTSD symptoms was demonstrated by changes in the CAPS at 3 months. At 6-month follow-up, in the paroxetine group the scores of the CAPS, MADRS, PSS and BDI had increased relative to the 12-week endpoint. This appeared due to the occurrence of adverse life events in two patients (CAPS: from 36.1 to 53.6; MADRS: from 9.5 to 19.8; PSS from 25.1 to 26.0; BDI from 18.5 to 19.0). Due to the small number of patients in this pilot study, these two relapses had a significant influence on the follow-up data. Those paroxetine patients who did not relapse continued to improve during follow-up. All patients in the CBT group showed continued reduction in CAPS, MADRS and PSS scores (CAPS: from 34.8 to 23.0; MADRS: from 13.4 to 12.0; PSS: from 15.0 to 13.9). Because of the small size of the sample at 6-month follow-up ($n = 5$ in the paroxetine group and $n = 8$ in the CBT group), only descriptive statistics were performed for this assessment.

From the end of the structured treatment until the follow-up assessment, all of the paroxetine and CBT patients had a continuous treatment at a 2-weekly or monthly basis. The treatment consisted in clinical or symptom management but no exposure therapy.

TOLERABILITY AND SAFETY

No significant adverse events due to treatment with paroxetine occurred in laboratory tests (e.g. white blood cell count, liver enzymes), ECG or EEG. In the paroxetine group, three patients discontinued the study within the first 2 weeks of treatment due to nervousness, agitation, headache, nausea, dizziness or blurred vision. Two patients in the CBT group dropped out due to an increase of anxiety before the first exposure session despite a thorough explanation of the treatment rationale. Most paroxetine patients did not spontaneously report adverse events, and those who exhibited side effects (agitation, headache, nausea, fatigue, abnormal

Table 1
Analysis of variance: PTSD symptomatology and depression

		Pre		*Post*		*Analysis of variance*		
		Mean	*SD*	*Mean*	*SD*	*'Groups'*	*'Time'*	*'Groups × Time'*
CAPS	Par	65.0	13.4	36.1	12.1	Ns	***	Ns
	BT	70.5	7.2	34.8	15.0			
PSS	Par	34.1	9.8	25.1	11.6	Ns	***	**
	BT	34.5	4.3	15.0	5.3			
HAMA	Par	28.5	8.8	14.1	7.0	Ns	***	Ns
	BT	27.6	12.3	16.6	10.7			
MADRS	Par	25.0	9.0	9.5	5.8	Ns	***	Ns
	BT	25.6	12.7	13.4	12.9			
BDI	Par	25.2	11.8	18.5	15.2	Ns	*	Ns
	BT	19.1	9.5	11.6	7.2			

Factor 1 'groups': Par: paroxetine; BT, behaviour therapy, BT.

ejaculation, breast swelling, irregular menstrual period) tolerated these because of the benefits of the drug on symptoms of PTSD or depression.

In two patients, 10 mg paroxetine over 12 weeks was sufficent to relieve symptoms substantially. In three patients with severe comorbid depression, a marked response occurred shortly after the dosage was increased to 40 mg. During the follow-up period, two patients in the paroxetine group relapsed following re-exposure to reminders of the trauma or loss of a significant other.

DISCUSSION

Any conclusions from this pilot study are limited because of the small number of patients, the lack of a placebo control group, and the lack of an independent status of the raters (the therapists were the raters). Nonetheless, the results of this pilot study should serve to encourage controlled comparative studies with larger sample sizes.

In this randomized pilot study we showed that paroxetine and cognitive-behavioural therapy significantly decreased symptoms of posttraumatic stress disorder and major depression by 3 months. These results confirm the findings of placebo-controlled studies on the efficacy of SSRIs[3,7,9,11,22] and cognitive-behavioural therapy[12] in patients suffering from chronic PTSD.

The efficacy of the SSRI fluoxetine has been reported to be better in a civilian patient sample than in combat veterans.[22] Recently published studies of the effects of sertraline and paroxetine in the treatment of PTSD were also carried out in predominantly civilian patient samples. Our patients had been confronted exclusively with civilian traumas including non-sexual violence. Thus our data support the notion that chronic psychological sequelae of civilian traumas can be treated successfully either with a SSRI or with cognitive-behavioural therapy.

In this pilot study of the direct comparison of these two treatments, the reduction of symptoms is similar for both approaches. At 6-month follow-up the groups differed probably only because two patients in the paroxetine group showed a substantial increase of PTSD symptoms and depression due to new adverse life events. It may be speculated that cognitive-behavioural therapy and its focus on coping strategies would have been more helpful for these patients than drugs as prophylactic treatment modality.

Paroxetine and behaviour therapy were well tolerated by three-quarters of the patients. In our clinical opinion, thorough psychoeducation is as essential for compliance with CBT as it is with psychopharmacotherapy.

The results of this study are supported by the results from the meta-analysis of controlled treatment studies in PTSD of Van Etten and Taylor,[16] who reported substantial effect sizes for both SSRIs and CBT, as well as a possibly more favourable long-term outcome for psychotherapy than for medication treatment.

Our results might favour cognitive-behavioural therapy, too, because of its better outcome at follow-up. This notion is supported by an expert consensus guideline rating on the treatment of PTSD.[30]

In conclusion, future studies should focus on comparing under more controlled conditions the efficacy not only of CBT and pharmacotherapy but also of combinations of these approaches in the treatment of PTSD.[31]

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KEY POINTS

- Paroxetine and cognitive-behavioural therapy (CBT) equally reduce symptoms in PTSD-patients
- Symptoms of anxiety, depression and PTSD decrease during both treatments
- Six-month follow-up indicates maintained improvement in most patients, with somewhat greater effect of CBT

REFERENCES

1. Kessler RC, Sonnega A, Bromet E, Hughes M (1995) Posttraumatic Stress Disorder in the National Comorbidity Survey. *Arch Gen Psychiatry* **52**: 1048–60.
2. American Psychiatric Association (1994) *Diagnostic and statistical manual of mental disorders*, 4th edn. (DSM-IV), American Psychiatric Association Washington, DC.
3. Brady K, Pearlstein T, Asnis GM, Baker D, Rothbaum BO, Sikes CR, Farfel GM (2000) Efficacy and safety of sertraline treatment of posttraumatic stress disorder. *J Am Med Assoc* **283**: 1837–44.
4. Brady K, Austin C (2001) Affective and anxiety comorbidity in PTSD treatment trials of sertraline. Poster presented at the *7th*
5. de Clercq M, Hoyois PH, Lim-Cow C, Vermeiren E (1999) Open-label study of fluoxetine in civilian post-traumatic stress disorder. Poster presented at the *XI World Congress of Psychiatry*, 6–11 August 1999, Hamburg.
6. Davidson J, Londborg P, Pearlstein T, Rothbaum B, Brady K, Farfel GM (2000) Sertraline and posttraumatic stress disorder: results of 24 weeks of open-label sertraline, followed by a 28-week discontinuation study. Poster presented at the *13th ECNP Congress*, 9–13 September 2000, München.
7. Davidson JRT, Rothbaum BO, van der Kolk BA, Sikes CR, Farfel GM (2001) Multicenter, double-blind comparison of sertraline

8. Londborg PD, Hegel MT, Goldstein S, Goldstein D, Himmelhoch JM, Maddock R, Patterson WM, Rausch J, Farfel GM (2001) Sertraline treatment of posttraumatic stress disorder: results of 24 weeks of open-label continuation treatment. *J Clin Psychiatry* **62**: 325–31.
9. Davidson J, Pearlstein T, Londborg P, Brady K, Rothbaum B, Bell J, Maddock R, Hegel M, Farfel G (2001) Efficacy of Sertraline in preventing relapse of posttraumatic stress disorder: results of a 28-week double-blind, placebo-controlled study. *Am J Psychiatry* **158**: 1974–81.
10. Marshall RD, Schneier FR, Fallon BA, Knight CB, Abbate LA, Goetz D, Campeas R, Liebowitz MR (1998) An open trial of paroxetine in patients with noncombat-related, chronic posttraumatic stress disorder. *J Clin Psychopharmacol* **18**: 10–8.
11. Marshall RD, Beebe KL, Oldham M, Zaninelli R (2001) Efficacy and safety of paroxetine treatment of chronic PTSD: a fixed dosage placebo-controlled study. *Am J Psychiatry* **158**: 1982–8.
12. Foa EB, Rothbaum BO, Riggs DS, Murdock TB (1991) Treatment of Posttraumatic Stress Disorder in rape victims: a comparison between cognitive-behavioural procedures and counseling. *J Consult Clin Psychol* **59**: 715–23.
13. Foa EB, Dancu CV, Hembree EA, Jaycox LH, Meadows EA, Street GP (1999) A comparison of exposure therapy, stress inoculation training, and their combination for reducing posttraumatic stress disorder in female assault victims. *J Consult Clin Psychol* **67**: 194–200.
14. Shalev A, Bonne O, Eth S (1996) Treatment of Posttraumatic Stress Disorder: a review. *Psychosom Med* **58**: 165–82.
15. Sherman JJ (1998) Effects of psychotherapeutic treatments for PTSD: a meta-analysis of controlled clinical trials. *J Traumatic Stress* **11**: 413–36.
16. Van Etten ML, Taylor S (1998) Comparative efficacy of treatments for post-traumatic stress disorder: a meta-analysis. *Clin Psychol Psychother* **5**: 126–44.
17. Stein DJ, Zungu-Dirwayi N, van der Linden GJH, Seedat S (2002) Pharmacotherapy for Posttraumatic Stress Disorder (Cochrane Review). In: *The Cochrane Library*, Issue 1, 2002. Oxford: Update Software.
18. Pitman R, Altman B, Greenwald E, Longpre RE, Macklin ML, Poire RE, Steketee G (1991) Psychiatric complications during flooding therapy for Posttraumatic Stress Disorder. *J Clin Psychiatry* **52**: 17–20.
19. Davidson JRT, Kudler HS, Smith RD, Mahorney SL, Lipper S, Hammet E, Saunders WB, Cavenar JO Jr (1990) Treatment of posttraumatic stress disorder with amitriptyline and placebo. *Arch Gen Psychiatry* **47**: 259–66.
20. Kosten TR, Frank JB, Dan E, McDouble CJ, Giller EL (1991) Pharmacotherapy for posttraumatic stress disorder using phenelzine or imipramine. *J Nerv Ment Dis* **179**: 366–70.
21. Shestatzky M, Greenberg D, Lerer B (1988) A controlled trial of phenelzine in posttraumatic stress disorder. *Psychiatry Res* **24**: 149–55.
22. Van der Kolk BA, Dryfuss D, Michaels M, Shera D, Berkowitz B, Fisler R, Saxe G (1994) Fluoxetine in Posttraumatic Stress Disorder. *J Clin Psychiatry* **55**: 517–22.
23. Blake DD, Weathers FW, Nagy LM, Kaloupek DG, Klauminzer G, Charney DS, Keane TM (1990) A clinician rating scale for assessing current and lifetime PTSD: the CAPS-1. *Behavior Ther* **13**: 187–8.
24. DiNardo PA, Barlow DH (1988) Anxiety Disorders Interview Schedule–Revised (ADIS-R). State University of New York, Albany, NY (German Version: Diagnostisches Interview bei Psychischen Störungen DIPS, Margraf et al 1991, Springer, Berlin).
25. Montgomery SA, Asberg M (1979) A depression rating scale designed to be sensitive to change. *Br J Psychiatry* **139**: 382–9.
26. Hamilton M (1960) Diagnosis and rating of anxiety. In: Lader MH (ed) *Studies on anxiety. Br J Psychiatry* (Special Publication) **3**: 76–9.
27. Foa EB, Riggs DS, Dancu CV, Rothbaum BO (1993) Reliability and validity of a brief instrument for assessing Post-Traumatic Stress Disorder. *J Traumatic Stress* **6**: 459–73.
28. Stieglitz R-D, Frommberger U, Foa E, Berger M (2001) Evaluation of the German Version of the PTSD Symptom Scale (PSS). *Psychopathology* **34**: 128–33.
29. Beck AT, Steer RA, Garbin MG (1988) Psychometric properties of the Beck Depression Inventory: Twenty-five years later. *Clin Psychol Rev* **8**: 77–100.
30. Foa EB, Davidson JRT, Frances A (eds) (1999) The Expert Consensus Guideline Series. Treatment of Posttraumatic Stress Disorder. *J Clin Psychiatry* **60 (Suppl. 16)**.
31. Ballenger JC, Davidson JRT, Lecrubier Y, Nutt DJ, Foa E, Kessler RC, McFarlane A, Shalev A (2000) Consensus statement on posttraumatic stress disorder from the international consensus group on depression and anxiety. *J Clin Psychiatry* **61 (Suppl. 5)**: 60–6.

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CASE REPORT

The Use of Stimulants in the Treatment of Post Traumatic Stress Disorder: Case Report

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Post Traumatic Stress disorder (PTSD) is a condition where the individual suffers re-experiencing phenomena, avoidance behaviour or emotional numbing and hyperarousal following a major traumatic event. Psychological treatments, primarily behavioural, and psychopharmacological interventions have been shown to be of considerable benefit. This case report describes an individual suffering from PTSD who experienced almost complete remission of her symptoms following the prescription of a centrally acting stimulant for unrelated reasons. The actions of centrally acting stimulants and the current knowledge about the neurophysiology of PTSD may help to explain the patient's recovery. Further investigation of amphetamine-like substances and related compounds in PTSD is required. Copyright © 2000 John Wiley & Sons, Ltd.

KEY WORDS — Post Traumatic Stress Disorder; stimulant drugs; treatment; REM sleep

INTRODUCTION

Over the last 20 years or so, Post Traumatic Stress Disorder (PTSD) has become increasingly recognised as a discrete psychiatric illness. While the diagnostic criteria have been refined during this period, they have remained essentially unchanged. Following a major traumatic event, in which the individual's integrity is threatened, the individual suffers re-experiencing phenomena, displays avoidance behaviour or emotional numbing and, finally, shows signs of hyperarousal. Despite the advances in the field of traumatology, no one treatment has yet become the gold standard, most therapists adopting an eclectic approach.

In recent years, different types of psychological treatments, primarily behavioural in origin, have been developed. These include, for example, image habituation training (Vaughan and Tarrier, 1992) and eye movement desensitisation and reprocessing (Shapiro, 1989) among others. A recent meta-analysis which examined a variety of different psychotherapeutic modalities concluded that the impact of psychotherapy on PTSD and associated psychiatric symptomatology was significant (Shurman, 1998).

There is evidence to support the contention that antidepressants, including tricyclics, monamine oxidase inhibitors and serotonin specific reuptake inhibitors, are of value in the treatment of PTSD (Davidson, 1992). Recent case studies have reported the efficacy of lithium in treating the irritability of PTSD (Forster *et al.*, 1995) and of anti-convulsants in treating resistant PTSD, particularly where irritability and a startle response are prominent (Forde, 1996). An editorial in the *British Journal of Psychiatry* on the association between loss of consciousness and PTSD describes the evidence 'that brain trauma and its resultant impairment of consciousness can have a paradoxical beneficial effect on the psychological recovery from trauma' (O'Brien and Nutt, 1998). The authors go on to postulate the likely benefits of using benzodiazepines or benzodiazepine receptor antigonists in the early post trauma phase 'to promote sleep and reduce anxiety (which) should decrease the repeated reliving of the traumatic image and so reduce the depth of which it becomes embedded in memory'. Many of the studies on pharmacological agents (and, indeed, other treatment programmes) in PTSD have confounding variables such as comorbidity, severity and duration of illness. In addition, the majority of the work has been done on combat veterans and the results from these studies do not necessarily translate into civilian populations.

This paper reports the recovery of a patient suffering from PTSD who, coincidentally and for non-psychotherapeutic reasons, was prescribed an amphetamine-like compound.

CASE REPORT

Mrs R, a 47-year-old lecturer, was referred to the out-patient clinic by her General Practitioner 2 years after having been involved in a major road traffic accident. The other car in the incident caught fire and there were two explosions, but the driver was pulled out safely. Mrs R was trapped in her seat during this, with the burning car in front of her. She was conscious at all times and erroneously felt she was badly burnt because of the intense heat. She was given the last rites by a passing priest. After a considerable period she was cut out by the fire brigade. She sustained fractures to her right leg, left hip and ribs. She did not suffer any head injury.

Mrs R had no previous psychiatric or medical history of note. She had good relationships with both her parents and her two brothers and two sisters. There had been no family history of psychiatric illness. Her birth and early development were normal. After leaving school she trained as a health professional, subsequently teaching in her field for 10 years until being invalided out 12 months after the accident. She was married for the previous 12 years, with one son aged 10. She and her husband had been experiencing some difficulties in their relationship in the 3 years prior to the accident. Otherwise, she had no undue stresses in her life before the accident. She was an occasional drinker and had no history of drug abuse or dependence.

When first seen 2 years after the accident, Mrs R continued to experience discomfort because of her physical injuries. She had been told that further operative procedures were not indicated. She was experiencing distressing intrusive memories of the accident quite frequently, e.g. on opening a book she would see a burning car. She experienced regular nightmares. As far as possible, she avoided discussing the accident. She experienced emotional constriction with loss of permanence. Her sleep pattern was disturbed with initial insomnia. She was hyperaroused and hypervigilant, becoming more irritable and less tolerant than previously. Her mood was otherwise normal.

On first attendance, Mrs R informed the interviewer that she had been receiving fluoxetine 40 mg daily for the previous 12 months. She had previously experienced some lowering of mood, which continued to be present intermittently but less frequently. This intermittent mood disturbance was not unduly distressing for her. She experienced anxiety and tension when driving and was extremely vigilant.

On review at 2 months and again at 4 months after initial contact, there was a remarkable change in Mrs R's condition. She was asymptomatic, apart from the occasional day-time memory which was not distressing for her. Although initially reluctant to do so, she finally admitted that she had been prescribed diethylpropion HCI (tenuate dospan) for adjunctive treatment of obesity approximately six weeks before her first attendance. There had been no improvement in her obesity, however, despite this medication. Apart from the diethylpropion HCI, the only other treatment the patient had received following her initial attendance at the stress disorders clinic was two sessions with a nurse therapist for instruction in relaxation therapy and the provision of an opportunity to discuss her history. The fluoxetine, which would appear to have had a beneficial effect upon her mood prior to her initial attendance, had not altered the severity or frequency of her post traumatic symptoms.

Mrs R had not experienced any significant resurgence of her post traumatic symptoms since the initial administration of diethylpropion HCI, even though she stopped this medication six months or so after the initial prescription. It is now almost 8 years since the accident. She did experience an episode of hypomania, during which she suffered from delusions of infestation, affectionately naming one of the 'infective agents' after her therapist. This episode of illness coincided with her taking a further course of diethylpropion HCI and her condition settled with standard neuroleptic treatment. Apart fro the occasional low mood secondary to ongoing marital disharmony, she has remained well for a number of years now on no psychotropic medication.

DISCUSSION

When first seen 2 years after the accident, Mrs R's PTSD appeared essentially unchanged. Her co-morbid depression appeared to have responded satisfactorily to fluoxetine. The improvement in symptomatology could not be attributed to an improvement in mood as, although she had some variation in mood, she was not clinically depressed when she first attended with her PTSD. It therefore

seems reasonable to postulate that the diethylpropion HCl led to an almost complete remission of her symptomatology.

Literature searches carried out at Queen's University, Belfast and the library of the Royal College of Psychiatrists did not reveal any previous reports of stimulant drugs being used in the treatment of PTSD. The benefits of meclofenoxate, a central stimulant, in the treatment of dizziness following head injury have been reported (Itoh, 1968). A Norwegian paper reported on the fairly dramatic improvement in three out of four patients following major head injuries who were subsequently prescribed amphetamines (Klove, 1987).

This is the first case report of an individual recovering from PTD as a result of taking a stimulant drug. Has this been pure coincidence or is there a rationale for the possible use of amphetamine-like substances in the treatment of post traumatic stress disorder?

PTSD and substance abuse

It is well-recognised that there is a high rate of comorbidity among individuals who suffer from post traumatic stress disorder (Davidson *et al.*, 1991). This comorbidity includes substance abuse and dependence and it remains unclear as to the direction of the association, i.e. does substance use predispose the individual to exposure to traumatic events and the subsequent development of PTSD (Cottler *et al.*, 1992) or do individuals with post traumatic psychopathology abuse substances in an attempt to alleviate their symptoms (Bremner *et al.*, 1996)? When examining chronic PTSD, arbitrarily defined as the condition being of at least one year's duration, it was found that illicit drug abuse or dependence was more common in the non chronic group, one possibility being that the use of illicit drugs was, to a certain extent, therapeutic (Breslau and Davis, 1992). It has been suggested that PTSD can be under-diagnosed, particularly among female drug users, some of the symptoms being attributed to the drug use (Fullilove *et al.*, 1993; Grossman *et al.*, 1997). In a study of young Israeli men exposed to combat, the high comorbidity between PTSD and other conditions, including substance abuse, was noted (Skodol *et al.*, 1996). The comorbidity was associated with PTSD severity and high rates of help seeking. There was no evidence for the substance abuse being a pre-existing risk factor and this again raised the possibility of attempts at self treatment (Skodol *et al.*, 1996).

Mode of action of stimulants and their use in attention deficit disorder and narcolepsy

In view of the increasing use of amphetamine as a drug of abuse, its therapeutic application fell into disfavour and its use has become strictly curtailed with its current therapeutic indications being limited to narcolepsy and attention deficit disorder in children (Silverstone and Goodall, 1987). Amphetamines are sympathomimetic amines. Four possible mechanisms of action of the drug are currently considered as of importance: (a) inhibition of monoamine-oxidase activity; (b) release of catecholamines from neuronal binding sites; (c) inhibition of neuronal reuptake of catecholamines and serotonin; (d) direct action on the catecholamine and serotonin receptors (Brookes, 1987). The behavioural effects of amphetamine comprise enhanced locomotor activity, alertness, facilitation of conditioned reflexes, self stimulation and elevation of mood, all of which are probably related mainly to noradrenergic pathways (Brookes, 1987).

Diethylpropion is a phenethylamine and differs structurally from amphetamine. However, it produces effects qualitatively similar to those of d-amphetamine. As a stimulant it causes three principle abnormalities of sleep: (1) frequent awakenings, (2) suppression and delay of paradoxical sleep, and (3) frequent shifts into an increased time in stage one sleep (Oswald *et al.*, 1968). The suppression and delay of paradoxical sleep is followed by an abnormal cortical response to incoming sensory information and subsequent selective compensation. It probably also has an effect on significantly reducing stages three and four of sleep (Oswald *et al.*, 1968).

Despite the well-demonstrated efficacy of stimulants in the treatment of attention deficit disorder, the mechanism of action remains unclear. In most cases, hyperkinetic children are quietened by the stimulant drugs. This suggests that CNS inhibitory systems may be stimulated by the drugs, thereby enhancing the ability of the cortex to screen out distracting stimuli. Excitatory systems may also be stimulated, augmenting the impact of certain stimuli on the cortex. As a result, the hyperactive child is better able to focus his attention upon a task, while inhibiting impulsive responding (Barkley, 1977). While it is not yet clear which of the many chemical actions of stimulants are responsible for their psychological effects, it does appear that catecholamine release is the most likely action. Increase in activity in mid brain arousing systems, activation of generalised inhibitory systems, action on frontal

centres controlling stimulus sampling, modulation of hippocampal input, mediation of the effects of reinforcement and stimulation of motor centres can all be argued with some plausibility. None are, as yet, established (Taylor, 1985).

Narcolepsy consists of attacks of day-time somnolence, usually irresistible in intensity and leading to several short episodes of sleep per day. The condition appears to represent a functional disturbance of sleep mechanisms of the brain (Lishman, 1998). In essence, the principle phenomena within narcolepsy represent attacks of REM sleep occurring out of proper context. The mechanism of action of amphetamines in narcolepsy may be the suppression of REM stages of sleep (Lishman, 1998) rather than a direct stimulant effect on the cortex, previously felt to be the important action (Brookes, 1987). Amphetamines have also been used beneficially in the treatment of aggression and the suppression of emotional reactions to anger provoking situations (Brookes, 1987).

Neurophysiology of PTSD

There is increasing evidence that severe trauma can produce long lasting neurobiological changes affecting catecholamine and serotonergic functioning, neuro endocrine systems, sleep patterns and endogenous opiates. Intrusive symptoms of PTSD may reflect prolonged CNS hyperactivity and autonomic arousal (McIvor and Turner, 1995). Chronic PTSD has been associated with higher rates of over-reactivity and emotional numbing (Breslau and Davis, 1992), hyperarousal symptoms having been found to be the most consistent statistical predictor of emotional numbing, which may be a product of the depletion of emotional resources subsequent to chronic hyperarousal (Litz *et al.*, 1997). Evidence of arousal in terms of tachycardia, raised blood pressure, raised muscle tension and increased skin resistance has been found in PTSD (Klob, 1993). Veterans with chronic combat induced PTSD have heightened basal blood pressure when compared to controls. During the immediate post startle period, there is a statistically significant increase in circulating plasma norepinephrine (Kolb, 1993). A recent paper reported on the examination of 39 veterans of the Vietnam conflict (Orr *et al.*, 1998). The participants in the trial were subjected to three generic stressor challenges (orthostatic, mental arithmetic and cold pressor). In the orthostatic stressor condition, diastolic blood pressure increased over time in the non-PTSD group and not in the PTSD veterans, suggesting a paradoxically reduced autonomic response in PTSD (Orr *et al.*, 1998).

There has been increasing interest generated in recent years regarding sleep disturbance and PTSD and, particularly, rapid eye movement (REM) sleep. It is recognised that poor sleep is almost invariable in PTSD (Karen, 1994). It has been further suggested that the sleep onset insomnia in PTSD is a form of sleep phobia resulting from the experience of frequent nightmares which appear to be virtually specific for PTSD (Neylan *et al.*, 1998). A number of authors have suggested that dysregulation of the REM sleep control system may be involved in the pathogenesis of PTSD (Ross *et al.*, 1989, 1994; Friedman, 1988; Fuller *et al.*, 1994). However, the actual disturbance of REM sleep is under dispute. Ross and colleagues have found that a higher percentage of sleep time was spend in REM sleep together with a longer mean REM period duration (Ross *et al.*, 1994) and suggest that this is consistent with their previously expressed view that reduction in REM sleep is a therapeutic mechanism in PTSD (Ross *et al.*, 1989). On the other hand, diminished REM sleep in PTSD together with increased REM latency has been reported (Friedman, 1988). Abnormal sleep disturbance has also been found in non-REM sleep (Fuller *et al.*, 1994).

Stimulants as treatment for PTSD

Although the exact pathophysiology in PTSD is not yet understood, there seems little doubt that the catecholaminergic system is in some way involved, as is the individual's sleep patterns, perhaps both REM and non-REM sleep. A high proportion of people with PTSD abuse drugs and it may be that the drugs used have an influence on the individual's symptoms in a manner that is not simply avoidance.

It has been suggested that there is a paradoxically reduced autonomic response in PTSD (Orr *et al.*, 1998). Perhaps, in the same way as has been suggested in attention deficit disorder in children, certain CNS inhibitory and excitatory systems are stimulated by amphetamines and amphetamine-like drugs, thereby addressing the presumed dysfunction in the catecholaminergic system. The effect of amphetamines on sleep, i.e. increasing the latency and decreasing the duration of REM sleep, is consistent with the view that reduction in REM sleep is a therapeutic mechanism in PTSD (Ross *et al.*, 1989).

These putative actions of amphetamine-like sub-

stances in PTSD are somewhat speculative, based on one case study. Clearly, there is need for further investigation in this area, perhaps in the form of a randomised controlled trial of amphetamine-like substances in PTSD. Another area for possible exploration would be the examination of the relatively new antidepressant reboxetine, a highly selective and potent inhibitor of norepinephrine reuptake. This drug has been shown to increase the latency to REM sleep in rats, albeit at doses much higher than those used clinically in man (K. Bridgman, personal communication). Such an approach would clearly have the advantage of using a drug which has not fallen into disrepute due to its abuse potential.

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REFERENCES

Barkley RA. 1977. A review of stimulant drug research with hyperactive children. *J Child Psychol Psychiat* **18**: 137–165.

Bremner JD, Southwick, SM, Darnell A, Charney DS. 1996. Chronic PTSD in Vietnam combat veterans: course of illness and substance abuse. *Am J Psychiat* **153**: 369–375.

Breslau N, Davis GC. 1992. Post traumatic stress disorder in an urban population of young adults: risk factors for chronicity. *Am J Psychiat* **149**: 671–675.

Brookes LG. 1987. Central nervous system stimulants. In *Psychopharmacology: Recent Advances and Future Prospects*, Iversen SE (ed.). British Association for Psychopharmacology Monograph No. 6. Oxford University Press: Oxford; 264–277.

Cottler LB, Comptom WM, Mager D, Spitzrepel EL, Janca A. 1992. Post traumatic stress disorder among substance users from the general population. *Am J Psychiat* **149**: 664–670.

Davidson J. 1992. Drug therapy of post traumatic stress disorder. *Br J Psychiat* **160**: 309–314.

Davidson JRT, Hughes D, Blazer DG, George LK. 1991. Post traumatic stress disorder in the community: an epidemiology study. *Psychol Med* **21**: 713–721.

Forde N. 1996. The use of anti-convulsants in post traumatic stress disorder: case study and overview. *J Traum Stress* **9**: 857–863.

Forster PL, Schoenfeld FB, Marmar CR, Lang AJ. 1995. Lithium for irritability in post traumatic stress disorder. *J Traum Stress* **8**: 143–149.

Friedman MJ, 1988. Toward rational pharmacotherapy for post traumatic stress disorder: an interim report. *Am J Psychiat* **145**: 281–285.

Fuller KH, Watters WF, Scott O. 1994. An investigation of slow wave sleep processes in chronic PTSD patients. *J Anxiety Disord* **8**: 227–236.

Fullilove MT, Fullilove RE, Smith M, Winkler K, Michael C, Panzer PG, Wallace R. 1993. Violence, trauma and post traumatic stress disorder among women drug users. *J Traum Stress* **6**: 533–543.

Grossman LS, Willer JK, Stovall JG, McRae SG, Maxwell S, Nelson R. 1997. Underdiagnosis of PTSD and substance use disorders in hospitalised female veterans. *Psychiat Services* **48**: 393–395.

Itoh H, Kudo Y, Kabeshima Y, Nobushima S, Komine K, Sato Y. 1968. Double blind controlled trial of lucidril (meclofenoxate) in the post-traumatic syndrome, especially dizziness. *Folia Psychiatr Neurolog* Jap **22**(1): 23–42.

Karen RM. 1994. Commentary—Koach Project. *J Traum Stress* **7**: 135–140.

Klove H. 1987. Activation, arousal, and neuropsychological rehabilitation. *J Clin Exp Neuropsychol* **9**: 297–309.

Kolb LC. 1993. The psychobiology of PTSD: perspectives and reflections on the past, present and future. *J Traum Stress* **6**: 293–304.

Lishman WA. 1998. Narcolepsy. In *Organic Psychiatry, The Psychological Consequences of Cerebral Disorder*, Lishman WA (ed.). Blackwell Science: Oxford; 721–728.

Litz BT, Schlenger WE, Weathers FW, Caddell JM, Fairbank JA, LaVange LM. 1997. Predictors of emotional numbing in post traumatic stress disorder. *J Traum Stress* **10**: 607–618.

McIvor RJ, Turner SW. 1995. Assessment and treatment approaches for survivors of torture. *Br J Psychiat* **166**: 705–711.

Neylan TC, Marmar CR, Metzler TJ, Weiss DS, Zatzick DF, Deluchi KL, Wu RM, Schoenfeld FB. 1998. Sleep disturbances in the Vietnam generation: findings from a nationally representative sample of male Vietnam veterans. *Am J Psychiat* **155**: 729–733.

O'Brien M, Nutt D. 1998. Loss of consciousness and post traumatic stress disorder. *Br J Psychiat* **173**: 102–104.

Orr SP, Meyerhoff JL, Edwards JV, Pitman RK. 1998. Heart rate and blood pressure resting levels and responses to generic stressors in Vietnam veterans with post traumatic stress disorder. *J Traum Stress* **11**: 155–164.

Oswald I, Jones HS, Mannerheim JE. 1968. Effects of two slimming drugs on sleep. *Br Med J* **1**: 796–799.

Ross RJ, Ball WA, Sullivan KA, Caroff SN. 1989. Sleep disturbance as the hallmark of post traumatic stress disorder. *Am J Psychiat* **146**: 697–707.

Ross RJ, Ball WA, Dinges DF, Gribbs NB, Morrison AR, Silver SM, Mulvaney FD. 1994. Rapid eye movement sleep disturbance in post traumatic stress disorder. *Biol Psychiat* **35**: 195–202.

Shapiro F, 1989. Efficacy of the eye movement desensitisation procedure in the treatment of traumatic memories. *J Traum Stress* **2**: 199–223.

Shurman JJ. 1998. Effects of psychotherapeutic treatments for PTSD: a meta-analysis of controlled clinical trials. *J Traum Stress* **11**: 413–435.

Silverstone T, Goodall E. 1987. How amphetamine works. In *Psychopharmacology: Recent Advances and Future Prospects*, Iversen SE (ed.). British Association for Psychopharmacology Monograph No. 6. Oxford University Press: Oxford; 315–325.

Skodol AU, Schwartz S, Dohrenwend BP, Levav I, Shrout PE, Reiff M. 1996. PTSD symptoms and comorbid mental disorders in Israeli war veterans. *Br J Psychiat* **169**: 717–725.

Taylor E. 1985. Drug treatment. In *Child and Adolescent Psychiatry: Modern Approaches*, Rutter M, Hursov L (eds). Blackwell Scientific: Oxford; 780–793.

Vaughan K, Tarrier N. 1992. Use of image habituation training with post traumatic stress disorder. *Br J Psychiat* **161**: 658–664.

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Psychopharmacology

Treatment of developmental stress disorder: mind, body and brain – analysis and pharmacology coupled

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Abstract: The schism between psychiatry, psychology and analysis, while long present, has widened even more in the past half-century with the advances in psychopharmacology. With the advances in electronic brain imaging, particularly in developmental and post-traumatic stress disorders, there has emerged both an understanding of brain changes resulting from severe, chronic stress and an ability to target brain chemistry in ways that can relieve clinical symptomatology. The use of alpha-1 adrenergic brain receptor antagonists decreases many of the manifestations of PTSD. Additionally, this paper discusses the ways in which dreaming, thinking and the analytic process are facilitated with this concomitant treatment and hypervigilence and hyper-arousal states are signficiantly decreased.

Keywords: analysis and pharmacology, brain changes, developmental stress

Introduction

The work of analysis that involves an attempt to provide new relational experiences and, particularly, sufficient containment of affect such that new learning can occur, often cannot occur where emotional arousal continues at very high levels and is exacerbated by constant states of hypervigilance. In this presentation a case will be described where there had been severe developmental stress, and in which the previous analytic process had been most difficult and one of limited progress. The case was altered in a major, positive way after the addition of prazosin, a selective alpha-1 adrenergic brain-receptor blocking agent, a drug outside the usual psychotropic armamentarium. There followed dramatic changes in the analysand's ability to think, dream and symbolize, as well as significant changes in the transference and countertransference experiences.

The symptoms of post-traumatic stress disorder (PTSD) and developmental stress disorders, listed in the DSM-V (2013), can be grouped into three general areas:

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1 Reminders of the trauma exposure with flashbacks, intrusive thoughts or recurrent nightmares
2 Activation and hyperarousal involving insomnia, agitation, irritability, impulsivity and anger
3 Deactivation reactions of numbing, avoidance, withdrawal, confusion, dissociation and depression

(Sherin and Nemeroff 2011)

Changes in brain structure and function under conditions of both acute and chronic stress, in humans and in animals, have been described in considerable detail. Additional translational studies from stressed animals treated with prazosin correlate well with symptom improvement and findings seen in human subjects with PTSD who are treated with the same medication (Arnsten et al. 2015). The idea of brain changes with clinical emotional symptoms would not have been foreign to Jung, as when he wrote about dementia praecox: 'A more perfect chemistry or anatomy of the future will perhaps demonstrate the objective metabolic anomalies or toxic effects associated [with the abnormal psychic content seen in dementia praecox]' (Jung 1907, para. 75). Jung went on to write:

> It will assuredly be a long time before the physiology and pathology of the brain and the psychology of the unconscious are able to join hands. Till then they must go their separate ways. But psychiatry, whose concern is the total man, is forced by its task of understanding and treating the sick to consider both sides, regardless of the gulf that yawns between the two aspects of the psychic phenomenon.
>
> (Jung 1907, para. 584)

Brain changes in severe trauma

In their discussion of the effects of childhood maltreatment on brain structure, function and connectivity, Teicher et al. (2016) have written:

> There are few early experiences as consequential as abuse and neglect.... We hypothesized several years ago that maltreatment acts as a stressor to produce a cascade of physiological and neurohumoral reactions that alter brain-development trajectories, setting the stage for the emergence of psychiatric symptoms in genetically susceptible individuals.
>
> (Teicher et al. 2016, p. 652)

It is through our brain and brain functions, particularly our sensory perceptions, that we perceive what in our life is potentially threatening and

determine our behavioural and physiological responses, consciously and unconsciously. The brain, and brain function, is the target of threats and stressful experiences. It responds with changes in cellular architecture, gene expression, neurochemical activity and connectivity (Arnsten et al., 2015; McEwen et al. 2012). Most of these changes can be considered *adaptive* for self-preservation in the acute settings. In repetitive or chronic traumatic situations, this adaptation can become the source of *pathological responsiveness.*

Research has shown that 'in acute stress high levels of catecholamine release rapidly impair top-down cognitive functions of the prefrontal cortex (PFC), while strengthening the affective and habitual responses of the amygdala and basal ganglia' (Arnsten et al. 2015, p. 89). Chronic stress exposure leads to atrophy of nerve cells in the PFC, and extension in the amygdala, and strengthening of the noradrenergic system locus ceoruleus. Low levels of stress or challenge, with release of moderate levels of catecholamine, result in improved function of PFC, whereas high levels impair prefrontal function and induce hyperactivity of the more primitive amygdala function (ibid.).

The ability to develop and use representations, particularly symbols, and to provide containment of intense affect is seminal to analytic theory. According to Solms and Zellner (2012), this entails a two-step process. First, stereotyped actions, which would normally be released, are inhibited, providing the freedom *not to act.* This process relies on the integrity of the ventro-medial PFC. The second step depends on this inhibition, whereby a mental space for thinking can be created. This is associated with function of the dorso-lateral PFC, and the manipulation of mental representations, and is associated with what is designated as working memory (ibid.). Impairment of working memory and the associated dysfunctions of the PFC with an associated impairment of the ability to modulate emotional reactions can be associated with irritability, impaired decision-making and lack of insight, loss of ability to inhibit inappropriate memories, and impairment of the ability to distinguish a vivid memory for an actual event (flashbacks), as well as the loss of the ability to reduce the stress response (Arnsten et al. 2015). All of these symptoms are part of the clinical picture in traumatic stress disorders.

The amygdala is a part of the brain with extensive connections with other brain areas. It is positioned and functions to initiate and coordinate unconscious, primitive responses to stress throughout the brain and other parts of the body (Davis 1992; Arnsten et al. 2015). Through its connections to the hypothalamus and other areas of the brainstem, the amygdala can activate the hypothalamus-pituitary-adrenal axis with resultant sympathetic nervous system stimulation (the 'fight or flight' responses). Behaviour associated with this activation can be altered by induction of the freeze response, increase of the startle response, strengthening of habitual responses and consolidation of emotionally charged memories (Davis 1992). A previously neutral stimulus can trigger a fear response if it is paired with a

traumatic event with fear conditioning mediated by the amygdala (Phelps and LeDoux 2005).

Research data indicates that in the treatment of PTSD, an important goal would be to strengthen PFC regulation and lessen activity of the amygdala. There is now convincing evidence that a number of these goals can be also be achieved with the use of a specific medication, prazosin (Arnsten et al. 2015). Following chronic stress, behaviour becomes more automatic and primitive. Arousal and affective tone is higher. From an analytic perspective, what we encounter are extremes of emotionality with little ability to reflect or modulate feelings or behaviours, and what might be described as primitive mental activity (Robbins 2011) with little alpha processing capacity (Bion 1962; Brown 2005).

The case of Dr. K.

Dr. K. presented as a female physician with a very high intellectual capacity, with a number of years of previous therapy and analysis. She informed me that she was probably a borderline personality or sociopathic. Ever hypervigilant to any possibility of being disrespected or unvalued, Dr. K. was involved in regular and ongoing interpersonal professional conflicts and marital discord. Dr. K. had her first recognized breakdown in her second year as a scholarship student at an élite research university. With some therapy and transient use of various psychotropic medications, and the development of more rigid intellectual defences, she completed her degree, went on to obtain both M.D. and Ph.D. degrees, and achieved recognition as a promising academic. Dr. K. came from a broken family, raised in poverty by an alcoholic mother who was angry, depressed and intermittently psychotic. In childhood she had been emotionally, physically and sexually abused, often going without food or adequate clothing.

Her analysis began with three sessions weekly using the couch. Long and exceedingly detailed dreams were brought that were filled with themes of being hunted, captured, assaulted by knives and bullets and threats of rape, yet surviving, or of being in cafeterias where all of the food had already been eaten or was spoiled. She also suffered from almost constant somatic symptoms of constipation, alternating with explosive, bloody diarrhoea; irregular, heavy and painful menses; and intermittent dermatological problems. Her performance demands on herself were unrelenting. She was in constant conflict with supervisors. Her self-loathing was exceeded only by her hatred of her mother.

In the third year of analysis she was confronted with the impending death of an aunt, the only positive adult female figure in her family, and a severe reprimand from a supervisor with loss of professional status. At the same time she was becoming physically ill from an infection and refusing to seek treatment. At this time she reported the following dream:

Dream 1
I am on a boat in a large body of water. The seas are rough and I feel disoriented. I look down at my skin. There appear to be many areas of skin on my body that are infected and necrotic. In addition to the pus that is coming out, there are small, deformed fetuses the size of worms coming out of my skin. I look at one area on my leg. It looks like a terrible staph infection. I don't know what to do. If I try to apply any sort of dressing to it, the skin will surely slough off. As I continue to look, a larger, dead baby emerges out of the skin on my leg. I am left holding this dead, infected baby. I don't know what to do with it.

In the weeks that followed, Dr. K. became progressively more ill, more demanding of herself as physician and simultaneously more infuriated at the medical system that she deemed the cause of her distress. Nothing that I said appeared to have any impact. My countertransference reactions were as overwhelming and disturbing as any of my career. Often I felt completely unable to be of any therapeutic help and unable to think. I was aware of my own bodily tension that interfered with my thinking. My own mental states varied from anxiety, agitation and an inability to follow her narratives, to drifting off into various disconnected mental states. Anything that I suggested or attempted to clarify was explained away by her as impossible, inappropriate, irrational or was simply ignored. My countertransference experience to the chaos in the field rendered me unable to provide anything that could contain this storm. After several days of worsening mental and physical states in Dr. K., and with my own feeling of being totally dismissed and ineffective, I told her that I was stopping a session early, as nothing I was saying was helping, and that I would see her at our next appointment in two days. That evening I received an email from Dr. K. informing me that I had failed as an analyst, and that our work together was over. I responded with an email acknowledging my failure to manage or contain the session and its contents, and saying that I hoped she would return for her next appointment so that we could discuss it. She did not respond to my email, and I did not hear from her for almost three months.

When finally she again contacted me requesting another appointment, Dr. K. related that following our last session she had required brief medical hospitalization. She had recovered from that but had been terminated from her job. She was panicked and desperately searching for other employment. When I inquired about the lapse of our contact, she stated that I had simply ceased to exist or in any way be in her awareness. As her panic set in following her work dismissal, she recalled that I existed and had been with her through a number of things preceding the rupture of the analysis. She decided that I could be forgiven for my failure, and she wished and needed to resume our work together.

The analysis continued in much the same way for two additional years, at which time she and I both became aware of reports of the use of prazosin in the treatment of PTSD. It took almost an additional year of intermittently talking about this before Dr. K. was willing to try a very low dosage of the

medication prescribed by her internist. Following her breakdown in college, she had been placed on a variety of psychotropic medications. With most of them she had experienced major slowing of her ability to think, her most prized capacity and necessary defence. Literally within days of beginning prazosin she became aware that her almost daily night-sweats and nightmares were diminished. She recognized changes in her dreams, as well as in her hypervigilance and professional interpersonal conflicts. As she could accept some limitations on her professional responsibilities, she also became more connected to her own body. Her gastrointestinal and dermatological problems became infrequent. There were also prominent changes in my countertransference experiences. I could feel a sense of occasional comments or interpretations being considered, as opposed to their previous dismissal, and to feel that we were in a dialogical relationship with progress occurring. In the past, if I were to be pursuing, examining or questioning some area of her behaviour or feelings that might, even most tentatively, challenge her singular, defensive point of view, she would state, 'I can hear the words you are saying, but I cannot understand anything. You might as well be speaking Greek to me'. She let me know on such occasions that I had pushed her mind into what she called a 'meatball area', one where nothing made any sense. In the sessions following such experiences, we both came to recognize that she had absolutely no memory for anything about the discussion in the previous session. For her, it had not occurred, much as I had ceased to exist in the earlier fracture of the analysis. While these experiences continued to occur, over time there began first to be some tolerance for the topic being discussed, an awareness of the confusion in thinking, but also an ability to come out of it acknowledging some major importance, if not an ability to understand it in a meaningful way. Over time, and equally impressive, was a gradual ability after such interactions to remember the discussions in the next sessions, and acknowledge that the blockages represented topics still too intense to process, but important.

With the introduction and very slow escalation of prazosin dosage, and with the decrease in arousal and affect intensity, changes could begin to occur. Her life could be somewhat more directed by PFC functions rather than amygdala hyper-reactivity. Her dreams, life actions and thinking moved more toward a sense of reflection and self-agency. Eight months after beginning prazosin, Dr. K. reported the following dream:

Dream 2

I am at the hospital where a school bus has crashed into the surgical ward where I am working. I know there will major chaos and tragedy. I need to rescue all of my patients who might have been injured. As I go into the building I encounter a staircase and realize that much remodelling and structural changes have been made to the ward. I go up the stairway to the ward and begin trying to extricate my patients. I am expecting total chaos, but instead I am surprised to realize that I am calm, and all of my patients are OK. I look at my own body and realize that I have a colostomy

> exiting from my abdomen, but I don't have the plastic bag to attach to collect the drainage. I see clumps of faeces falling out. I don't know what to do. Then Sara, a nurse I knew at the hospital, comes up and tells me where the colostomy supplies are. I go and find a bag and connect it to the stoma opening. I realize I too am now all right.

With further associations, we could connect the dream to the previous day's interactions and stresses, and how she had been able to interact more appropriately in a situation that earlier that would trigger more automatic and overly defensive reactions.

Discussion

I hope to have demonstrated something about the psychological process of dream function, rather than content, in working with an individual with traumatic stress, and the changes seen after the introduction of prazosin and a dramatic lowering of arousal and affect intensity. In this case, even after five years of three times per week analysis, and this following many previous years of therapy and analysis, Dr. K. had continued hyper-vigilant, over-reactive, often startled, frozen at times with fear, and experiencing recurrent nightmares and night terrors. Much that could not be processed, thought about, or symbolized was enacted or projected into her body (Fishbein 2017; Resnik 2001). She had continued to have major interpersonal and professional difficulties damaging to her career. Fairly rapidly after beginning the introduction of prazosin, and over the next several years, in addition to the down-regulation of her sympathetic nervous system, most obvious in the relief of her night sweats and nightmares, her dreams changed, and there was a major change in her work and professional relationships, all in keeping with an improved reflective or executive function, capacities impaired in traumatic stress disorders (Aupperle et al. 2011). The PFC inhibitory function was coming back online, and the amygdala driven hyper-activity was down-regulated, as evidenced by her behaviour and more reflective thinking. In discussing the changes in her dreams, she remarked that it was now like being a movie director assigned to make a western movie, but there were no longer any cowboys or Indians to cast in roles. At times, she found her dreams rather ordinary and even boring.

Using Bion's (1962, 1963, 1965) model of alpha function, and recognizing its impairment where there has been major trauma (Brown 2005), the difficulties of providing sufficient containment and reveries in the analysis limited Dr. K.'s ability to learn from experience, and enactment and somatization were primary outcomes. Retraumatization was an ongoing experience for analysand and analyst. Where there have been these developmental deficits, adult (re)traumatization is much more complicated and more difficult to treat. Research into the brain structure and function of those with developmental

deficits and PTSD now provides us with a basis for better understanding this condition, and also a rationale for specific pharmacological intervention that may literally facilitate analytic process, which we know can offer hope to many such individuals. Unfortunately, few psychiatrists have any understanding of analytic process. While the use of antidepressants, atypical antipsychotics and mood stabilizers may certainly help some of the depression and mood lability seen in PTSD, none have been shown to have the same capacity to reset the balance between the amygdala and prefrontal cortex activity, so critical in improving alpha function, working memory and executive function in these individuals.

In the neuroscience world, the concepts of working memory and executive function have become common language and descriptors, and are related to, and located in, the PFC and its function (Aupperle et al. 2011). In analysis, whether considering the goal as an increase in mentalization and reflective function, executive function or working memory, or in the development or improvement of the capacity for alpha processing, almost all approaches recognize the importance of containment of affect so intense as to interfere with the process of symbolization, and the need to foster the development of the mind-body relationship.

Pasley et al. (2004) have reported studies that show that activation of the m-PFC, produced as a result of self-reflection – a goal of psychotherapy and analysis – also deactivates the automatic processes of the amygdala. There appears to be good reason to recognize that the combined use of prazosin and psychotherapy or analysis increases the likelihood of improvement in these individuals.

In the early and middle years of Dr. K.'s analysis, her dreams, nightmares or night terrors could be considered non-dreams, as described by Ogden (2017), where there could be no associations by either patient or analysand, nor any psychological work being done. There was no ability to transform sensory stimuli, from within or without, into alpha-elements that could be utilized for thinking, symbolization and ultimately affect modulation. Even though Dr. K. had a highly developed and extensive verbal repertoire, as also described by Bion (1962), she used words as objects, to manipulate others or self into action, not thought, to evacuate stimuli that could not be processed. She was not able to be connected to her own body or its sensations. In the process described by Ferrari (2004), her body was chronically overwhelmed in being the repository of unmetabolizable beta elements, and she lived amongst the torrents of somatic symptoms and interpersonal stresses.

At one point later in the analysis, when she had become aware of the changes she was experiencing, Dr. K. asked me what changes I was experiencing with her. Rather spontaneously I answered that I was finding her able to be engaged in the analytic process and relationship, on a more or less constant basis, without requiring a crisis to stimulate her involvement. She replied that this made sense,

saying, 'I can see that; I went from being distant and detached, afraid of being in a relationship, to crisis and chaos, using you to extricate myself from the crisis, and then withdrawing back into my own world'.

I want to emphasize that in no way do I not recognize the tremendous amount of analytic work done in the five years before starting prazosin, even with the problems described. Prazosin by itself, removing certain defensive structures without ongoing support and containment, may in fact be problematic. However, what was very clear in this case was the rapid improvement in mental functioning, dreaming process, and utilization of the analytic process that occurred after the addition of prazosin. Interestingly, there are now more recent studies utilizing a longer acting prazosin analogue, doxazosin (Smith and Koola 2016). Prazosin, the agent of this group that most effectively crosses the blood-brain barrier, has an extremely short half-life of two to three hours, necessitating multiple dosages throughout the day. Even with high bedtime dosages, it is likely metabolized by half of a night's sleep cycle, thereby rendering possible the activation of recurrent, PTSD-related nightmares in the second half of the night. Doxazosin can be dosed once daily, has better gastro-intestinal absorption and appears to offer steady state levels for 24 hours – obvious potential advantages in the treatment and management of PTSD. I think this case supports the approach of combining analytic work with a medication that has been shown to alter specific brain function in cases such as this. The decades-long schism of psychiatry and analysis now particularly has reason to be reworked. Jung's prescient predictions of a future where the two fields could be engaged seems to be occurring.

References

Aaron, A.R. (2011). 'From reactive to proactive and selective control: developing a richer model for stopping inappropriate responses'. *Biological Psychiatry*, 69, 55-63.

Arnsten, A.F.T., Raskin, M.A., Taylor, F.B., & Connor, D.F. (2015). 'The effects of stress exposure on prefrontal cortex: translating basic research into successful treatment for post-traumatic stress disorder. *Neurobiology of Stress*, 1, 89-99.

Aupperle, R.L., Melrose, A.J., Stein, M.B., & Paulus, M.P. (2011). 'Executive function and PTSD: disengaging from trauma'. *Neuropharmacology*, 30, 1-9.

Bion, W.R. (1962). 'A theory of thinking'. In *Second Thoughts*. New York: Karnac.

——— (1963). 'Elements of psychoanalysis'. In *Seven Servants*. New York: Aronson.

——— (1984). *Transformations*. London: Karnac.

Brown, L.J. (2005). 'The cognitive effects of trauma: reversal of alpha function and the formation of a beta screen'. *Psychoanalytic Quarterly*, 74, 2, 397-420.

Davis, M. (1992). 'The role of amygdala in fear and anxiety'. *Annual Review of Neuroscience*, 15, 353-75.

DSM-V. (2013). *Diagnostic and Statistical Manual of Mental Disorders, 5th edition.* Washington, D.C.: American Psychiatric Association.

Ferrari, A.B. (2004). *From the eclipse of the body to the dawn of thought*. London: Free Association Books.

PsychoPharmacology

Treatment of Traumatic Stress Disorder in Children and Adolescents

Assessment and Treatment Strategies

by Victor G. Carrion, MD
and Hilit Kletter, PhD

We all experience stress throughout our lives; this can be beneficial because stress inoculation aids in the development of many of our biological systems.[1] Stress also helps the development of our psychological well-being. Learning to cope with adversity is an important part of developing one's sense of effectiveness and coping. Our bodies are built to manage stressful events and, in fact, our performance may actually improve in certain situations when we are stressed.

However, this applies only up to a certain point. That point differs for each individual and depends on genetic and environmental factors that influence stress vulnerability. When stressors are overwhelming and activate our fear mechanism in a way that over-sensitizes it to future stress, that is traumatic stress.[2] Different events in our life can act as trauma . . . natural and man-made disasters, accidents, and traumatic loss.

For some individuals, traumatic stressors can be acute: a bushfire, a shooting. For others, they may be more chronic: ongoing war, child abuse. Acute trauma can lead to secondary stressors, initiating a chronic process of adjustment. Traumatic events and other stressors may accumulate in an "allostatic load" to our systems.[3] When the "load" overwhelms our coping mechanisms (psychological and physiological), PTSD may develop.

The effects of traumatic stress on development

Traumatic stress in children can lead to difficulties in social, emotional, and cognitive development. Approximately 25% to 30% of children who experience inner-city violence develop symptoms of PTSD.[4] Although a number of children are resilient to traumatic experiences, there are no methods to identify and measure what constitutes true resilience. Problems may *not* develop in some children shortly after a traumatic event; however, the allostatic load may be building, pushing them closer to a threshold where specific vulnerabilities may eventually manifest clinically.

Preventive interventions for youths exposed to chronic stressors or at risk for traumatic stress are critical. Many people believe that being a child by itself constitutes a protective factor against the effects of trauma; however, there is no evidence to support this. In fact, the evidence points toward the contrary: children are particularly vulnerable to the effects of trauma.[5] Epidemiological studies indicate that children exposed to trauma are at much greater risk for PTSD.[6]

The impact of trauma on cognitive processing, as demonstrated by difficulties with learning and memory, renders many children with posttraumatic symptoms to be less successful in school. Emotional regulation, social development, and behavior can also be affected. The phenomenology differs depending on the child's developmental age.

Although we use PTSD as a construct to understand children's response to trauma, children with subthreshold symptoms can also have the same degree of functional impairment.[7] Alternative criteria have been suggested for the diagnosis of PTSD in young children.[8]

What new information does this article provide?

The authors discuss the different manifestations of traumatic stress; treatment considerations for childhood PTSD; and the existing interventions, including a new hybrid psychotherapy.

What are the implications for psychiatric practice?

Clinicians will be better informed about diagnosis of childhood PTSD and selection of appropriate interventions.

Therapeutic interventions

Trauma affects youths on multiple levels, including individual, family, community, society, and culture. These levels act as either risk or protective factors and may influence the child directly a
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Cognitive-behavioral therapy. CBT is the most widely used and researched treatment for childhood trauma.[14] Various trauma-oriented CBT interventions exist and all share components summarized by the acronym PRACTICE (**Table 2**).[15] Trauma-focused (TF)-CBT combines individual and parent-child sessions. TF-CBT has proved to be efficacious in numerous randomized controlled trials for reduction of PTSD symptoms, depression, and other emotional and behavioral difficulties for single-event and multiple-event traumas.[16-18] It is superior to child-centered therapy in reducing PTSD symptoms, especially hyperarousal and avoidance in youths exposed to intimate partner violence.[19]

Trauma systems therapy (TST) is an individual treatment that addresses trauma-related symptoms and the environmental factors that perpetuate them.[20] TST has shown improvements in PTSD symptoms, environmental stability, and functioning.

Many CBT interventions for youths are school-based. The multimodality trauma treatment (MMTT) protocol, an intervention that uses developmentally sensitive methods, has been successfully implemented in school and community mental health settings.[21,22] The Cognitive-Behavioral Intervention for Trauma in Schools (CBITS) is a 10-session treatment that has been shown to improve psychosocial functions in youths exposed to violence.[23] Finally, several studies of earthquake survivors, victims of the Bosnian war, and victims of community violence have found that trauma/grief-focused therapy resulted in significant reduction of PTSD symptoms.[24-26]

Psychodynamic therapy. Child-parent psychotherapy (CPP) is a dyadic treatment in which play and other expressive methods are used to repair attachment and regulate traumatic stress.[27] Young children exposed to domestic violence who received CPP had greater reductions in total behavior problems and traumatic stress symptoms, and mothers had greater reductions in avoidance compared with controls. These gains were maintained at 6-month follow-up. Parent-child interaction therapy has also been found to improve social, emotional, and behavioral functioning through play therapy and live coaching aimed at improving attachment.[28]

The intergenerational trauma treatment model, an intervention aimed at monitoring dysfunctional family patterns and altering them, has resulted in improvements in social functioning in traumatized children.[29]

Psychoeducation. A key component of trauma treatment involves providing information on the prevalence of trauma and the nature and course of posttraumatic stress reactions. Treatment goals are normalization of responses, identification of trauma reminders, and strategies for managing distress. In youths exposed to a single-incident trauma, PTSD symptoms were significantly reduced following the psychoeducation phase of treatment.[30] Kenardy and colleagues[31] conducted an information provision intervention in youths and their caregivers following a pediatric accidental injury. The intervention resulted in a decrease of anxiety in the child at 1-month follow-up; at 6-month follow-up, parental intrusion and overall posttraumatic symptoms were decreased.[31] Furthermore, a psychoeducational intervention for youths following motor vehicle accidents was successful in preventing depression and behavior problems in preadolescent youths.[32]

Play therapy. Posttraumatic play is defined as play activity that is driven, is serious, and has a morbid quality.[33,34] It is characterized by repetitive, unresolved themes; increased aggression and/or withdrawal; fantasies linked with rescue or revenge; reduced symbolization; and concrete thinking. DSM-IV includes repetitive play with traumatic themes as a symptom of reenactment (cluster B) in children. Child-centered play therapy (CCPT) is the most researched form of play therapy for childhood trauma.[35]

CCPT is a manualized treatment based on person-centered therapy that establishes unconditional positive regard, genuineness, and empathy to facilitate children's communication of feelings, thoughts, and desires. This form of play therapy utilizes culture-specific toys and includes parent consultation for each of the play sessions. Studies of youths exposed to domestic violence and natural disaster found CCPT to improve self-concept and significantly reduce anxiety, depression, aggression, and suicidal risk.[36-38] In addition, a study of refugee children found that CCPT was more effective than TF-CBT in reducing PTSD symptoms.[39]

Release play therapy is a directed psychotherapy in which the therapist selects a few toys related to the trauma to encourage the child to play out traumatic themes or may re-create the event that triggered the child's difficulties to allow expression of feelings.[40] In this form of therapy, the therapist rarely interprets the play.

Cue-centered therapy (CCT): a hybrid intervention. The Stanford CCT is a manual-based treatment that combines elements of CBT and psychodynamic, expressive, and family therapies and enhances them with psychoeducation on classic conditioning and trauma-related reminders (cues). Therapy focuses on how these cues are linked to current behaviors, emotions, thoughts, and physiological reactions.[41] CCT em-

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younger than 24 years.

Other medications that have been researched for use in treatment of children with PTSD include non-SSRI antidepressants, blocking agents, novel antipsychotics, mood stabilizers, and opiates. A study of hospitalized children with acute stress disorder secondary to burns found that PTSD was less likely to develop after 6 months in patients who received imipramine compared with those who received chloral hydrate.[49] However, TCAs are associated with rare but serious cardiac adverse effects and therefore are not recommended as a first-line treatment for children with PTSD.

Adrenergic blocking agents have also been used with some success in youths with PTSD. Two studies found that clonidine decreased basal heart rate, anxiety, impulsivity, and hyperarousal symptoms.[50,51] In addition, a case study of a child with PTSD found clonidine to improve sleep and neural integrity of the anterior cingulate, a brain region responsible for modulation of emotional responses that is often impaired in PTSD.[52] Propranolol has also been found effective in reducing reexperiencing and hyperarousal symptoms in children with PTSD.[53] Novel antipsychotics such as risperidone have been used effectively to stabilize mood in severe cases and to treat comorbid symptoms of childhood PTSD.[54] Finally, higher doses of morphine were found to prevent PTSD secondary to burns in hospitalized preschool children, school-aged children, and adolescents.[55,56]

Conclusions

Although treatments exist for children who experience traumatic stress, the heterogeneous manifesta-

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References

1. Kiecolt-Glaser JK, McGuire L, Robles T, Glaser R. Psychoneuroimmunology: psychological influences on immune function and health. *J Consult Clin Psychol.* 2002;70:537-547.
2. Brewin CR, Holmes EA. Psychological theories of posttraumatic stress disorder. *Clin Psychol Rev.* 2003;23:339-376.
3. McEwen BS. Allostatis and allostatic load: implications for neuropsychopharmacology. *Neuropsychopharmacology.* 2000;22:108-124.
4. Foy DW, Goguen CA. Community violence-related PTSD in children and adolescents. *PTSD Res Q.* 1998;9(4):1-6.
5. De Bellis M, Baum AS, Birmaher B, et al. A.E. Bennett Research Award. Developmental traumatology. Part I: biological stress systems. *Biol Psychiatry.* 1999;45:1259-1270.
6. Gabbay V, Oatis MD, Silva RR, Hirsch G. Epidemiological aspects of PTSD in children and adolescents. In: Silva RR, ed. *Posttraumatic Stress Disorder in Children and Adolescents: Handbook.* New York: WW Norton & Co; 2004:1-17.
7. Carrion VG, Weems CF, Ray R, Reiss AL. Toward an empirical definition of pediatric PTSD: the phenomenology of PTSD symptoms in youth. *J Am Acad Child Adolesc Psychiatry.* 2002;41:166-173.
8. Scheeringa MS. Developmental considerations for diagnosing PTSD and acute stress disorder in preschool and school-age children. *Am J Psychiatry.* 2008;165:1237-1239.
9. Bronfenbrenner U. *The Ecology of Human Development: Experiments by Nature and Design.* Cambridge, MA: Harvard University Press; 1979.
10. Freisthler B, Merritt DH, LaScala EA. Understanding the ecology of child maltreatment: a review of the literature and directions for future research. *Child Maltreat.* 2006;11:263-280.
11. Zielinski DS, Bradshaw CP. Ecological influences on the sequelae of child maltreatment: a review of the literature. *Child Maltreat.* 2006;11:49-62.
12. Bronfenbrenner U. Ecology of the family as a context for human development: research perspectives. *Dev Psychol.* 1986;22:723-742.
13. Foa EB, Keane TM, Friedman MJ, Cohen JA. *Effective Treatments for Posttraumatic Stress Disorder: Practice Guidelines From the International Society for Traumatic Stress Studies.* 2nd ed. New York: Guilford Publications; 2009.
14. Cohen JA, Mannarino AP, Iyengar S. Community treatment of posttraumatic stress disorder for children exposed to intimate partner violence: a randomized controlled trial. *Arch Pediatr Adolesc Med.* 2011;165:16-21.
15. Saxe GN, Ellis H, Fogler J, et al. Comprehensive care for traumatized children: an open trial examines treatment using trauma systems therapy. *Psychiatr Ann.* 2005;35:443-448.
16. Amaya-Jackson L, Reynolds V, Murray MC, et al. Cognitive-behavioral treatment for pediatric posttraumatic stress disorder: protocol and application in school and community settings. *Cogn Behav Pract.* 2003;10:204-213.
17. March JS, Amaya-Jackson L, Murray M, Schulte A. Cognitive-behavioral psychotherapy for children and adolescents with posttraumatic stress disorder after a single-incident stressor. *J Am Acad Child Adolesc Psychiatry.* 1998;37:585-593.
18. Stein BD, Jaycox LH, Kataoka SH, et al. A mental health intervention for schoolchildren exposed to violence: a randomized controlled trial. *JAMA.* 2003;290:603-611.
19. Goenjian AK, Karayan I, Pynoos RS, et al. Outcome of psychotherapy among early adolescents after trauma. *Am J Psychiatry.* 1997;154:536-542.
20. Layne CM, Pynoos RS, Saltzman WR, et al. Trauma/grief-focused group psychotherapy: school-based postwar intervention with traumatized Bosnian adolescents. *Group Dynamics Theory Res Pract.* 2001;5:277-290.
21. Saltzman RW, Layne CM, Pynoos RS, et al. Trauma/grief-focused intervention for adolescents exposed to community violence: results of a school-based screening and group treatment protocol. *Group Dynamics Theory Res Pract.* 2001;5:291-303.
22. Lieberman AF, Van Horn P, Ippen CG. Toward evidence-based treatment: child-parent psychotherapy with preschoolers exposed to marital violence. *J Am Acad Child Adolesc Psychiatry.* 2005;44:1241-1248.
23. Thomas R, Zimmer-Gembeck MJ. Accumulating evidence for parent-child interaction therapy in the prevention of child maltreatment. *Child Dev.* 2011; 82:177-192.
24. Copping VE, Warling DL, Benner DG, Woodside DW. A child trauma treatment pilot study. *J Child Fam Stud.* 2001;10:467-475.
25. Adler Nevo G, Manassis K. An adaptation of prolonged exposure therapy for pediatric single incident trauma: a case series. *J Can Acad Child Adolesc Psychiatry.* 2011;20:127-133.
26. Kenardy J, Thompson K, Le Brocque R, Olsson K. Information-provision intervention for children and their parents following pediatric accidental injury. *Eur Child Adolesc Psychiatry.* 2008;17:316-325.
27. Zehnder D, Meuli M, Landolt MA. Effectiveness of a single-session early psychological intervention for children after road traffic accidents: a randomised controlled trial. *Child Adolesc Psychiatry Ment Health.* 2010;4:7.
28. Gil E. *Play Therapy for Severe Psychological*

sive group play therap
mestic violence. *Int J*
39. Schottelkorb AA,
ment for childhood re
controlled trial. *Int J P*
40. Terr L. *Unchaine*
Books; 1994.
41. Carrion VG, Hull K.
exposed youth: case s
chiatry. 2010;15:27-3
42. Wilkinson J, Carri
diatric PTSD: a devel
the evidence. *Curr Ps*
270.
43. Seedat S, Stein DJ
of response to selecti
in children, adolescei
matic stress disorder
macol. 2002;12:37-4
44. Yorbik O, Dikkatli
efficacy of fluoxetine
lescents with posttra
toms [in Turkish].
2001;11:251-256.
45. Robb A, Cueva J, S
line in childhood pos
Scientific Proceeding
of Child and Adoles
November 2, 2008; C
46. Cohen JA, Manna
pilot randomized trial
CBT and sertraline fo
J Am Acad Child A
811-819.
47. Hammad TA. Resu
in pediatric trials of
sented at: US Food a
chopharmacologic D
the Pediatric Advisory
Rockville, MD.
48. Mitka M. FDA aler
JAMA. 2003;290:253
49. Robert R, Blakene
mine treatment in pec
toms of acute stress
Acad Child Adolesc P.
50. Harmon RJ, Rigg
matic stress disorde
Acad Child Adolesc Ps
51. Perry BD. Neurobi
trauma: posttraumati
Murburg MM, ed. *Ca*
traumatic Stress Di
Washington, DC: A
1994:223-255.
52. De Bellis MD, Kes
rior cingulate N-acet
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posttraumatic stress
chopharmacol. 2001
53. Famularo R, Kins
treatment for childho
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Preventing post traumatic stress disorder: are drugs the answer?

Susan Fletcher, Mark Creamer, David Forbes

In the field of traumatic stress, chemoprophylaxis is a term that is often used but rarely well understood. There has been no shortage of debate on the issue, but few rigorous studies to ground the discussion. The purpose of the current paper is to explore the issues surrounding this contentious area. Databases including PubMed, PsychArticles and Web of Knowledge were searched using the key words 'chemo or pharmaco', 'prevention or prophylaxis', and 'PTSD or post-traumatic stress'. Relevant journals and reference lists of the papers obtained through this search were scanned for additional references. Studies that investigated the use of pharmacotherapy to prevent the onset of post-traumatic stress disorder were considered for this paper. Studies that examined the treatment of established PTSD were excluded. A total of 15 empirical studies were included in the review (including five randomized controlled trials), and twice as many non-data-driven papers. Evidence for the prophylactic use of alcohol, morphine, propranolol, and hydrocortisone is presented, followed by a discussion of the many challenges of using pharmacological interventions in this context. While attention to this issue has increased in recent times, the dearth of empirical data has done little to further the field. Larger studies are indicated following small trials with medications such as propranolol and hydrocortisone. There remain a number of ethical and practical questions to be answered before the widespread use of chemoprophylaxis can be recommended.
Key words: pharmacotherapy, prevention, PTSD.

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Chemoprophylaxis, particularly in the field of traumatic stress, is a term that has been used to convey a range of possible meanings. Since this is potentially a contentious and difficult area, it is important to be absolutely clear about what is meant by the term. The *Oxford English Dictionary* [1] defines chemoprophylaxis as 'the prevention of a disease, esp. an infectious disease, by the administration of drugs'. Crucially, the word 'treat' does not appear in the OED definition. Thus, in the context of traumatic stress, the term chemoprophylaxis refers to the use of pharmacological interventions to prevent the development of mental health problems in individuals exposed to trauma. It does not refer to the treatment of an established disorder.

Traditionally, efforts to prevent post-traumatic stress disorder (PTSD) have been classified as either primary (intervention prior to the traumatic event) or secondary (intervention after the trauma but prior to the onset of full PTSD). We will discuss the former briefly; however, secondary prevention is the more common approach to chemoprophylaxis and thus will be the focus of this paper.

Despite a few randomized controlled trials, much of the literature to date has been largely theoretical in nature, or has relied on opportunistic research, with numerous and conflicting viewpoints being proposed. The purpose of the current paper is to explore the issues surrounding chemoprophylaxis for PTSD. While this paper will focus on preventing PTSD through pharmacological means, it needs to be noted that a parallel stream of literature exists addressing issues and preliminary research using psychosocial

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models of intervention (individual and community resilience building) [2,3].

Literature review

Databases including PubMed, PsychArticles and Web of Knowledge were searched using the key words 'chemo or pharmaco', 'prevention or prophylaxis', and 'PTSD or post-traumatic stress'. Additional references were sourced from the reference lists of key papers obtained from database searches, and by scanning the contents of relevant journals. After excluding papers outside the scope of the current review, fifteen data-driven papers remained (including five randomized controlled trials; see Table 1), published between 1996 and 2010. A total of 30 non-data-driven papers (such as review, conceptual or ethical debate papers) were also included. Taken as a body of literature, these papers raise several issues for consideration.

Preventing PTSD: the options

Traumatic events are reasonably common, with around two thirds of the population being exposed to such an event at some point in their life [4-6]. Most of those exposed will not go on to develop long term psychopathology; the lifetime prevalence of PTSD in the general community has been estimated to be around 7% [7]. Around half of those who develop PTSD will recover within a year without professional help but, unfortunately, up to 15% of people with the disorder will show little or no improvement even after receiving treatment [8].

Given the relative frequency of treatment non-response, and the pervasive effect of the disorder on sufferers' lives, preventing PTSD would be of great benefit in reducing the burden to both to society and individuals. At this stage there has not been a drug developed specifically to prevent PTSD. Instead, the prophylactic potential of medications already in existence which affect the neurotransmitters thought to be involved in the development of PTSD has been considered. While a number of such medications have been hypothesized to be potentially useful in preventing PTSD [9], we will consider here only those with some empirical support.

Alcohol

Of all the available drugs with the potential to prevent what we now call PTSD, alcohol has perhaps the longest history. For centuries soldiers have consumed alcohol before battle in an effort to reduce the stress of the experience [10,11]. More recently, naturalistic studies with fire [11] and motor vehicle accident [12] victims have found that intoxication at the time of trauma decreases the likelihood of subsequently developing PTSD. The protective effect of alcohol may be due to interference with the encoding and storage of memories [11,12]. Alcohol may also impair perception of relevant threat information, such that the event is not seen as severe or life threatening and is therefore less likely to lead to PTSD [13,14].

Alcohol may be desirable as a prophylactic medication for PTSD for several reasons. It is relatively cheap, readily available and, of particular importance in military populations, is socially acceptable. Despite these advantages, however, alcohol is unlikely to be widely endorsed as the drug of choice for preventing PTSD. It seems that alcohol protects against stress only if consumed before a stressful experience [13,14]. Naturally, regular consumption of alcohol as a preventative strategy in case a trauma is experienced is ill advised [15]. Prophylactic use of alcohol would, therefore, be restricted to those individuals who are fairly certain that a traumatic experience is imminent, such as members of the emergency services or military. However, these individuals require their judgement to be intact and their psychomotor resources to be unimpaired. The impact of alcohol on speed of information processing, risk taking behaviour and physical coordination render its routine use as a prophylactic inappropriate. In addition, there is some evidence that the stress response is less likely to be inhibited by alcohol when the stressful event is expected [14]. Finally, it is unclear exactly how much alcohol is required to be effective in preventing PTSD [15], although there is some evidence that moderate to high level use is necessary [14]. Given that alcohol use disorders are in the top five leading causes of disability world-wide [16], the risks of increasing alcohol intake in an effort to prevent PTSD would seem to far outweigh the benefits.

Cortisol

Following activation of the sympathetic nervous system in times of stress, the production of cortisol serves to shut down the stress response [15,17]. In individuals who go on to develop PTSD, however, there is some evidence that this system of regulation fails and peri-traumatic cortisol levels are lower than in individuals who recover [18] or develop other disorders such as depression [19].

With low levels of cortisol presenting an increased risk for PTSD, it follows that artificially increasing cortisol levels would provide some protection against the development of the disorder. Indeed, randomized controlled trials with survivors of septic shock [20] and cardiac surgery [21,22] have shown that patients administered hydrocortisone in the intensive care unit were less likely to develop PTSD than those who received a placebo. Whether these

Table 1. Randomized controlled trials of chemoprophylaxis

		Sample	Treatment	Follow up time frame	Results	Limitations
Pitman *et al.* (2002)	Propranolol	41 Emergency department patients who had experienced a traumatic event (propranolol n = 18; placebo n = 23)	Initial dose of 40 mg administered within 6 h of event, followed by 10-day course of 40 mg four times daily	1 and 3 months Physiological reactivity assessed at 3 months	No differences in PTSD symptom scores or categorical PTSD outcome at either time point. Greater physiological reactivity among placebo patients (6/14 physiological responders versus 0/8 in propranolol group; $p < 0.05$)	Heart rate data suggest the initial dose of propranolol was insufficient Small sample size, differential attrition in the propranolol group, possible non-compliance with medication
Schelling *et al.* (2001)	Hydrocortisone	20 ICU patients with septic shock (hydrocortisone n = 9; placebo n = 11)	Initial dose of 100 mg followed by continuous infusion of 0.18 mg/kg/h for six days. After reversal of septic shock, dose reduced to 0.08 mg/kg/h for six days, then tapered by 24 mg/day	31 months (range 21–49 months)	Lower incidence of PTSD in hydrocortisone group at 31 months (1/9 patients with PTSD versus 7/11 in control group; $p < 0.05$).	Higher doses of norepinephrine or lower levels of cortisol in placebo patients may be an alternative explanation for higher rates of PTSD Small sample size
Schelling *et al.* (2004)	Hydrocortisone	48 patients undergoing cardiac surgery (hydrocortisone n = 26; placebo n = 22)	Initial dose of 100 mg followed by continuous infusion of 10 mg/h for 24 h, reduced to 5 mg/h on day 2. Tapered to 3 × 20 mg doses on day 3 and 3 × 10 mg doses on day 4	6 months	Lower PTSD symptom scores in hydrocortisone group at 6 months (Median = 20.0, interquartile range 12.8–26.0 versus control patients Median = 25, interquartile range 18.8–32.3; $p<0.05$)	PTSD assessed using a mailed questionnaire rather than psychiatric interview Small sample size
Stein *et al.* (2007)	Propranolol/ gabapentin	48 traumatic injury patients (propranolol n = 17; gabapentin n = 14; placebo n = 17)	Initial dose administered within 48 h after injury, then continued for 14 days. Propranolol: 20 mg/3 × day, up-titrated over 2 days to 40 mg/3 × day.Gabapentin: 300 mg/3 × day, up-titrated over 2 days to 400 mg/3 × day	1, 4, 8 months	No differences in reduction of PTSD symptoms over time or in main effect of propranolol versus placebo or gabapentin versus placebo	Administration of study drug within 48 hours may not be fast enough to obtain desired effects Small sample size
Weis *et al.* (2006)	Hydrocortisone	28 patients undergoing cardiac surgery with cardiopulmonary bypass (hydrocortisone n = 14; placebo n = 14)	Initial dose of 100 mg followed by continuous infusion of 10 mg/h for 24 h, reduced to 5 mg/h on day 2. Tapered to 3 × 20 mg doses on day 3 and 3 × 10 mg doses on day 4	6 months	Three out of 14 patients from the placebo group and 1 of 14 from the treatment group showed evidence of PTSD	PTSD assessed using a mailed questionnaire rather than psychiatric interview Small sample size

results generalize to other trauma populations is, as yet, unknown.

Morphine

When faced with a traumatic event, the brain increases its production of norepinephrine, which is thought to cause enhanced consolidation of new memories [23,24]. This mechanism is thought to have evolved to ensure we remember potentially dangerous events differently to those that are less threatening [9]. The extreme physiological arousal associated with trauma, however, often leads to over-consolidation of the trauma memory, and it is this over-consolidation which is presumed to lead to PTSD [25,26].

The protective effect of morphine comes from its inhibition of norepinephrine release [15,24]. In a study of motor vehicle accident survivors, it was observed that patients who went on to develop PTSD had been given lower doses of morphine in the 48 h following their accident than those who were PTSD free at three month follow up [24]. Acute morphine administration has also been associated with a lower likelihood of subsequent PTSD in US military personnel serving in Iraq [27] and there is some evidence of its effectiveness in pediatric burn patients [28,29], although this relationship may be mediated by separation anxiety [30]. In short, while in theory acute administration of morphine to prevent PTSD makes sense, further empirical investigation is needed.

Propranolol

Developed in the 1950s and used in the treatment of hypertension and heart problems, propranolol has shown promise in the prevention of PTSD by blocking the reuptake of norepinephrine. Although propranolol has perhaps received the most attention in the literature, the evidence for its effectiveness in preventing PTSD remains equivocal.

Results of a non-randomized trial showed that trauma patients who refused propranolol were significantly more likely to suffer PTSD than those who took the drug [31]. On the other hand, propranolol did not appear to effectively prevent PTSD in burned veterans [32], although a number of confounding variables make the results of that study difficult to interpret. In a small randomized controlled trial conducted by Stein *et al.* [33], injury patients were assessed at hospital intake and 1, 4, and 8 months later. The authors found that the severity of PTSD symptoms declined over time in both placebo and propranolol patients, with no significant difference between the two groups. Pitman and colleagues [23] conducted a similar study and found no discernable difference in rates or severity of PTSD between propranolol and placebo patients at either 1 or 3 months after admittance to a hospital emergency department following a traumatic event. However, in addition to clinical assessment, Pitman *et al.* [23] also measured physiological arousal at 3 months after trauma. They found that those in the propranolol group were significantly less likely to demonstrate physiological arousal patterns consistent with those seen in PTSD. Pitman *et al.*'s positive findings on psychophysiological measures of arousal but not on overall measures of PTSD may in part be explained by the heterogeneity of PTSD symptoms. While re-experiencing, active avoidance, hypervigilance, and startle are more likely associated with fear-circuitry, the general passive avoidance and numbing symptoms may be less directly associated with these pathways and hence less responsive to interventions focused on norepinephrine re-uptake [34].

In summary, while there are several promising options, there is currently no compelling evidence that any of the drugs above can effectively prevent PTSD.

Pathological and normal reactions

Importantly, the goal of chemoprophylaxis is to prevent pathological responses to trauma, not to eliminate normal psychological reactions. While the majority of individuals who experience a traumatic event will display some early distress, most will recover on their own within two or three weeks with only a minority going on to develop PTSD [4, 6]. Thus, widespread prophylaxis would be, at best, a costly waste of time for the majority of the traumatized population, and may even have a detrimental effect on recovery for more resilient individuals, for whom the arousal associated with trauma serves to facilitate memory processing. Drugs which reduce arousal could therefore be hypothesized to interfere with the normal consolidation and integration of the trauma memory [26].

Unfortunately, previous authors have often overlooked the distinction between normal and pathological responses to trauma and have discussed the perils of chemoprophylaxis in the context of the former [35]. It is reasonable to argue that attenuating such feelings as embarrassment [25,36], loss after a friend's betrayal [37] or disappointment on missing out on a job opportunity [38] is inadvisable and the risks are likely to outweigh any potential benefits. The debilitating effects of severe PTSD, on the other hand, should be prevented if at all possible.

Timing of chemoprophylaxis

If future research supports current thinking that certain medications can indeed prevent the development of PTSD, the question is when to administer a drug for maximum effectiveness. That is, should it be given before or after exposure to a potentially traumatic event?

Pre-exposure administration

Presumably, drugs administered prior to exposure would be given non-selectively to the whole traumatized population with the aim of moderating, for example, levels of arousal or acquisition of traumatic memories during the event. As others have noted, this has potentially critical implications for cognitive processes during the trauma and the person's ability to make appropriate moral judgements [25,39]. In other words, administering drugs prior to exposure may interfere with the individual's perception of, and response to, risks to the personal safety of themselves or others. In such a scenario, any benefits in terms of preventing subsequent psychopathology may be outweighed by the increased danger for the individual and those around him or her.

There exists some empirical evidence to support this concern. As mentioned earlier in this paper, alcohol is known to impair many cognitive processes likely to be required during a traumatic event, and it is not unique in this regard. Administration of propranolol prior to decision-making tasks, for example, has been found to result in a conservative bias in conditions of uncertainty [40], and to decrease sensitivity to punishment cues [41]. As Craigie [39] notes, relatively small doses of propranolol were used in these two studies. Since much larger doses may be required to prevent PTSD, the effect on decision making may similarly be much greater.

Further complicating this situation is the need to administer prophylactic medications quite close to the occurrence of the traumatic event. As such, any attempt to 'vaccinate' the general population against PTSD would currently be at best an unnecessary expense and at worse a dangerous misuse of a potent drug. The vast majority of individuals would not experience a traumatic event within the time frame in which chemoprophylaxis would be effective. Therefore, pre-exposure administration would need to target individuals for whom exposure to a traumatic event is likely to be imminent, such as military personnel and emergency service workers. As Hall and Carter [42] state:

> [Those] at risk...should not be denied prophylaxis against PTSD when undertaking difficult and often gruesome tasks such as recovering bodies. If it is reasonable to ask these individuals to engage in life threatening and emotionally distressing activities, then it would be wrong to deny them access to medications that may reduce their considerable risk of PTSD. (p. 24)

On the other hand, those individuals who can be reasonably sure they will soon experience a potentially traumatic event are also those who are likely to require their judgement to be intact. Until it is shown conclusively that the prophylactic drugs currently available have no effect on cognitive, moral, or other capacities, we suggest that pre-exposure administration may be best avoided. The risks outweigh the (currently questionable) benefits.

Administration post-exposure

Providing prophylactic medication immediately following trauma exposure is also fraught with difficulty. Neuroimaging studies have shown that new memories are stored in around 6 h [9], although this is the subject of much debate. Morphine has been reported to protect against the development of PTSD where administration occurs within the first 48 h of traumatic injury [24], while trials of propranolol have shown the drug to impair memory when administered up to 24 h after a learning task [15]. Further research is needed to determine the optimal window for administration of prophylactic medications.

Due to the potentially adverse effects of chemoprophylaxis for individuals who would recover naturally [26], it seems inappropriate to offer all patients preventative treatment. Rather, targeting only those at risk of developing PTSD is likely to be a more effective strategy. Several risk factors for PTSD have been identified including pre-trauma factors (such as prior trauma and psychiatric history), characteristics of the event (such as perceived life threat and peri-traumatic dissociation), and post-trauma factors such as social support, other life stress, and pain [43-45]. As mentioned earlier, low levels of cortisol immediately after a traumatic event have been found to be predictive of PTSD [17]. Another promising finding is that individuals who go on to develop the disorder often have an increased heart rate in the acute post-trauma phase compared to those who recover [46,47]. As patient heart rate is monitored in emergency departments as a matter of course, this method of predicting PTSD may be more acceptable to the health professionals involved in acute care of trauma patients and is a line of enquiry worth pursuing. Using one or more of these approaches singly or in consultation would assist in targeting individuals for post-exposure chemoprophylaxis. Indeed, there is promising evidence that brief screening measures may do a reasonable job of predicting subsequent adjustment [48]. However, even when combined, known predictors of PTSD account for only a minority of the total variability of response to traumatic stress [44], and the potential for inaccurate predictions, particularly of the false negative variety, to some degree cautions against the use of chemoprophylaxis until more reliable predictors are known.

Ongoing trauma

For many individuals, trauma exposure will not be an isolated incident. In the case of domestic violence or war zone exposure for military personnel or civilians in war-torn nations for example, the question of when to administer preventative medications becomes far more complex. It is generally accepted that early psychological interventions are ineffective in situations where the trauma is ongoing [26], and it is difficult to imagine pharmacological intervention being any different. The difficulties of providing a drug immediately before or after a traumatic event when the person is exposed to multiple events are clear. Given the greater likelihood of developing PTSD when exposed to ongoing trauma [49], this is an issue of great importance for future chemoprophylaxis research to address.

Legal ramifications

Much of the argument against chemoprophylaxis for PTSD seems to stem from a concern that it would result in the individual feeling no emotion over the traumatic event. Authors ascribing to this view fear that routine use of prophylactic drugs after traumatic events would lead to the disappearance of distress following traumatic events. The events would still occur, but no one would be particularly bothered by them.

Studies trialling the use of prophylactic medications, however, have not provided evidence that their administration prevents an individual from feeling any emotion about a particular event. Following administration of cortisol or propranolol, study participants report negative stimuli to be less arousing than their placebo counterparts. Such stimuli were, however, still rated as being negative. Receiving either of the drugs prior to exposure did not cause participants to interpret negative stimuli as neutral or positive [50,51]. As far as we are aware, no studies have investigated the degree to which other potential prophylactic drugs such as morphine moderate the perception of emotional stimuli.

Concerns over the blunting of emotions by chemoprophylaxis are most often raised in relation to the legal proceedings that can arise from traumatic events such as rape and motor vehicle accidents. It has been suggested that a witness or victim who uses medication acutely to dull the pain of a traumatic event would also experience an impact on memory, and that for justice to be done, memories must be preserved [36]. However, eyewitness testimony at the best of times is far from infallible, and more concrete evidence that a crime has been committed is generally required for a conviction. Further, guilty verdicts should never hinge on whether or not the victim or witness develops PTSD [42].

It has also been suggested that the blunted affect of a rape victim who was administered prophylactic medication in the emergency room may lead a jury to find the person's testimony unconvincing, thus weakening the case against the perpetrator in court [52]. In discussing the pros and cons of chemoprophylaxis in the context of providing such testimony, it must once again be remembered that the purpose of this intervention is to prevent PTSD. Had the person been suffering this debilitating disorder, the rape victim's ability to provide valuable testimony may have been further impaired.

While issues relating to the effect of chemoprophylaxis on eyewitness testimony are worth considering, they do not pose an insurmountable problem. Expert witnesses, for example, can explain to the court the reasons for, and effects of, chemoprophylaxis. Given the above findings, while ramifications in criminal cases will continue to present some challenges, apprehension over chemoprophylaxis based on the potential for emotional blunting should not be exaggerated.

Civil cases, particularly those in which compensation is involved, have slightly different implications for chemoprophylaxis. Such cases often depend heavily on the presence of a diagnosis such as PTSD and the plaintiff's claim would be weakened if he or she did not meet criteria. Assuming that the chemoprophylaxis was successful, it would be hard to argue that the victim would have developed PTSD in the absence of such prophylactic medication. Indeed, of course, one would hope that the absence of long-term psychiatric disability would negate the need for the civil proceedings in the first place.

In summary, there are several potential legal ramifications raised by the issue of chemoprophylaxis in the field of traumatic stress. No doubt they will be the subject of discussions by expert witnesses and will continue to present challenges for the legal fraternity. These issues, however, are not insurmountable and are most definitely not an argument for not adopting these preventive measures if they are demonstrably effective. Our first priority, without question, must be the emotional health and well-being of people exposed to trauma.

Obstacles to chemoprophylaxis

There are a number of obstacles to the widespread use of prophylactic drugs which require further consideration. In the acute phase following trauma, patient reluctance and informed consent are potentially huge barriers to chemoprophylaxis. Trauma patients are often understandably more concerned with their physical pain, and focusing their attention on the possible mental health sequelae of their experience can be difficult [9,33]. Even more difficult, informed consent must be gained. This may be an

almost insurmountable task for some patients; aside from the obvious problem of unconsciousness, physical injuries and loss of loved ones may understandably prevent them from comprehending the complex nature of memory altering. Issues that may need to be discussed include the uncertainty of PTSD predictions, the potential implications for aiding criminal trials, and potential detriments to post-traumatic growth [33,52]. At present there is little information about these issues in the empirical literature. Qualitative research with PTSD sufferers and patients who receive preventative medications in the acute aftermath of trauma may provide answers to some of these questions.

If the data on prophylactic medications were stronger, it could be argued that informed consent would not be required. In the same way that medications or procedures are decided for unconscious or otherwise incapacitated patients, chemoprophylaxis would become a question of judgement for the treating physician.

Of course, drugs with the potential to prevent PTSD are not suitable for everyone. As with any medication, the potential benefits must be weighed against the risk of side effects, and contraindications including a history of substance abuse (morphine), asthma (propranolol), or penetrative injuries (hydrocortisone) must be taken into account [9,53]. Further, PTSD is commonly comorbid with other disorders such as depression and alcohol abuse. At this stage it is unclear what effect these preventative medications have on other post-traumatic mental health conditions.

One of the most problematic barriers to chemoprophylaxis, though, is that following a traumatic experience, many people simply do not come to the attention of the relevant authorities in the short time frame available. All empirical research to date has investigated the effect of prophylactic medications on hospital patients and for good reason; individuals who sustain major physical injuries during a traumatic event are rare in being identifiable in the immediate aftermath of their experience. Thus, although it may be possible to prevent PTSD and other mental health sequelae of trauma in this population, it is unclear whether chemoprophylaxis will ever be of use for survivors of other horrific events who do not require urgent medical attention. In the meantime, it may be wise to focus our attention on preventing PTSD in high risk populations such as the military and emergency services.

Conclusions

In the past few years attention on chemoprophylaxis for post-traumatic stress disorder has greatly increased. Unfortunately, the unfounded fears comprising much of the literature to date have done little to further the field. When considering chemoprophylaxis, two fundamental concepts must be kept in mind. Firstly, that chemoprophylaxis refers not to the treatment but to the prevention of PTSD. Secondly, that the goal of chemoprophylaxis is not to interfere with normal recovery. Aligning future discussion with these concepts will assist in improving both the empirical and philosophical literature in this field.

The small randomized controlled trials conducted to date have not provided unequivocal evidence of the benefits of chemoprophylaxis, although some results, particularly in regard to hydrocortisone, are promising. This may in part be an issue of power; the biggest RCTs to date have involved less than 50 participants. Larger trials are therefore needed to further investigate the efficacy of potential medications such as propranolol, hydrocortisone, and morphine. In addition, further work must be undertaken in order to establish concrete predictors of PTSD. With the small window of opportunity for administration of prophylactic drugs, we must be able to predict the development of the disorder with much greater accuracy than we currently do before chemoprophylaxis moves from the research domain into the real world.

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References

1. *Oxford English Dictionary*. Available from URL: http://dictionary.oed.com [cited January 2009].
2. Alexander DA, Wells A. Reactions of police officers to body-handling after a major disaster: a before-and-after comparison. *Br J Psychiatry* 1991; 159:547–555.
3. Paton D. Disaster relief work: an assessment of training effectiveness. *J Trauma Stress* 1994; 7:275–288.
4. Creamer M, Burgess P, McFarlane AC. Post-traumatic stress disorder: findings from the Australian National Survey of Mental Health and Well-Being. *Psychol Med* 2001; 31:1237–1247.
5. Norris FH, Stevens SP. Community resilience and the principles of mass trauma intervention. *Psychiatry* 2007; 70:320–328.
6. Kessler RC, Sonnega A, Hughes M, Nelson CB. Posttraumatic stress disorder in the national comorbidity survey. *Arch Gen Psychiatry* 1995; 52:1048–1060.
7. Kessler RC, Angermeyer M, Anthony JC *et al*. Lifetime prevalence and age-of-onset distributions of mental disorders in the World Health Organization's World Mental Health Survey Initiative. *World Psychiatry* 2007; 6:168–176.
8. Bradley R, Greene J, Russ E, Dutra L, Westen D. A multidimensional meta-analysis of psychotherapy for PTSD. *Am J Psychiatry* 2005; 162:214–227.
9. Pitman RK, Delahanty DL. Conceptually driven pharmacologic approaches to acute trauma. *CNS Spectr* 2005; 10:99–106.
10. McFarlane AC. Epidemiological evidence about the relationship between PTSD and alcohol abuse: the nature of the association. *Addict Behav* 1998; 23:813–825.

Post-traumatic stress disorder: Hypotheses from clinical neuropsychology and psychopharmacology research

Psychopharmacology

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Characteristic features of post-traumatic stress disorder (PTSD) include intrusive memories, avoidance, memory and concentration difficulties, and hyperalertness. Neuropsychological investigations of individuals with PTSD have suggested global and specific impairments of performance on standardized tests of memory. The use of the Emotional Stroop test has shown that trauma-related words are a sensitive measure of clinical state in PTSD patients. The Stroop paradigm has also shown that patients with PTSD appear to be characterized by implicit, explicit and autobiographical memory impairment. Available treatments for chronic post-traumatic stress disorder include cognitive–behaviour therapy, psychodynamic therapy and pharmacotherapy. Whereas drug treatment alone can rarely alleviate the suffering in PTSD, it appears to be most useful as an adjunct to psychotherapy. Tricyclic antidepressants are generally thought to be effective in alleviating symptoms, including nightmares, depression, sleep disorders and startle reactions, but are less able to relieve numbing. On the other hand, selective re-uptake blockers may be effective in decreasing numbing. However, rigorous clinical trials with double-blind placebo-controlled designs need to be performed to confirm these results. With new scientific discoveries in the understanding of PTSD, a new generation of pharmacological treatment is likely to emerge. (*Int J Psych Clin Pract* 2000; 4: 3–18)

Keywords
post-traumatic stress disorder *PTSD*
cognition *clinical neuropsychology*
memory *anxiety*
depression *Emotional Stroop test*

INTRODUCTION

In 1980, the American Psychiatric Association added Post-traumatic Stress Disorder (PTSD) to the third edition of its Diagnostic and Statistical Manual of Mental Disorders (DSM-III) nosological classification scheme. The DSM-III chose to define PTSD as a final common pathway occurring in response to many different types of catastrophic stressors, including burn injury, concentration camps, combat and natural disasters and this was in opposition to the idea of separate unique traumas such as 'Vietnam syndrome' or 'post-rape syndrome'. Although a controversial diagnosis when first introduced, the concept of PTSD is today regarded as having filled an important gap in neuropsychiatric theory and practice. The DSM-III (1987) and DSM-IV (1994)[1]. Diagnostic criteria for PTSD include a history of exposure to a 'traumatic event' and symptoms from each of three clusters of symptoms: intrusive recollections, avoidant/numbing symptoms and hyperarousal symptoms. Another criterion concerns the duration of symptoms (see Table 1). PTSD is unique among other psychiatric diagnoses because of the great importance placed upon the aetiological agent, the traumatic stressor. In fact, one cannot make a diagnosis unless the patient has actually met the stressor criterion, which means that he or she has been exposed to a historical event that is considered traumatic. Another hallmark characteristic is the alternation between re-experiencing and avoiding trauma-related memories. The memories that are particularly associated with PTSD appear rapidly and spontaneously, often

intrusive memories may consist of images accompanied by high levels of physiological arousal and are experienced as re-enactments of the original trauma (flashbacks). Flashbacks are qualitatively different from memories of the trauma, which are retrievable through a normal search of long-term memory, and may be distinguished from normal memories by the original intensity of the emotions which accompany the flashbacks.[2,3]

Epidemiological studies suggest that the lifetime prevalence of PTSD in the general population is currently estimated to range from 7.8% to 9.2%, and approximately 60% of these cases seem to become chronic.[4-6] A recent study in New York found that 39% of patients who sought medical attention after a road traffic accident met the criteria for PTSD.[7] The initial onset of PTSD may occasionally be delayed by many years and a large percentage of patients (70%) recalled traumatic events 2 years afterwards which they had not reported 1 month after the trauma.[8,9] However, the development of PTSD at 1 year can be predicted as early as 1 week after the accident on the basis of the existence and severity of early PTSD-related symptoms.[10] The first 3 months following the accident

Table 1
DSM-IV Criteria for PTSD[1]

A. The person has been exposed to a traumatic event in which both of the following have been present:
(1) the person has experienced, witnessed, or been confronted with an event or events that involve actual or threatened death or serious injury, or a threat to the physical integrity of oneself or others
(2) the person's response involved intense fear, helplessness, or horror. Note: in children, it may be expressed instead by disorganised or agitated behavior

B. The traumatic event is persistently re-experienced in at least one of the following:
(1) recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions. Note: in young children, repetitive play may occur in which themes or aspects of the trauma are expressed
(2) recurrent distressing dreams of the event. Note: in children, there may be frightening dreams without recognisable content
(3) acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur upon awakening or when intoxicated). Note: in young children, trauma-specific re-enactment may occur
(4) intense psychological distress at exposure to internal or external cues that symbolise or resemble an aspect of the traumatic event
(5) physiologic reactivity upon exposure to internal or external cues that symbolise or resemble an aspect of the traumatic event

C. Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by at least three of the following:
(1) efforts to avoid thoughts, feelings, or conversations associated with the trauma
(2) efforts to avoid activities, places, or people that arouse recollections of the trauma
(3) inability to recall an important aspect of the trauma
(4) markedly diminished interest or participation in significant activities
(5) feeling of detachment or estrangement from others
(6) restricted range of affect (e.g., unable to have loving feelings)
(7) sense of a foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span)

D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by at least two of the following:
(1) difficulty falling or staying asleep
(2) irritability or outbursts of anger
(3) difficulty concentrating
(4) hypervigilance
(5) exaggerated startle response

E. Duration of the disturbance (symptoms in B, C, and D) is more than one month

F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning

Specify if:
ACUTE: if duration of symptoms is less than three months

Specify if:
With delayed onset: onset of symptoms at least six months after the stressor

appear to be the critical period for the development of PTSD. Its longitudinal course can have many patterns: acute, delayed, chronic, intermittent, residual and reactivated.[11] A Vietnam readjustment study reported that 19 years after combat exposure, 15% of veterans still suffered from PTSD.[12]

Lifetime prevalence of exposure to traumatic events and the number of traumatic events showed no difference between the sexes, but the risk of PTSD after exposure to traumatic events was more than twice as high in women as in men.[13] PTSD is highly comorbid with other psychiatric disorders, including drug dependence, of which studies of Vietnam veterans provide some evidence.[14–17] Little is known about the causal pathways that might explain this. However, a recent study which investigated PTSD and drug disorders indicated that PTSD is correlated with an increased risk of drug abuse or dependence, whereas exposure to traumatic events in the absence of PTSD did not increase the risk of drug abuse or dependence.[18] The risk for abuse or dependence was highest for prescribed psychoactive drugs. There was no evidence that pre-existing drug abuse or dependence increased the risk of subsequent exposure to traumatic events or the risk of PTSD after traumatic exposure.

Several approaches have been used to explain PTSD, including biological theories, psychological paradigms, learning theory, cognitive models and models that integrate both psychological and biological perspectives.[19–22] Although all of these approaches encompass theories that offer valid insights into the nature of the dysfunction underlying PTSD, it is the cognitive model that is perhaps the most fully developed and offers the best explanation and predictive power. There is a clear clinical need to understand PTSD, both to devise effective treatments and to gain some insight into its prevention. Although no pharmacological agents are currently approved by the US Food and Drug Administration (FDA) for the treatment of PTSD, claims for efficacy have been made for various products including tricyclics, monoamine oxidase inhibitors (MAOIs), fluoxetine, lithium, carbamazepine, benzodiazepines, beta-blockers, alpha-2 agonists and neuroleptics. As pharmacotherapy occupies an important place in PTSD, there is a need to devise rigorous clinical trials to assess short- and long-term efficacy. In this paper, the cognitive dysfunctions associated with PTSD will be discussed as well as current potential pharmacological treatments. A discussion on the physiological and neurological abnormalities associated with PTSD will also be included, as well as research on PTSD, from a systematic literature search through the Medline database during the last 10 years.

COGNITIVE DYSFUNCTION ASSOCIATED WITH PTSD

Current research suggests that certain cognitive alterations

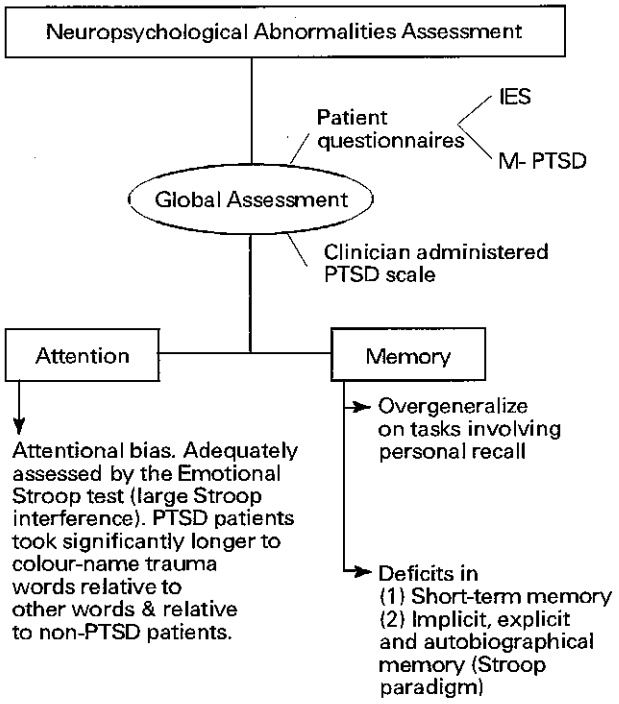

Figure 1

Some main neuropsychological dysfunctions in PTSD and their assessment methods. (IES: Impact of Event Scales; M-PTSD: Mississippi Scale for Combat-related PTSD)

characterized by a preferential bias or increased attention associated with the presentation of threat-related stimuli. A stepwise discriminant analysis, including all neuropsychological variables in neuropsychological tests, identified attention and memory factors as the major cognitive dysfunctions associated with PTSD.[23] Studies on memory in PTSD patients also indicate that victims tend to overgeneralize on tasks involving personal recall, suggesting limitations in their ability to distinguish effectively among various salient cues. Various neuropsychological approaches have been attempted to assess PTSD.

ASSESSMENT OF PTSD

Since 1980 a great deal of attention has been devoted to the development of instruments and questionnaires to assess PTSD. Both psychometric and psychophysiological assessment techniques have been devised which have proved to be reliable and valid.[24] The Impact of Events Scale (IES), which measures intrusion and avoidance symptomatology characteristics, is widely used in PTSD research and clinical practice.[25] The IES can discriminate adequately between PTSD and non-PTSD groups for both re-experiencing and avoidance factors with a reported sensitivity of 74% and specificity of 78%.[26,27]

Considerable work has been conducted on the applicability of the Minnesota Multiphasic Personality Inventory

veterans with heavy combat experience from those with light combat experience.[28] The MMPI test has also clearly differentiated veterans with PTSD from those without PTSD seeking help for psychological problems.[29]

Another test, the Mississippi Scale for Combat-Related PTSD (M-PTSD), a 35-item self-report scale derived from the DSM, measures the symptoms and associated features of combat-related PTSD.[30] Respondents indicate the frequency with which they experience each symptom on a Likert scale ranging from 1 ('never') to 5 ('very frequently'). Items include, for example: "It seems as if I have no feelings" (emotional numbing) and "I wonder why I am alive when others died in the military" (survival guilt). Scores can range from 35 to 175, and scores of 107 or higher generally indicate the presence of PTSD. The M-PTSD test has a high test–retest reliability and excellent sensitivity (test sensitivity=0.93, specificity=0.93, overall hit rate=0.90) when used to differentiate between a PTSD group and a non-PTSD group.

However, due to limitations in the definition of the criterion diagnosis of PTSD, as well as the uncertainty with which respective cut-off points were chosen for some of the existing scales, further research is necessary to analyse the validity of screening measures to assess PTSD. There is a crucial need to develop instruments to assess PTSD diagnosis among highly traumatized populations other than American Vietnam veterans. It also appears that the Clinician Administered PTSD scale (CAPS) is better at predicting clinical observation of PTSD, which possibly captures additional components of the patient's behaviour.[31] However, whether the difference is due to specific properties of the CAPS, or whether it represents some generic advantage of clinical observation over self-report psychometrics, requires further study.

Attentional bias: the Emotional Stroop Test

It is acknowledged that anxious individuals show bias in selective attention, being prone to attend to material whose content is threatening in preference to neutral or positive material. The Stroop colour-word task has been a valuable tool for studying attentional bias, and in the classic Stroop test, the subject is required to name the colour of ink in which an incompatible colour word is printed (e.g. the word 'green' is printed in red ink).[32] Subjects take longer to name the colour of the ink in this case than in a control condition in which the word 'red' is printed in red. This phenomenon is referred to as Stroop interference. The Emotional Stroop test, which is the principal method of demonstrating attentional bias, is a modified version of this classic paradigm.

Research on cognitive dysfunction in PTSD has focused on two types of information-processing studies. Valence-independent studies require patients to process information that varies in complexity, but not in emotional valence (e.g. Valence-dependent studies require patients to process affectedly-charged information related to trauma (such as experiments on attentional and memory biases favouring processing of trauma-relevant information). In the studies using valence-dependent processing biases in PTSD, the technique of the Emotional Stroop colour-naming paradigm seems promising. In this attentional paradigm, patients are shown words of varying emotional significance printed in different colours. They are asked to name the colours in which the words appear while ignoring the meanings of the words. Delayed colour naming (Stroop interference) occurs when the meaning of a word captures the patient's attention despite his effort to focus on its colour. Because colour-naming delays reflect involuntary activation of meaning, interference produced by trauma-related material may provide a quantitative index of intrusive cognition: PTSD patients would be expected to take longer to name the colours of trauma-related words than other words, whereas patients without PTSD would not. Current research appears to confirm this hypothesis: it was observed that PTSD patients took significantly longer to name the colours of all the words on a single card.[34] In addition, PTSD patients took significantly longer to colour-name trauma words than other words, and longer than non-PTSD patients who did not respond differentially, depending on the type of word. Interference for trauma words was also significantly related to the severity of the PTSD symptoms.

Stroop studies confirmed that words closely related to the trauma produce more interference than words less closely related to the trauma.[35–37] Trauma-related words are a sensitive measure of clinical state, so that the Emotional Stroop paradigm could be a convenient measure of response to treatment. However, the fact that the Stroop interference effect is much stronger in PTSD (115–400 ms) than in other psychopathological states such as panic attack (24-57 ms), obsessive-compulsive disorder (24–108 ms), social phobia (24-113 ms) or depression (18-116 ms) suggests that different or additional cognitive mechanisms may underlie colour-naming disruption in PTSD conditions.[38] Although it may be argued that such large Stroop interference effects in PTSD patients may be due to their particular clinical pathology, in which very frequent and severe intrusive thoughts and flashbacks are a major diagnostic feature, further studies are necessary.

The interpretation of the findings of the Emotional Stroop paradigm in anxiety states in terms of selective attention to threatening information seems relatively straightforward. However, interest in the explanation of the mechanisms underlying Stroop interference has suggested various models. The most common have been Beck's schema theory[39] or Bower's network theory.[40] Recent studies have suggested explanations other than the attentional bias hypothesis.[41,42] It was observed, for example, that panic disorder patients displayed interference in response to threat words but also in response to other emotional words, including positively valenced words, and

high-trait anxious subjects. The finding that colour-naming interference may occur in response to emotionally valent stimuli, whether positive or negative, is very important, because it calls into question those explanations of the Emotional Stroop that assume that emotionally disturbed individuals have increased accessibility only to threat information. Such observations have led to an alternative hypothesis, in which both attentional bias and cognitive avoidance are assumed to function in the Emotional Stroop test, but the cognitive avoidance is presumed to be mainly responsible for the greater interference effects found in PTSD victims, anxious subjects and 'repressors'.[43] It was also suggested that future research should use, in addition to the Stroop task, other paradigms such as dichotic listening and attention deployment task, to further unravel the cognitive biases associated with anxiety states of the patients concerned.

MEMORY

Significant deficits in short-term memory have been reported in PTSD patients.[44] In a study comparing Vietnam veterans with combat-related PTSD to physically healthy subjects, and using a battery of neuropsychological tests such as the Wechsler Adult Intelligence Scale, Wechsler Memory Scale and Selective Reminding Test, severe memory deficits were observed in PTSD patients. The PTSD patients scored significantly lower on the logical memory component of the Wechsler Memory Scale (44% lower on immediate recall and 55% lower on delayed recall). Interestingly, a significant negative correlation was also observed between the percentage of retention for the Wechsler Memory Scale figural memory component and the current level of PTSD symptoms as measured by the Mississippi Scale for Combat-Related PTSD (r=– 0.62).

The Stroop paradigm has been used to study memory impairment (implicit, explicit and autobiographical memory) in PTSD patients. The methodology employed was based on the hypothesis that explicit memory is revealed when task performance requires conscious recollection of previous experiences; it is usually accessed by direct tests such as recognition, free recall, and cued recall. Implicit memory, on the other hand, is revealed when previous experiences enhance performance of a task that does not require effortful, conscious recollection of these experiences; it is usually measured by indirect tests such as word-stem completion, lexical decision, and tachistoscopic word identification. The results suggest that patients with PTSD are characterized by explicit and implicit memory biases favouring trauma-relevant information, yet also exhibit poor recall for all but trauma words.

Studies dealing with autobiographical memory suggest that this type of memory is also impaired in PTSD patients, who exhibited difficulties retrieving specific personal memories in response to cue words having either positive (e.g. kindness), neutral (e.g. appearance), or negative (e.g. panic) valence.[37,45] When asked to retrieve an autobiographical memory triggered by a cue, PTSD patients tended to retrieve general memories that did not refer to any specific event, suggesting that trauma-related thoughts may hamper access to other memories. A relative inability to retrieve specific personal memories having positive emotional valence may be related to emotional numbing, and to the extent that inability to retrieve episodes from the past handicap an individual's ability to envisage the future. Overgenerality may be implicated in the problem-solving deficits that occur in PTSD patients.[46]

At present, no generally acceptable method is available to diagnose PTSD when the causal event has resulted in neurogenic amnesia. PTSD and neurogenic amnesia may not be diagnosed concurrently, since memory for the trauma is assumed to be a necessary condition for the manifestation of PTSD (Sbordone's unitary memory theory).[47] However, the multiple memory systems which divide memory into declarative memory (which refers to stored experience that is actually or potentially accessible to conscious recollection – memory system disrupted in amnesia) and nondeclarative memory (a variety of phenomena, none of which are accessible to consciousness) suggest that declarative memory for a traumatic event is not a necessary condition for development of PTSD.[48] It is suggested that the operation of a nondeclarative memory system is a sufficient condition for the development of PTSD. Two reports of cases with post-traumatic amnesia which developed PTSD illustrate this hypothesis, particularly one (GR) who denied memory of the accident but developed nightmares with images of motorcycles crashing. Such observation also questions the belief that neurogenic amnesia may be protective with respect to post-traumatic emotional reactions.

For problems of amnesia not directly related to physical neurological concussion or brain damage, several terms have been used to describe such memory deficits, including 'repression, 'dissociative amnesia' and 'psychogenic amnesia'.[1,49,50] In DSM-IV, dissociative amnesia is defined as "inability to recall important personal information, usually of a traumatic or stressful nature, that is too important to be explained by ordinary forgetfulness". In a review of evidence from prospective studies to test whether individuals can develop amnesia for traumatic experiences, it was argued that the data failed to demonstrate that individuals can develop dissociative amnesia for traumatic events.[51] In studies in which patients were asked directly about a past traumatic experience, they consistently reported memories. Non-reporting occurred only in studies where patients were not asked directly about the experience.

PHYSIOLOGICAL AND NEUROLOGICAL ABNORMALITIES ASSOCIATED WITH PTSD

Neurobiological research indicates that PTSD may be associated with significant alterations in both the auto-

nomic and central nervous systems. Psychophysiological alterations with PTSD include hyperarousal of the sympathetic nervous system, increased sensitivity and augmentation of the acoustic-startle eyeblink reflex, a reduced pattern of auditory evoked cortical potentials, and sleep abnormalities.

PHYSIOLOGICAL ABNORMALITIES

Neurophysiological abnormalities have been detected in the noradrenergic, hypothalamic-pituitary-adrenocortical (HPA) and endogenous opioid systems of PTSD patients, and much clinical evidence also suggests that in many of these victims such chronic alterations persist even 25 years after exposure to the trauma (Table 2).[52,53] Trauma survivors with PTSD show evidence of a highly sensitized HPA axis, characterized by decreased basal cortisol levels and increased negative feedback regulation. Cortisol levels are equally low in men and women with PTSD.[54] The physiological effects of cortisol depend on the ability of cortisol to bind to glucocorticoid receptors. Current research suggests that PTSD patients have more Type II glucocorticoid receptors in circulating lymphocytes than do normal controls, whereas depressed patients have fewer receptors.[54,55] Consistent with both low cortisol and an increased number of glucocorticoid receptors, PTSD patients have shown significantly augmented cortisol suppression in response to dexamethasone (8.00 am postdexamethasone cortisol levels at or above 5.0 μg/dl) compared to normals; this finding is opposite to the classic cortisol non-suppression typically observed in depressed patients.[56,57] The finding of enhanced cortisol suppression to dexamethasone has been confirmed in several other PTSD populations, including adult survivors of childhood sexual abuse, adult sexual abuse and children exposed to natural disasters.[58–60]

Another neuroendocrine method, the metyrapone test, has provided information about basal adrenocorticotropic hormone (ACTH) release in PTSD.[61] Metyrapone temporarily prevents adrenal steroidogenesis by blocking the conversion of 11-deoxycortisol to cortisol, and thus unmasks the pituitary gland from the influences of negative feedback inhibition. In this way, metyrapone administration permits a direct evaluation of pituitary release of ACTH while excluding the potentially confounding effects of differing ambient cortisol levels or glucocorticoid receptor responsiveness. When metyrapone (2500 mg) is administered in the morning when HPA axis activity is quite high, maximal pituitary activity can be achieved, and it is possible to assess group differences in pituitary activity. The results of this study are consistent with an enhanced feedback sensitivity in PTSD, in that PTSD patients showed a greater ACTH and 11-deoxycortisol increase following metyrapone administration than did normal controls. The metyrapone test differentiates clearly between PTSD and normal controls. The unusual HPA axis profile noted in PTSD validates the suggestion that PTSD is a distinct disorder that can be differentiated from other neuropsychiatric illnesses and requires the development of specific treatment strategies for effective therapy of PTSD patients.

Investigations of neuroendocrine and peripheral catecholamine receptor systems also provide evidence for a dysregulation of sympathetic nervous system activity in PTSD. Twenty-four-hour urine noradrenaline excretion has been reported as significantly increased, while the number of platelet α_2-adrenergic receptors and the activity of lymphocyte adenylate cyclase have been reported to be significantly less than in controls.[62,63] This decrease in receptor number and adenylate cyclase activity may represent an adaptive down-regulation in response to persistently elevated levels of circulating catecholamines. Furthermore, combat veterans have been reported as having lower basal cyclic AMP and lower basal adenylate cyclase levels than controls.[64,65] Neuroendocrine challenge strategies have also been used to probe catecholamine systems in PTSD patients.

Sodium lactate infusion (10 ml/kg of 0.5 M administered over 20 min) has been observed to induce flashbacks in individuals with PTSD without comorbid panic disorder, but not in patients with panic disorder or normal subjects.[66] Induced flashbacks were rated as very similar to spontaneous flashbacks. Cortisol levels were significantly lower in the PTSD group than in the comparison group at the end of the infusion.

The administration of intravenous yohimbine (0.4 mg/kg), an α_2-adrenergic blocker, produced panic attacks (70%) and flashbacks (40%) in a subgroup of PTSD patients.[67] In addition, in the patients with PTSD,

Table 2
Some abnormal physiological parameters observed in PTSD

Abnormal decrease
Blood and urinary cortisol
Platelet α_2-adrenergic receptor binding
Platelet monoamine oxidase activity
Platelet serotonin uptake
Sleep time
P300 event-related potential response to target stimuli
Hippocampal volume
Abnormal increase
Physiological (e.g. catecholaminergic and electromyographic) responses to trauma-related stimuli
Physiological responses to trauma-unrelated stimuli (e.g. loud tones)
Baseline heart rate and blood pressure
HPA axis negative feedback
Lymphocyte glucocorticoid receptors
Blood tri-iodothyronine (T3)
Sleep movements and awakenings
REM density

REM: rapid eye movement

yohimbine induced significant increases in core PTSD symptoms such as intrusive traumatic thoughts, emotional numbing, and grief. A recent study investigating the effect of yohimbine and meta-chlorophenylpiperazine (m-CPP) (1.0 mg/kg, IV; a probe of serotonergic activity) confirmed the effects of yohimbine in PTSD patients.[68] On the other hand, m-CPP induced panic attacks in PTSD patients who also showed significantly greater increases in anxiety, panic and PTSD symptoms compared to controls. Yohimbine-induced panic attacks tended to occur in different patients from those in whom panic attacks were induced by m-CPP. The results of this study suggest that there are at least two different neurobiological subgroups of PTSD patients. Whereas the first group tends to have a sensitized noradrenergic system, the other group has a sensitized serotonergic system. This finding is important for the discovery and research of effective psychopharmacological treatment; the matching of biological subtypes with appropriate pharmacological products may considerably increase the efficacy of the pharmacological treatment of PTSD.

Such clinical investigations may further clarify our understanding of PTSD and the pathophysiological mechanisms involved. For example, this approach has led to the suggestion that the hypersecretion of endogenous opioids results in the psychopathological condition of emotional numbing.[69] All these hypotheses may hopefully, in the end, lead to the discovery of innovative effective new pharmacological entities.

Brain Abnormalities

Neurological changes in the neuronal pathways and synaptic clefts are thought to result from excessive traumatic stimulation. An interesting finding was recently made when magnetic resonance images of the brains of combat veterans with PTSD were compared with those of civilians who did not have the disorder.[70] Scans of the veterans' brains showed that the right hippocampus, a structure that plays a key role in memory, was slightly smaller than normal. This may indicate the possibility of neuronal death in this brain region. Sapolsky and colleagues[71] reported hippocampal neuronal death in cells with high glucocorticoid receptors, and such an observation was interpreted as being the result of a response to stress over time. This may also suggest that war, rape or torture induces psychiatric impairment as well as neurological dysfunction.

Positron emission tomagraphy (PET) scans also revealed interesting neurological findings in PTSD patients.[72,73] The right amygdala was observed to be abnormally active while PTSD patients were reliving traumatic memories. As the amygdala is the key to the conditioned-fear response in animal studies, this may indicate that traumatic memories are activating this learning centre, and perhaps also, that stress hormones stimulate these memories into the brain, inducing flash-backs. In a randomized, double-blind study of Vietnam combat veterans with PTSD and age-matched controls, in which PET scans measured brain metabolism after yohimbine (0.4 mg/kg) or placebo, it was reported that yohimbine resulted in a significant increase in anxiety in the patients with PTSD, but not in healthy volunteers.[74] There was a significant difference in brain metabolic response to yohimbine in patients with PTSD, compared with healthy subjects, in the prefrontal, temporal, parietal, and orbitofrontal cortexes; metabolism tended to decrease in patients with PTSD and increase in healthy subjects following administration of yohimbine. Another study which used PET in combat veterans with PTSD reported that patients with PTSD had increased regional cerebral blood flow (rCBF) in the ventral anterior cingulate gyrus and right amygdala when generating mental images of combat-related pictures; when viewing combat pictures, patients with PTSD showed decreased rCBF in Broca's area.[75]

Paige and colleagues have studied the event-related potentials (ERP) which provide a physiological index of central processing in PTSD patients.[76] P300 and contingent negative variation (CNV) are ERP obtained in recording EEG from patients submitted to cognitive tasks. While P300 is related to 'context updating' and working memory, CNV is more influenced by attention, motivation and motor preparation.[77] The amplitudes of CNV and P300 were noted to be significantly lower in PTSD victims than in non-PTSD patients.[78–80] This reduced ERP amplitude obtained in PTSD patients may be considered as a physiological indicator of attentional deficits and the dynamics of the cerebral defence system after stressful events.

Considering the plasticity of the central nervous system and the results from animal model studies of brain trauma, the relationship between trauma and neurological deficit appears reciprocal. Trauma may cause alterations in neurological functioning, while brain damage may precipitate types of behaviour that provoke PTSD symptoms. Obviously, further research is needed to provide a better understanding of the relationship between psychological trauma and the development of neurological deficits.

TREATMENT OF PTSD

Many therapeutic approaches have been proposed for the treatment of PTSD, including psychodynamic therapy,[81] cognitive-behavioural therapy,[82] pharmacotherapy[83] and treatment for patients diagnosed with both PTSD and alcoholism.[84] Psychotherapy is considered to be a major part of the treatment; however, there are times when the distress and discomfort from the hyperarousal of the sympathetic nervous system may inhibit or impede psychotherapy. Treatment of PTSD is generally multimodal, with pharmacotherapy medication (which may be helpful in controlling the trauma-related symptoms)

playing an important role.[85] Both psychotherapy and pharmacological treatment can also be beneficial.[86,87]

PSYCHOTHERAPEUTIC APPROACH

The most successful interventions are those implemented immediately after an incident such as civilian disaster or war trauma. This is often referred to as Critical Incident Stress Debriefing (CISD). The best outcomes are obtained when the trauma survivors receive CISD within hours or days of exposure. Such interventions not only attenuate the acute response to the trauma but often forestall the later development of PTSD.

Traditional learning theory and bio-informational theory suggest that exposure to conditioned stimuli while preventing escape or avoidance results in habituation of anxiety. Behaviour therapy proceeds by either gradual (desensitization) or massive (flooding) re-exposure to the conditioned stimuli. The bio-informational theory emphasizes the necessity of activating the fear memory and of providing information which is incompatible with that existing in the fear memory, so that a new memory can be formed.[88] An exposure treatment called image habituation training has been proposed for patients suffering from PTSD;[89] its objective is to expose the patient to self-evoked images in order to produce habituation of anxiety. This was achieved by the use of audiotaped descriptions of the trauma, to be used during self-directed homework sessions. The use of audiotapes in habituation training has been suggested by Salkovskis and Kirk[90] as a method of maximizing exposure to cognitive events. The benefit of this method is that it saves clinician's time, by using an audiotape to facilitate self-directed exposure to trauma-related images and thoughts; it enables the patient to carry out frequent exposure sessions at home and decreases problems of anticipatory anxiety. However, a recent study designed to predict response to exposure treatment in PTSD patients (rape victims) emphasized the impact of mental defeat and alienation on treatment outcome.[91] It was suggested that patients who experienced mental defeat, alienation or permanent change may require cognitive restructuring in addition to exposure.

Desensitization therapy is another method of treatment, using relaxation responses to counter stimuli that have previously elicited anxiety.[92] This is accomplished through relaxation training, which involves the construction of a hierarchy of situations that elicit anxiety in varying degrees, and working to remain relaxed through each situation in the hierarchy until the most anxiety-producing situation is reached.

Much interest has recently been generated by case reports of rapid improvements measured in PTSD patients using eye movements as described in the eye-movement desensitisation-reprocessing procedure (EMD-R).[93,94] Patients imagine the traumatic event together with associated thoughts and somatic reactions while following the therapist's finger, which moves rapidly from side to side across the visual field. It appears that this treatment reduced anxiety, changed the way patients thought about the traumatic event, and stopped their flashbacks, intrusive thoughts and sleep disturbances.[95] Analysis of eye movement data in the laboratory with normal volunteers provides an explanation of the mechanism involved, suggesting that if EMD-R works, this may be due to the reduction of the vividness and emotiveness of traumatic images via the visuospatial sketchpad system of working memory which processes visual and spatial information.[96] Although some critics argue that EMD-R will not fulfil its promise of being superior to existing exposure treatments,[97] current research suggests that the development of the technique of EMD-R in PTSD has triggered a re-examination of exposure in anxiety and PTSD, and the results may help to improve the current version of the EMD-R into a very effective treatment approach in PTSD patients.

PHARMACOLOGICAL APPROACH

It is important to distinguish between acute and chronic PTSD, since this difference will affect both the selection and the duration of drug therapy. In managing acute PTSD, pharmacological treatment may help to enable the repressed traumatic events to be brought to the surface and to be accepted and integrated by the patient so that he/she is no longer afraid. For acute PTSD, diazepam has been used.[98] A dose of 2.5 mg/kg propranolol was observed to reduce symptoms of hyperarousal and hypervigilance in children with acute PTSD.[99]

Chronic PTSD has been the most intensely studied form from the standpoint of pharmacotherapy. Drug treatment may be expected to succeed in reducing intrusive and avoidant symptoms, decreasing hyperarousal, improving sleep, improving the regulation of aggressive and uncontrollable impulses, controling psychotic symptoms and treating comorbid psychopathology. Although benzodiazepines look promising, because of their anti-arousal effects, they have received very little attention in PTSD, probably because they can induce tolerance; and that a patient is likely to abuse this medication.

Tricyclics

Double-blind trials of tricyclic drugs indicated positive effects on PTSD symptoms.[100,101] Tricyclic antidepressants (TCAs) are often considered a first-line medication for symptoms involving re-experiencing and numbing, and other symptoms such as hyperalertness, sleep disturbance and memory difficulties. Amitriptyline was found to be helpful with nightmares and in treating symptoms such as insomnia, depressed mood and flashbacks.[102] Imipramine was observed to be beneficial in relieving the intrusion symptoms – more so than the avoidance symptoms.[103] Neuroleptics have been suggested to be generally inferior to antidepressants in PTSD, possibly due to greater behavioural deficits associated with them, which would indicate

a need for some caution.[104] Although use of these antidepressants may improve PTSD symptoms of intrusion and avoidance as well as depression, insomnia and anxiety, the magnitude of the effect is far less than that obtained with these medications in major depression. No study has demonstrated a full remission of PTSD symptoms, as is often the case in major depression.

Selective serotonin re-uptake inhibitors (SSRIs)

Fluoxetine, a selective serotonin re-uptake inhibitor, was reported to be an effective treatment for some patients with chronic PTSD (Table 3). In an open 10-week trial of fluoxetine in 19 PTSD patients, using a battery of assessment scales (the Clinician-Administered PTSD Scale (diagnostic/weekly version), Keane Combat Exposure Scale, IES, Hamilton Depression Scale and Hamilton Anxiety Scale), positive beneficial effects were noted in reducing the re-experiencing, avoidance and hyperarousal symptoms of PTSD.[105] In other studies, fluoxetine was also noted to have some efficacy in decreasing numbing in PTSD; such dosages ranged from 20 to 80 mg/day.[5,106] Moreover, responders to fluoxetine treatment showed most improvement in the cluster of avoidance symptoms, which has been the most resistant symptom cluster in the majority of PTSD patients treated with an antidepressant.[107] Fluoxetine was also reported to allow psychotherapeutic gains to occur more rapidly and to decrease explosive outbursts of rage and explosiveness in PTSD patients.[108,109] A recent double-blind, placebo-controlled study of fluoxetine in a larger population of PTSD patients (22 women and 42 men) seemed to confirm the efficacy of fluoxetine in PTSD treatment.[110] The average dose of fluoxetine was two capsules (40 mg/day). Positive changes were most apparent in the arousal and numbing symptoms. Significant adverse effects of fluoxetine in this study were diarrhoea, sweating and headaches.

Two other SSRIs, fluvoxamine and sertraline, were also reported to show some beneficial effects in PTSD. In a small open pilot study with a treatment period of 12 weeks, with 24 Dutch World War II resistance veterans, fluvoxamine was reported to alleviate chronic PTSD symptoms, in particular insomnia, nightmares, anxiety, intrusive recollections, guilt feelings and tiredness.[111] Sertraline was also observed to be beneficial in an open-label trial in male Vietnam veterans.[112] Positive responders (63%) to sertraline treatment (mean daily dose 98.5 mg, range 50–150 mg) after a minimum of 3 months showed a significant decrease in dysphoria, irritability and anger as measured by

Table 3
Treatment of PTSD by SSRI

Drugs (mg/day)	*Design & time of study*	*Subjects*	*Sample size*	*Conclusions*	*References*
Fluoxetine (20–80)	Case series	4 women (26-35 years), 1 man (42 years)	5	Marked improvement in both intrusive and avoidant symptoms. Allow psychotherapeutic gains to occur more rapidly.	Davidson et al (1991)[5]
Fluoxetine (20–80)	OT, up to 27 months	Male veterans	26	Reduced explosiveness, improved mood and insomnia in 16 (61%) patients	Shay (1992)[109]
Fluvoxamine (up to 300 mg)	OT, 12 weeks	Male veterans	24	Modest improvement of PTSD symptoms, particularly insomnia, nightmares, anxiety and intrusive recollections.	De Boer et al (1992)[111]
Fluoxetine (20–80)	OT, 10 weeks	Male veterans (45.1 ± 8.2 years)	19	Significant decrease in PTSD symptoms, mostly after 6 weeks. 50% decrease in frequency of panic attacks, 30% drop-out due to adverse effects (e.g. anxiety)	Nagy et al (1993)[105]
Fluoxetine (20–60) vs placebo	DB, PC, 5 weeks	31 veterans and 33 civilians with PTSD (22 women, 42 men (22–55 years))	64	Decrease in arousal numbing and depression. No significant effect on intrusion, dissociation or hostility. Better results in recent civilian PTSD.	Van der Kolk et al (1994)[110]
Sertraline (50–150)	OT, >3 months	Male veterans with co-occurring major depression	19	Significantly decreased dysphoria, irritability and anger in 12 (63%) patients although 9 (47%) still complained of pre-existing insomnia	Kline et al (1994)[112]

OT: Open trial, DB: double-blind, PC: Placebo-controlled

monthly scores on the Beck Depression Inventory, IES, State-Trait Anxiety Inventory, Clinical Global Evaluation and Impression scales. However, in these clinical trials, although significant improvement in PTSD symptoms was observed in the 'responders', the patients did not achieve a full remission with complete absence of PTSD symptoms. The observed gradual and incomplete improvement did not lead to total functional recovery, as in most of these studies considerable functional impairment persisted.

Antiepileptics

Lipper and colleagues[113] have suggested that the antiepileptic carbamazepine may be efficacious in patients with PTSD, particularly for symptoms of hyperarousal, intrusive recollections, sleep impairment and hostility. A second open trial showed alleviation of impulsiveness, violent behaviour, and angry outbursts in Vietnam combat veterans with PTSD.[114]

Beta-blockers and α_2 -agonists

Kolb and colleagues[115] reported that propranolol, a β-blocker, and clonidine, an α_2-agonist, are helpful in treating PTSD. Propranolol was studied at 120–160 mg/day in 12 Vietnam combat veterans. The patients reported less explosiveness, fewer nightmares and dreams, improved sleep, fewer startle responses and less hyperalertness, fewer intrusive thoughts and improved psychosocial functioning. Adverse effects included depression, fatigue, forgetfulness, sexual impairment, bradycardia, hypotension and mental confusion. It was suggested that the antiaggressive properties of β-blockers might also be beneficial in some patients.

With clonidine, doses of 0.1–0.4 mg were observed to produce encouraging results in an open trial in Vietnam veterans. Clonidine was also observed to attenuate PTSD-driven self-mutilatory behaviour when given on a p.r.n. basis.[116] The addition of clonidine to an antidepressant regime has been suggested to treat the hyperactivity, startle reactions and nightmares.[117,118] The utility of clonidine (0.1–0.2 mg/day) in preschool children suffering from PTSD and in patients whose PTSD symptoms of hyperarousal, impulsivity and aggression remained severe and had not abated with other therapeutic approaches was noted in an open clinical trial.[119] The use of a clonidine patch (Catapres-TTS®) which was replaced every 5 days was observed to be tolerated better than oral clonidine, with less initial sedation. The results of this study indicated the efficacy of clonidine in reducing symptoms of aggression, hyperarousal and sleep difficulties in children with severe PTSD. However, it was pointed out that the compliance of parents or guardians is important when clonidine is given to children, because abrupt discontinuation of clonidine can be dangerous, and it should be used only in children who have no cardiac or other major medical illness, target symptoms should be closely followed and regular follow-up ECG and blood pressure tests performed.

Guanfacine, another α_2-agonist, was observed to be beneficial in PTSD symptoms as an addition to an antidepressant such as sertraline.[120] Due to the fact that its half-life in adults (18–22 h) is much longer than that of clonidine, the beneficial effects in PTSD were particularly on the suppression of nightmares throughout the night.

Buspirone

Buspirone may be effective in treating some PTSD symptoms when used alone[121,122] (Table 4). Buspirone began to have an effect from 5 to 29 days after administration at 15–35 mg daily.[122] Symptoms that responded to treatment included insomnia, nightmares, flashbacks, anxiety and depressed mood. Recently, buspirone was added to the regimen of patients judged to be unresponsive, or only partially responsive, to antidepres-

Table 4
Treatment of PTSD by buspirone

Drugs (mg/day)	*Design & time of study*	*Subjects*	*Sample size*	*Conclusions*	*References*
Buspirone (35–60)	Case series	3 men, 45–68 yrs, DSM-IIIR diagnosis of PTSD	3	Symptoms that responded to treatment included insomnia, nightmares, flashbacks, anxiety and depressed mood. Onset of clinical efficacy: 5–29 days	Wells et al (1991)[122]
Buspirone (30)	Case series	2 women, 37 & 21 yrs, DSM-IIIR criteria for PTSD	2	Reduction in insomnia, recollections, nightmares and anxiety; improved concentration in daily functioning	LaPorta & Ware (1992)[121]
Buspirone* (30–60)	Open trial	Male Vietnam combat veterans, DSM-IV criteria for PTSD	15	Positive response to buspirone augmentation in 11 of 14 patients (73%). Buspirone was discontinued in 4 patients, 2 due to adverse effects and 2 due to lack of efficacy (symptoms unchanged)	Hamner et al (1997)[123]

sant treatment.[123] Response to buspirone was evaluated at baseline and after potentiation, using the Clinical Global Impression scale. A positive response to buspirone addition was observed in 11/14 patients (73%). Buspirone was discontinued in four patients, two due to adverse effects and two due to lack of efficacy. No patients experienced a worsening of symptoms. The average daily dose was 40 mg in responders (30–60 mg/day). Given the positive preliminary results of this study, future research should devise a controlled trial in a larger sample of PTSD patients, to establish the efficacy of buspirone combination therapy. The mechanism of action of buspirone in alleviating symptoms of PTSD also awaits clarification.

New Research Strategy in Pharmacotherapy of PTSD

The tendency for yohimbine to elicit traumatic memory recall and flashbacks in PTSD patients may relate to the stimulation of β-adrenergic receptors in the amygdala and cortical structures.[124] If PTSD patients' memories of disturbing images can really be blunted by drugs that block a type of receptor (noradrenaline, for example), then these drugs may produce a new generation of medications for treating PTSD. The idea of avoiding PTSD by interrupting the memory consolidation process before those traumatic memories become pathological looks attractive. The observation that nalmefene, an opiate antagonist, may induce a significant favourable response with a marked decrease of emotional numbing and other symptoms (including startle response, nightmares, flashbacks, intrusive thoughts, rage and vulnerability) in PTSD patients is interesting and warrants further confirmation, as it may also lead to new drug development strategies for PTSD.[125]

DISCUSSION AND CONCLUSION

Exposure to trauma in itself is not sufficient for the subsequent development of PTSD, and only a low to moderate proportion of individuals exposed to trauma do develop PTSD (15.2% of Vietnam veterans, 23.6% of urban adults and 39% of traffic accident victims).[4,12,126] The relative lack of knowledge about the relationship between PTSD and the traumatic stressor, and about the course of PTSD, suggests that further research in these areas is needed. Longitudinal studies, starting immediately after exposure to the trauma and using repeated assessments at several points in time, are critically important for understanding how PTSD develops. It is possible that low socioeconomic and educational status, previous neuropsychiatric morbidity and personality traits such as neuroticism may be implicated as pretraumatic risk factors, but these assumptions need to be confirmed.[127–129] Although recent research has focused on combat, rape, and other types of assaultive violence as causes of PTSD, the sudden unexpected death of a loved one is also a significant cause, accounting for nearly one-third of PTSD cases.[130] Such findings highlight the need for further research on this heterogeneous category of trauma and the vulnerability factors involved in the development of PTSD.

Since PTSD commonly occurs with other psychiatric disorders, and because of the relative frequency of traumatic events as well as the heterogeneity of presentation of PTSD, screening for traumatic events and PTSD should be standard in both psychiatric and primary care practice. In order to prevent long-term psychological effects after traumatic events, it has been recommended that disaster services should be provided for at least 2 years, particularly to survivors who are injured, who experience risk of death, or who witness death.[131] High levels of distress during and immediately after the accident were highly associated with severe PTSD symptoms.[132] The individual's perception of the trauma is particularly important. The services for survivors should take these factors into account, identifying these risk groups, and recognizing their needs as early as possible.

Neuropsychological testing (particularly the evaluation of memory deficits) may represent an objective assessment of patients with PTSD symptoms and should be considered as a useful approach to assist clinicians in the diagnosis and treatment of PTSD. On the other hand, it appears that more sophisticated tests of attention and memory are also required, as some interpretations of results may be constrained by the potential ceiling effects of certain tests, limiting their ability to detect subtle performance alterations. These tests may also be used to predict PTSD in patients susceptible of developing the symptoms after traumatic events, so that appropriate preventive treatment may be started. With these tests, screening for PTSD can take place as early as one week after the event.[133] It also appears that questionnaires (e.g., Horowitz's Impact of Events Scale and the Mississippi Scale for Combat-Related PTSD) are good tests, in that they are better than chance at predicting PTSD and that they measure the level of psychological distress in general, rather than a particular syndrome.[133] It was also suggested that it is possible to use these questionnaires to screen for those who will not go on to develop PTSD; and for those who might develop it, where prediction is less certain, to use a clinician-administered instrument such as the CAPS. The inclusion of these neuropsychological evaluations may improve the prediction of PTSD and hence the effectiveness of preventive programmes.

Issues relating to dissociative amnesia need more research. To demonstrate dissociative amnesia, investigators should interview and follow up patients who experience a well-documented trauma; these patients should be free of neurological problems such as head injury or drug intoxication. The traumatic event must be too important to the individual to be plausibly lost by ordinary forgetfulness. Failure to respond adequately during the first interview may be followed by a subsequent

clarification interview, during which the patients should be asked whether they remember the specific event that they are known to have experienced. Such approaches, with these criteria, are required to clarify issues relating to dissociative amnesia; until then dissociative amnesia remains unproven.

Several questions about pharmacological treatment remain unanswered. These include the importance of PTSD subtypes in relation to differential drug effect. A recent study emphasized the importance of screening substance abusers for PTSD, because this can identify a small but substantial number of patients who might require additional treatment.[134] The optimum length of treatment needs to be studied, as well as relapse rates over time. Whether earlier treatment intervention leads to a more favourable prognosis needs to be established. The analysis of the results of the effects of various treatments of PTSD patients suggests that the effectiveness of treatment is often limited, and complete remission is rarely achieved. With respect to duration of treatment, drug effects have only been demonstrated in controlled trials of at least 8 weeks' duration.[101] Probably pharmacotherapy should continue for several months in order to produce maximum effects. Decisions on when to discontinue treatment may be based on the degree of symptom remission, progress made in psychotherapy, stability of life situations, the extent to which the patient is coping successfully with ongoing stresses and the presence or absence of adverse effects from the drug. In pharmacotherapeutic treatment, it may be questioned whether the drug effects are specific to PTSD symptoms or non-specifically directed at such symptoms as depression and general tension. Several studies have noted drug effects on intrusive and avoidant symptoms of PTSD, with effects mostly occurring on the intrusive cluster.[135] Serotonin uptake inhibitors may differ from other drugs, however, in having greater effects on avoidant PTSD symptoms.

Pharmacological studies of PTSD have several limitations (such as a limited number of controlled studies) and often the results are inconsistent. Most of the information on pharmacotherapy comes from open trials and case reports. Double-blind randomized placebo-controlled studies are necessary to confirm observations of the beneficial effects of these various psychoactive medications in PTSD. It should also be emphasized that although drug treatments may alleviate intrusive recollections and arousal symptoms, drug treatment alone cannot completely alleviate the suffering. Pharmacotherapy is primarily useful as an adjunct to the psychological treatment of PTSD. Several of these studies have been carried out with male combat veterans with chronic PTSD, and the length of potential remissions, as well as the rates of relapse, have not been assessed. It also appears that pharmacotherapy alone is rarely sufficient to cure PTSD. Given the shortcoming of unidimensional treatment approaches in PTSD, it may be better to combine pharmacological and psychological treatment to obtain better long-term results.

As psychological and neurological reactions to trauma are complex and variable, effective procedures need to be developed in order to understand which individuals, or group of patients, will develop chronic PTSD. More research is required about who will benefit from psychological and pharmacological treatments and what is the optimal time for treatment delivery. Conceptualization of the disorder will continue to evolve, both with new scientific discoveries and with changes in the professional environment within which patients suffering from PTSD are treated. Hopefully, a rational pharmacotherapy for this disorder will emerge from a better understanding of the cognitive disturbances and biological correlates of PTSD.

The increasing use of PET will probably help towards a better understanding of the symptoms of PTSD, which may lead to the development of more precise neuropsychological tests and pharmacological treatments. PET studies suggest that the ventral anterior cingulate gyrus and right amygdala may play a role in the response of patients with PTSD to mental images of trauma-related scenes.[75] Re-experiencing phenomena which often involve emotional visual mental imagery may likewise be associated with increased rCBF in these regions. Given the role of Broca's area in language function, decreased rCBF in this region may be consistent with the finding of diminished linguistic processing, when patients with PTSD view and evaluate trauma pictures. Further research is required to confirm such hypotheses.

KEY POINTS

- Neuropsychological assessments of patients with PTSD have indicated global and specific impairments of performance on various standardized tests of cognitive processes
- The Emotional Stroop test has shown that trauma-related words are a sensitive measure of clinical state in PTSD patients and that they may be characterized by implicit, explicit and autobiographical memory impairment
- Available treatments for chronic PTSD include cognitive - behaviour therapy, psychodynamic and pharmacotherapy; drug treatment alone can rarely alleviate the suffering in PTSD, it may be very useful as an adjunct to psychotherapy
- As most of the pharmacological studies suggest lack of rigour in experimental control and assessment of efficacy data, double-blind, placebo-controlled designs need to be performed for confirmation of these efficacy results
- A better understanding of the neurophysiology of PTSD will probably lead to more effective and selective neuropharmacological treatment

REFERENCES

1. American Psychiatric Committee on Nomenclature and Statistics (1994) *Diagnostic and statistical manual of mental disorders*, (4th edn) American Psychiatric Association, Washington, DC.
2. Terr LC (1991) Childhood traumas: An outline and overview. *Am J Psychiatry* 148: 10–20.
3. Van der Kolk BA, Fisler RE (1995) Dissociation and the fragmentary nature of traumatic memories: Overview and exploratory study. *J Traumatic Stress* 8: 505–25.
4. Breslau N, Davis GC, Andreski P, Peterson E (1991) Traumatic events and post traumatic stress disorder in an urban population of young adults. *Arch Gen Psychiatry* 48: 216–22.
5. Davidson JRT, Roth S, Newman E (1991) Treatment of post traumatic stress disorder with fluoxetine. *J Traumatic Stress* 4: 419–23.
6. Kessler RC, Sonnega A, Bromet E et al (1995) Posttraumatic stress disorder in the National Comorbidity Survey. *Arch Gen Psychiatry* 52: 1048–60.
7. Blanchard EB, Hickling E, Taylor A, Loos WR (1995) Psychiatric morbidity associated with motor vehicle accident. *J Nerv Ment Dis* 183: 495–504.
8. Hales RE, Zatzick DF (1997) What is PTSD? *Am J Psychiatry* 154: 143–5.
9. Blank AS (1993) The longitudinal course of posttraumatic stress disorder. In *Posttraumatic stress disorder: DSM-IV and beyond* (eds JRT Davidson, EB Foa) American Psychiatric Association Press, Washington, DC.
10. Koren D, Arnon I, Klein E (1999) Acute stress response and posttraumatic stress disorder in traffic accident victims: A one-year prospective, follow-up study. *Am J Psychiatry* 156: 367–73.
11. Zeiss R, Dickman H (1989) PTSD 40 years later: Incidence and person-situation correlates in former POWs. *J Clin Psychol* 45: 80–7.
12. Kulka RA, Schlenger JA, Fairbank JA et al (1990) *Trauma and the Vietnam war generation: Report of findings from the National Vietnam Veterans Readjustment Study*. Brunner/Mazel, New York.
13. Breslau N, Davis GC, Andreski P et al (1997) Sex differences in posttraumatic stress disorder. *Arch Gen Psychiatry* 54: 1044–8.
14. Breslau N, Davis GC, Andreski P et al (1998) Epidemiologic findings on PTSD and comorbid disorders in the general population. In *Adversity, stress, and psychopathology* (ed B Dohrenwend) 319–30. Oxford University Press, New York.
15. McFall ME, Mackay PW, Donovan DM (1991) Combat-related PTSD and psychosocial adjustment problems among substance-abusing veterans. *J Nerv Ment Dis* 179: 33–8.
16. Davidson JRT, Kudler HS, Smith RD et al (1990) Treatment of post traumatic stress disorder with amitriptyline and placebo. *Arch Gen Psychiatry* 47: 259–66.
17. Escobar JI, Randolph ET, Puente G et al (1983) Posttraumatic stress disorder in Hispanic Vietnam veterans: clinical phenomenology and sociocultural characteristics. *J Nerv Ment Dis* 171: 585–96.
18. Chilcoat HD, Breslau N (1998) Posttraumatic stress disorder and drug disorders. *Arch Gen Psychiatry* 55: 913–7.
19. Horowitz MJ (1986) *Stress response syndromes* (2nd edn). Jason Aronson, New York.
20. Kolb LC (1987) A neuropsychological hypothesis explaining post-traumatic stress disorder. *Am J Psychiatry* 144: 989–95.
21. Fairbank JA, Brown TA (1987) Current behavioral approaches to the treatment of posttraumatic stress disorder. *Behavior Therapist* 3: 57–64.
22. Jones JC, Barlow DH (1990) The etiology of post-traumatic stress disorder. *Clin Psychol Rev* 10: 299–328.
23. Gilbertson MW, Gurvits TV, Lasko NB, Pitman RK (1997) Neuropsychological assessment of Vietnam combat veterans with and without PTSD. In: *Psychobiology of posttraumatic stress disorder* (eds R Yehuda, AC McFarlane) *Ann NY Acad Sci* 821: 476–9.
24. Keane TM, Wolfe J, Taylor KI (1987) Post-traumatic stress disorder: Evidence for diagnostic validity and methods of psychological assessment. *J Clin Psychol* 43: 32–43.
25. Horowitz MJ, Wilner N, Alvarez W (1979) Impact of Events Scale: A measure of subjective stress. *Psychosom Med* 41: 209–18.
26. Woolfolk RL, Grady DA (1988) Combat-related post-traumatic stress disorder: patterns of symptomatology in help-seeking Vietnam veterans. *J Nerv Ment Dis* 176: 107–11.
27. Schwarzwald J, Solomon Z, Weisenberg M, Mikulincer M (1987) Validation of the Impact of Event Scale for psychological sequelae of combat. *J Consult Clin Psychol* 55: 251–6.
28. Penk WE, Robinowitz R, Roberts WR et al (1981) Adjustment differences among male substance abusers varying in degree of combat experience in Vietnam. *J Consult Clin Psychol* 49: 426–37.
29. Foy DW, Sipprelle RC, Rueger DB, Carroll EM (1984) Etiology of posttraumatic stress disorder in Vietnam veterans: Analysis of preliminary, military, and combat exposure influences. *J Consult Clin Psychol* 52: 79–87.
30. Keane TM, Caddell JM, Taylor KL (1988) Mississippi Scale for Combat-Related Posttraumatic Stress Disorder: Three studies in reliability and validity. *J Consult Clin Psychol* 56: 85–90.
31. Gelpin E, Bonne O, Peri T et al (1996) Treatment of recent trauma survivors with benzodiazepines: a prospective study. *J Clin Psychiatry* 57: 390–4.
32. Stroop JR (1935) Studies of interference in serial verbal reaction. *J Exper Psychol* 18: 643–62.
33. McNally RJ, Shin LM (1995) Association of intelligence with severity of posttraumatic stress disorder symptoms in Vietnam combat veterans. *Am J Psychiatry* 152: 936–8.
34. McNally RJ, Kaspi SP, Riemann BC, Zeitlin SB (1990) Selective processing of threat cues in posttraumatic stress disorder. *J Abnorm Psychol* 99: 398–402.
35. Cassiday KL, McNally RJ, Zeitlin SB (1992) Cognitive processing of trauma cues in rape victims with post-traumatic stress disorder. *Cognitive Ther Res* 16: 283–95.
36. Thrasher SM, Dalgleish T, Yule W (1994) Information processing in post-traumatic stress disorder. *Behaviour Res Ther* 32: 247–54.
37. Kaspi SP, McNally RJ, Amir N (1995) Cognitive processing of emotional information in posttraumatic stress disorder. *Cognitive Ther Res* 19: 319–30.
38. Williams JMG, Matthews A, MacLeod C (1996) The emotional Stroop task and psychopathology. *Psychol Bull* 120: 3–24.
39. Beck AT, Emery G, Greenberg RL (1985) *Anxiety disorders and phobias: A cognitive perspective*. Basic Books, New York.
40. Bower GH (1981) Mood and memory. *Amer Psychologist* 36: 129–48.
41. Dawkins K, Furnham A (1989) The colour naming of emotional words. *Br J Psychol* 80: 383–9.
42. Carter CS, Maddock RJ, Magliozzi J (1992) Patterns of abnormal processing of emotional information in panic disorder and major depression. *Psychopathology* 25: 65–70.
43. De Ruiter C, Brosschot JF (1994) The emotional Stroop interference effect in anxiety: attentional bias or cognitive avoidance? *Behav Res Ther* 32: 315–9.

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Personality Theories

Millon's Normal Personality Styles and Dimensions

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Millon's normal personality styles and dimensions emanate from the same evolutionary model he developed to explain personality pathology. For him, normal and abnormal personality lie along a continuum with no sharp demarcation to distinguish the two. The major difference is that normal individuals demonstrate adaptive flexibility in responding to their environment, whereas disordered persons exhibit rigid and maladaptive behavior. In this article, I present a historical introduction to Millon's ideas on normality, descriptions of his normal personality styles and dimensions, up-to-date empirical findings, and avenues for future research. I conclude that, with additional validity data, Millon's model of normal personality may be suitable for an expanded *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; American Psychiatric Association, 1994) Axis II that allows for diagnosis of normal personality types when a complete personality disorder syndrome is absent.

Millon's (1969/1983b, 1994; Millon, Green, & Meagher, 1982a, 1982b; Strack, 1987, 1991b) normal personality styles and dimensions emanate from his broadly based evolutionary model of personality that differentiates and links healthy and pathological character on a continuum. This model is closely aligned with that adopted by the American Psychiatric Association (APA) for Axis II of the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed. [*DSM–IV*]; APA, 1994). Because of this, researchers and clinicians have at their disposal a framework for understanding a complete array of personality types ranging from the healthy to the pathological. The continuous relation between the domains of normality and pathology in Millon's model allows personologists to study the ways that healthy and disordered personalities are similar and different, the developmental processes that lead to various outcomes, and perhaps most important, how disordered individuals may be restored to healthy functioning. In this article, I give a historical introduc-

tion to Millon's ideas on normality, present his normal personality styles and dimensions, summarize empirical findings, and discuss avenues for research.

HISTORICAL DEVELOPMENTS

Millon (1969/1983b) presented his original biosocial-learning theory of personality in *Modern Psychopathology*. There he proposed three axes (active–passive, pleasure–pain, and self–other) as the basic building blocks of normal and abnormal personality. Conceived in terms of instrumental coping patterns designed to maximize positive reinforcements and avoid punishment, the model crossed the active–passive axis with four reinforcement strategies (detached, dependent, independent, and ambivalent) to derive eight basic personality patterns (asocial, avoidant, submissive, gregarious, narcissistic, aggressive, conforming, negativistic) and three severe variants (schizoid, cycloid, paranoid). The basic patterns were thought to be present in both normal and disordered persons, whereas the severe styles were evident only in abnormal form.

Millon's (1969/1983b) assumptions about normal personality were outlined as follows: (a) Normal and abnormal personality are shaped according to the same basic processes and learning principles; (b) normal personality is on a continuum with pathological personality; (c) no sharp dividing line exists between normal and abnormal personality types; and (d) normal personality patterns may be distinguished from pathological patterns by their adaptive flexibility and balance on the active–passive, pleasure–pain, and self–other polarities:

> When an individual displays an ability to cope with his environment in a flexible and adaptive manner and when his characteristic perceptions and behaviors foster increments in personal gratification, then he may be said to possess a normal and healthy personality pattern. (p. 222)

Although Millon (1969/1983b) clearly addressed both normal and abnormal character types, the focus of that text on personality disorders overshadowed healthy personality development. Normal personality styles were not described there or in Millon's (1981) subsequent text, *Disorders of Personality*. In the early 1970s, Millon (1974) and his colleagues developed a research instrument, the Millon Personality Inventory, that assessed normal and abnormal personality traits. It was used primarily by students and was not widely distributed, but it did signal Millon's early interest in normal traits and served as a springboard for development of later measures.

Nondisordered personality styles were not disseminated to a large audience until the publication of the Millon Adolescent Personality Inventory (MAPI; Millon et al., 1982a) and Millon Behavioral Health Inventory (MBHI; Millon et al., 1982b).

These instruments were developed and normed for use in health care settings and presented personalities that were different from personality disorders. Curiously, Millon did not alert test users to the essential differences between these styles and personality disorders. Nevertheless, careful readers could grasp the differences by comparing them with the personalities described in earlier texts and the Millon Clinical Multiaxial Inventory (MCMI) manual (Millon, 1977, 1983a). Significantly, Millon gave different names to the normal styles (see Table 1) and used terminology that was much less severe than that used for the personality disorders. For example, normal introversive personalities were described in the MBHI manual as "colorless," "quiet," and "unconcerned about their problems" (Millon et al., 1982b, p. 2), and Millon (1983a) reported in the MCMI manual that disordered schizoid (asocial) persons demonstrated "an inability to display enthusiasm or experience pleasure," "obscure thought processes," and a "lack of vitality" (p. 4).

The first published work devoted exclusively to Millon's healthy personality styles was an article describing the development and validation of the Personality Adjective Check List (PACL; Strack, 1987). The instrument provided self-report and rating measures of Millon's basic eight personality patterns and was normed solely on normal adults. In that initial report and several subsequent articles (Strack, 1991a, 1992, 1993, 1994; Strack & Lorr, 1990a, 1990b; Strack, Lorr, & Campbell, 1990), my colleagues and I provided considerable empirical evidence in support of Millon's proposition that his normal styles are quite similar to their personality disorder counterparts.

In the mid-1980s Millon (1986, 1987, 1996, 1997; Millon & Davis, 1994) began altering his model and clinical measures to accommodate changes in *DSM* Axis II (APA, 1987, 1994). He also widened his focus by placing his model in an evolutionary framework (Millon, 1990a, 1990b). From a structural perspective these changes resulted in the addition of a discordant reinforcement strategy (where pleasure and pain have reversed value) and three abnormal personality styles, depressive, aggressive–sadistic, and self-defeating.

The dimensional approach to normal personality presented by Millon (1990a, 1990b) was his first effort to delineate healthy character styles outside the domain of psychopathology. It was followed with the publication of the Millon Index of Personality Styles (MIPS; Millon, 1994), a measure for use with normal adults that assesses trait dimensions and character styles.

Millon's new perspective was developed without reference to disorder but borrowed many concepts from his original model of personality. In this approach Millon considered the universe of traits and interpersonal styles that exist in the normal population and came up with three sets of personality variables to define and measure them. The first set, called *motivating aims,* represent his three basic axes in evolutionary form. The original pleasure–pain polarity was called enhancing–preserving, active–passive was modifying–accommodating, and self–other was individuating–nurturing. The second set of variables, which were borrowed

TABLE 1
Names for Normal Personality Styles From 1969 to the Present

Modern Psychopathology, 1969	*MAPI, 1982*	*MBHI, 1982*	*PACL, 1987*	*MIPS, 1994*
Asocial (passive–detached)	Introversive	Introversive	Introversive	Retiring
Avoidant (active–detached)	Inhibited	Inhibited	Inhibited	Hesitating
Submissive (passive–dependent)	Cooperative	Cooperative	Cooperative	Agreeing
Gregarious (active–dependent)	Sociable	Sociable	Sociable	Outgoing
Narcissistic (passive–independent)	Confident	Confident	Confident	Asserting
Aggressive (active–independent)	Forceful	Forceful	Forceful	Dissenting Controlling (active–discordant)
Conforming (passive–ambivalent)	Respectful	Respectful	Respectful	Conforming
Negativistic (active–ambivalent)	Sensitive	Sensitive	Sensitive	Complaining Yielding (passive–discordant)

Note. MAPI = Millon Adolescent Personality Inventory; MBHI = Millon Behavioral Health Inventory; PACL = Personality Adjective Check List; MIPS = Millon Index of Personality Styles.

from Jung (1936/1971), were termed *cognitive modes.* For Millon, cognition means an individual's primary source of obtaining information and the means by which that information is processed or transformed. Preferred sources of information can be the self (internal) or others (external), and either tangible or intangible. Preferred means of transforming information can be intellectual or affective and assimilative versus imaginative. The last set of variables describe 10 common *interpersonal behaviors* or styles. Eight of the 10 personalities are essentially the same as those measured by the MAPI, MBHI, and PACL, and are empirically related to personality disorders (see Table 1). Two additional styles, doleful and self-demeaning, are hypothesized to be related to the depressive and self-defeating personality disorders, but empirical evidence is needed to verify this.

NORMAL STYLES AND DIMENSIONS

Millon's normal personalities and dimensions are briefly described in this section. As noted in Table 1, 8 of 10 styles are measured by the MAPI, MBHI, and PACL. The MIPS assesses 10 interpersonal types as well as the newer motivational and cognitive dimensions.

Styles

Introversive/retiring (asocial, passive–detached). Aloof and solitary by nature, these individuals prefer limited social involvement. They are easygoing,

slow-paced, and reserved. They rarely show strong emotion and may appear to others as dull and lacking in spontaneity.

Inhibited/hesitating (avoidant, active–detached). Shy and sensitive to criticism, these individuals keep others at an arm's distance and remain on the periphery of social gatherings. They are typically kind and considerate and do not like to draw attention to themselves. They are wary of novelty and seek stable rather than changeable environments.

Cooperative/agreeing (submissive, passive–dependent). These individuals value communality and seek others' approval. They are docile, obliging, and agreeable. They tend to think poorly of their own skills and seek stronger individuals to lean on.

Sociable/outgoing (gregarious, active–dependent). Active and extroverted, these individuals seek high levels of stimulation and attention. They are often spontaneous, colorful, and dramatic. Their interests and emotions change frequently and others may experience them as shallow and fickle.

Confident/asserting (narcissistic, passive–independent). Typically bold and self-assured, these individuals think highly of themselves and expect others to cater to their wishes and demands. They can be charming and manipulative and others may see them as lacking empathy.

Forceful/dissenting (aggressive, active–independent). Assertive and socially dominant, these individuals are adventurous, competitive, and nonconforming. They persevere in difficult circumstances but can be inconsiderate of others' needs. They are often brusque and insensitive in their tactics and downplay the value of tender emotions.

Controlling (aggressive, active–discordant). Domineering and aggressive, these individuals see themselves as being tough-minded and fearless in a world that is harsh and threatening. They are often exploitive and manipulative and do not mind stepping on others' toes if doing so will get them what they want.

Respectful/conforming (conforming, passive–ambivalent). Rule-bound and conscientious, these individuals are hard-working and respectful of those in authority. They tend to be perfectionistic and emotionally constricted. They are methodical and persistent but can be too rigid and moralistic in their efforts to live up to conventional standards.

Sensitive/complaining (negativistic, active–ambivalent). Unconventional and moody, these individuals march to the beat of a different drummer and are not happy with the status quo. They are often loyal and forthright with their opinions but are also awkward, changeable, and fault finding.

Yielding (negativistic, passive–discordant). Submissive and self-demeaning, these individuals expect the worst and often contribute to their own unhappiness. They are frequently moody, irritable, and pessimistic.

Motivational Dimensions

Enhancing versus preserving (pleasure–pain). This dimension measures an individual's orientation toward life-enhancement activities versus those aimed at life preservation. From a behavioral standpoint, this is translated into pleasure seeking versus avoidance of painful experiences. Those scoring high on the enhancing scale are outgoing and optimistic, while those scoring high on the preserving scale are worrisome and pessimistic.

Modifying versus accommodating (active–passive). This continuum assesses how individuals adapt themselves to their environment. For Millon, modifying persons are those who actively seek to manipulate and change their surroundings, whereas accommodating persons mold themselves to fit in with existing circumstances. Individuals who score high on the modifying scale take charge of their lives and play an active role in shaping the events that impact them. Those who score high on the accommodating scale tend to be dependent and acquiescent.

Individuating versus nurturing (self–other). This dimension assesses the behavioral manifestations of one's reproductive strategy. According to Millon, individuals tend toward propagation of the self or nurturance of others. There is an obvious parallel with masculinity– femininity, but this axis is more broadly based. Persons who score high on the individuating scale are independent, egocentric, and eager to further their own aims. Those who obtain high scores on the nurturing scale value communality and tend to be gentle and protective of others.

Cognitive Dimensions

Extroversing versus introversing. Extroversing individuals look to others for information, attention, and stimulation. They are outgoing and feel most comfortable in social surroundings. Those with strong introversing traits tend to be private and closed off from external stimulation. They value their own thoughts and feelings as informational resources.

Sensing versus intuiting. High sensing individuals seek information from tangible, literal, well-defined sources. For them, "seeing is believing." Those who are primarily intuiting place structure and fact in the background and focus most intently on intangible sources of information such as personal insight.

Thinking versus feeling. Thinking individuals prefer to process information using cool logic and analytic reasoning. They downplay the value of emotions in evaluating problems and circumstances. By contrast, those who process information with feelings rely on subjective experience to assist them. They use empathy and affective responding in analyzing problem situations.

Systematizing versus innovating. Systematizing individuals tend to evaluate new experiences on the basis of past experiences. They seek reliability and consistency. They are conservative and tend to incorporate information into well-established modes of thought. Innovating persons are open to new experiences and seek novelty. They tend to be spontaneous, creative, and flexible.

RESEARCH FINDINGS

To date, studies of Millon's normal personality styles and dimensions have assessed their internal consistency, temporal stability, convergent and discriminant validity, factor structure, and comparability to personality disorders. Many populations have been sampled, including adolescents; college students; noncollege adults and the elderly; and employees in a variety of occupations including law enforcement, military personnel, and veterans.

MAPI (Millon et al., 1982a), MBHI (Millon et al., 1982b), MIPS (Millon, 1994), and PACL (Strack, 1987, 1991b) scales have demonstrated satisfactory internal consistency (rs = .65–.89 by Kuder–Richardson–20 and coefficient alpha) and test–retest reliability (rs = .55–.90) over periods ranging from 1 month to 1 year. They have been linked in theoretically consistent patterns with scales from many self-report and rating instruments including the California Psychological Inventory (Millon et al., 1982a, 1982b; Strack, 1987), Myers–Briggs Type Indicator (Millon, 1994), Minnesota Multiphasic Personality Inventory (Millon, 1994;

Millon et al., 1982b; Strack & Guevara, in press), NEO Personality Inventory (Millon, 1994; Pincus & Wiggins, 1990; Wiggins & Pincus, 1989), Self-Directed Search (Strack, 1994), and Sixteen Personality Factors questionnaire (Millon, 1994; Millon et al., 1982a; Strack, 1987). Findings are too numerous to present here, but summaries can be found in the appropriate test manuals as well as in Strack (1993, 1997) for the PACL, and Weiss (1997) for the MIPS. They convincingly demonstrate that the normal personalities exhibit trait patterns that are predicted by theory and are milder versions of the personality disorders.

Each of the four assessment devices have yielded similar factor structures for the personality styles. In a large normal adult sample, PACL scales showed three bipolar dimensions labeled neurotic versus controlled, assertive versus compliant, and introversion versus extroversion (Strack, 1987, 1991b). Factor analyses of the MAPI (Hynan, Pantle, & Foster, 1998; Millon et al., 1982a) and MBHI (Millon et al., 1982b) have been performed on clinical samples with symptom measures included. Nevertheless, their dimensional structure is comparable to that of the PACL. Recently PACL and MIPS scales were correlated and factor analyzed together in a sample of 148 college students (Guevara & Strack, 1998). Scales measuring the same personality styles were moderately associated (*r*s = .35–.71). Three of four varimax-rotated factors included basic personality styles. Factor 1, which was bipolar, linked three PACL introverted, neurotic personalities (introversive, inhibited, sensitive) with pain avoidance, passivity, a solitary thinking style, and MIPS Hesitating, Retiring, Yielding, and Dissenting interpersonal styles on one end of the continuum. Loaded in the opposite direction were three PACL extroverted, socially bold personalities (sociable, confident, forceful), and the MIPS Extroversing, Outgoing, and Asserting scales. Factor 2, which was also bipolar, linked PACL confident and forceful personalities with MIPS Controlling, Individuating, Dissenting, Asserting, Innovating, and Thinking scales on the positive pole, and the PACL cooperative style with MIPS Nurturing and Feeling on the negative end. Factor 3 associated the PACL respectful style and MIPS Conforming, Systematizing, Thinking, Modifying, Sensing, Asserting, Outgoing, and Enhancing scales on one end of the continuum and PACL sensitive on the other. This dimension taps conscientiousness, emotional control versus lack of emotional control, and elements of extroversion.

Factor analyses of PACL, MCMI–I, and MCMI–II personality scales have revealed comparable results. PACL's three higher order dimensions (Strack, 1987, 1991b) correspond to the three factors found by Retzlaff and Gibertini (1987) for MCMI–I basic eight scales among psychiatric patients and normal adults, and by Strack, Lorr, Campbell, and Lamnin (1992) for the 13 MCMI–II personality scales with patients. A joint factor analysis of PACL and MCMI–II basic personality scales among college students yielded three factors (using residual scores), with corresponding PACL and MCMI–II scales loading on the same dimensions (Strack, 1991a).

A PATH TO THE FUTURE

There is still much to be learned about the structure and behavior of Millon's normal personality styles and their relation to personality disorders. An important housekeeping issue is further validation of the new controlling and yielding personalities and the motivational and cognitive dimensions found on the MIPS. Studies that employ ratings and focus on real-life behavior are especially important for all of the Millon measures. In the realm of personality disorders, we need longitudinal investigations and side-by-side comparisons of matched groups of normals and patients to get at the essential similarities and differences between these populations (Strack & Lorr, 1994, 1997). Evidence from correlational self-report studies suggests that Millon's normal personalities are healthier, more flexible, and more adaptive than their personality disorder counterparts, but we need direct proof.

As additional validation evidence becomes available it should prod the APA to consider expanding *DSM–IV* Axis II to include Millon's normal styles for diagnosis when a complete personality disorder syndrome is absent. This makes sense because personality is ostensibly dimensional in nature and all psychiatric patients have a personality that affects the Axis I conditions they are susceptible to, as well as their response to treatment. Expanding Axis II in this manner will permit clinicians to see how personality impacts all of their patients. Millon's model offers a practical approach that can be incorporated into the current taxonomy without major changes.

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Information on Millon's normal personality styles and dimensions can be found on the Internet at http://www.hometown.net/millon.html.

REFERENCES

American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed., rev.). Washington, DC: Author.

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

Guevara, L. F., & Strack, S. (1998). An examination of Millon's dimensional and stylistic descriptions of normal personality. *Journal of Personality Assessment, 71,* 337–348.

Hynan, L. S., Pantle, M. L., & Foster, B. M. (1998). Factor structure of the Millon Adolescent Personality Inventory for psychiatric inpatients. *Psychological Reports, 82,* 267–274.

Jung, C. G. (1971). Psychology typology. In *Psychological types* (R. F. C. Hull, Trans.). Princeton, NJ: Princeton University Press. (Original work published 1936)

Millon, T. (1974). *Millon Personality Inventory.* Philadelphia: Saunders.

Millon, T. (1977). *Millon Multiaxial Clinical Inventory manual.* Minneapolis, MN: National Computer Systems.

Millon, T. (1981). *Disorders of personality.* New York: Wiley.

Millon, T. (1983a). *Millon Clinical Multiaxial Inventory manual* (3rd ed.). Minneapolis, MN: National Computer Systems.

Millon, T. (1983b). *Modern psychopathology.* Prospect Heights, IL: Waveland. (Original work published 1969)

Millon, T. (1986). A theoretical derivation of pathological personalities. In T. Millon & G. L. Klerman (Eds.), *Contemporary directions in psychopathology: Toward the* DSM–IV (pp. 639–670). New York: Guilford.

Millon, T. (1987). *Manual for the MCMI–II* (2nd ed.). Minneapolis, MN: National Computer Systems.

Millon, T. (1990a). Normality: What may we learn from evolutionary theory? In D. Offer & M. Sabshin (Eds.), *The diversity of normal behavior* (pp. 356–404). New York: Basic Books.

Millon, T. (1990b). *Toward a new personology.* New York: Wiley.

Millon, T. (1994). *Millon Index of Personality Styles manual.* San Antonio, TX: Psychological Corporation.

Millon, T. (1996). *Disorders of personality* (2nd ed.). New York: Wiley.

Millon, T. (1997). *Millon Clinical Multiaxial Inventory–III manual* (2nd ed.). Minneapolis, MN: National Computer Systems.

Millon, T., & Davis, R. D. (1994). Millon's evolutionary model of normal and abnormal personality: Theory and measures. In S. Strack & M. Lorr (Eds.), *Differentiating normal and abnormal personality* (pp. 79–113). New York: Springer.

Millon, T., Green, C., & Meagher, R. B. (1982a). *Millon Adolescent Personality Inventory manual.* Minneapolis, MN: National Computer Systems.

Millon, T., Green, C., & Meagher, R. B. (1982b). *Millon Behavioral Health Inventory manual.* Minneapolis, MN: National Computer Systems.

Pincus, A. L., & Wiggins, J. S. (1990). Interpersonal problems and conceptions of personality disorders. *Journal of Personality Disorders, 4,* 342–352.

Retzlaff, P. D., & Gibertini, M. (1987). Factor structure of the MCMI basic personality scales and common-item artifact. *Journal of Personality Assessment, 51,* 588–594.

Strack, S. (1987). Development and validation of an adjective check list to assess the Millon personality types in a normal population. *Journal of Personality Assessment, 51,* 572–587.

Strack, S. (1991a). Factor analysis of MCMI–II and PACL basic personality scales in a college sample. *Journal of Personality Assessment, 57,* 345–355.

Strack, S. (1991b). *Manual for the Personality Adjective Check List (PACL)* (rev. ed.). South Pasadena, CA: 21st Century Assessment.

Strack, S. (1992). Profile clusters for men and women on the Personality Adjective Check List. *Journal of Personality Assessment, 59,* 204–217.

Strack, S. (1993). Measuring Millon's personality styles in normal adults. In R. J. Craig (Ed.), *The Millon Clinical Multiaxial Inventory: A clinical research information synthesis* (pp. 253–278). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Strack, S. (1994). Relating Millon's basic personality styles and Holland's occupational types. *Journal of Vocational Behavior, 45,* 41–54.

Strack, S. (1997). The PACL: Gauging normal personality styles. In T. Millon (Ed.), *The Millon inventories: Clinical and personality assessment* (pp. 477–497). New York: Guilford.

Strack, S., & Guevara, L. F. (in press). Relating PACL measures of Millon's basic personality styles and MMPI–2 scales in patient and normal samples. *Journal of Clinical Psychology.*

Strack, S., & Lorr, M. (1990a). Item factor structure of the Personality Adjective Check List (PACL). *Journal of Personality Assessment, 55,* 86–94.
Strack, S., & Lorr, M. (1990b). Three approaches to interpersonal behavior and their common factors. *Journal of Personality Assessment, 54,* 782–790.
Strack, S., & Lorr, M. (Eds.). (1994). *Differentiating normal and abnormal personality.* New York: Springer.
Strack, S., & Lorr, M. (1997). Invited essay: The challenge of differentiating normal and abnormal personality. *Journal of Personality Disorders, 11,* 105–122.
Strack, S., Lorr, M., & Campbell, L. (1990). An evaluation of Millon's circular model of personality disorders. *Journal of Personality Disorders, 4,* 353–361.
Strack, S., Lorr, M., Campbell, L., & Lamnin, A. (1992). Personality and clinical syndrome factors of MCMI–II scales. *Journal of Personality Disorders, 6,* 40–52.
Weiss, L. G. (1997). The MIPS: Gauging the dimensions of normality. In T. Millon (Ed.), *The Millon inventories: Clinical and personality assessment* (pp. 498–522). New York: Guilford.
Wiggins, J. S., & Pincus, A. L. (1989). Conceptions of personality disorders and dimensions of personality. *Psychological Assessment, 1,* 305–316.

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CHAPTER
3

Personality Theories

Personality in Terms of Trait and Type

In our day-to-day attempts to denote stable human qualities we have available an extensive trait vocabulary. For example, we describe a person as lazy, ambitious, melancholy, happy, aggressive, or dependent. In a study of trait names in the English language, Allport and Odbert (1936) found nearly 18,000 terms used to describe human characteristics. The systematic use of such descriptive terms is one of the commonest ways of talking about personality and identifies the trait approach.

Persons can also be classified into types by their pattern of traits. For example, a person who has the traits of being impressed by the objective facts of the world, behaving according to expediency, accommodating readily to new situations, and being relatively indifferent to his physical welfare can be called an *extrovert*. In contrast a person who is oriented subjectively rather than objectively, whose conduct is governed by absolute standards and principles instead of expediency, who is relatively inflexible and lacks adaptability, and who is overattentive with respect to his physical well-being can be classified as an *introvert*. This dichotomous division of persons into extroverts and introverts is based on Jung's theory of types and is one of many such classification schemes found in the psychology of personality.

The trait and type approaches to personality are logically related. The first part of this chapter is concerned with the concept of trait; personality typology will be developed later.

THE TRAIT APPROACH

As pointed out in Chapter 2, the essence of a science of personality is the consistency or stability of the person. To say that a person has a particular trait implies such consistency. If the trait applies in one particular situation but not in any other, it has no generality and is not a useful way to describe the person. If we say that Jack is belligerent, we

mean not that Jack is belligerent at one particular moment or situation but rather that Jack behaves belligerently under a wide variety of circumstances. Thus, a trait involves consistent patterns of reaction that are typical of the person.

In Chapter 2 it was noted also that consistency could be considered at several levels of analysis: consistency of acts, consistency of expression or style, and consistency of the underlying structure of personality identified by inferences from behavior. In the same way, traits can refer to consistent patterns of action, expression, or underlying, depth characteristics of the personality. For example, we say that a man has the trait of honesty, meaning that he is consistently honest from situation to situation. Similarly, from the point of view of expressive qualities, we can describe a person's tempo of action as rapid or slow. This too can be regarded as a trait. Lastly, when we say that a man is ambitious for power, we are making an inference about an underlying motivational construct, a trait that directs his actions from circumstance to circumstance, even though the acts themselves appear inconsistent. Thus, in one situation he might behave obsequiously to someone in authority, and in another he might mercilessly and publicly attack authority figures. These superficially diverse reactions can reflect an underlying ambition to be powerful, which the individual tries to accomplish in different ways depending upon the circumstances. Although the behavior itself seems inconsistent, the enduring motive trait of ambition for power is stable and postulating it helps us relate these diverse action patterns. A variety of situations and a variety of responses on the part of the individual have been made equivalent by the inference that some underlying trait has determined them.

There is a very practical reason for speaking of personality in terms of traits apart from the reason of understanding behavior. It has to do with the problem of anticipating or predicting what an individual may do in the future on the basis of what we know about him in the past. Such predictions are a rather important part of our everyday social behavior, although this is not always apparent to us. For example, we depend upon the stability of the social world in which we live—so when we return home after a day's work we will find our family acting in a predictable manner toward us. We expect our mother and father to behave in certain accustomed ways. We expect our teachers to continue their lectures in the direction in which they started and on the appropriate topic. Imagine what a world it would be if we could not in some rough degree anticipate the behavior of the persons closest to us and that of our associates with whom we work or play. The fact that they have stable personality traits makes this predictability possible.

How Traits Are Discovered

The discovery of traits is a relatively simple matter when we are considering the superficial level of acts or expression and much more difficult when we are dealing with the underlying structures (theoretical) that are the sources of action. Let us consider, for example, the surface trait of shyness. The behavior of the shy person is characterized by reticence with strangers, and the term "shyness" simply identifies this kind of behavior. If we are observing the person's behavior in one particular social situation, we may note that he acts shyly. At this point, however, it would be dangerous to generalize that shyness in social situations characterizes his behavior. Perhaps some particular factor in this social situation (such as the presence of a parent or some specifically embarrassing relationship with one of the persons involved) is constraining the person to behave reticently. It is therefore necessary to observe the same person in other social situations. If it turns out that under numerous stimulus conditions he displays shy behavior, we have good reason to attribute to him the trait of shyness. We have, in a sense, eliminated or reduced in importance the external-stimulus variable as the determinant of his behavior because we see the same reactions occur under a variety of circumstances.

The identification of the underlying sources of behavior can be accomplished in a similar fashion with one added step, the logical process of inference about what factors might be responsible for the observable patterns of behavior under different circumstances. Suppose that we find that several surface characteristics seem to go together (be positively correlated) in persons under a variety of circumstances. These characteristics might be a large vocabulary, ability in arithmetic, and tactfulness in social situations, to illustrate from Cattell (1950), a prominent trait theorist. This is a broad surface trait including three patterns of behavior that go together under varying conditions. The question now arises: What are the underlying sources that determine the presence of this surface trait? One possibility is that general intellectual capacity is involved in all three of these action patterns. That is, vocabulary size, arithmetical ability, and tactfulness all depend upon intelligence. All three characteristics spring from a single root. Thus, by inference, we say that the underlying source of these surface characteristics (which together form a broad trait) might be general intelligence. This theoretical reasoning can be checked by seeing whether independent tests of intelligence predict the three characteristics. The inference cannot be tested directly, because it is based upon theoretical speculation about an unseen construct: intellectual capacity. The step of going from surface-

level traits (behavioral) to underlying or depth traits (hypothetical constructs) is a theoretical one.

Trait Dimensions

There are a number of dimensions along which traits can be classified. These dimensions have to do with different kinds of traits that writers have postulated for the adequate description of personality. They include such distinctions as common versus unique traits, surface versus underlying traits, broad versus narrow traits, and whether the content of the trait involves abilities, motivational and control processes, or expressive or temperamental qualities. These distinctions will be discussed more fully.

Common versus unique traits: Some traits are found widely distributed through the population or among certain groups. Therefore, we can speak of traits that an individual shares with others. Trait terms like honesty and aggressiveness are used by society to evaluate the behavior of persons in general and are sometimes called *common traits.* A particular person may be the most aggressive or most honest individual in his group, and this relative position may be consistent in a wide variety of situations. The trait terms aggressiveness or honesty can be applied along a scale of degrees to all individuals or groups.

In contrast, we can talk about individual or *unique traits,* referring to patterns of behavior or characteristics of personality that have no interpersonal reference but apply only to a single person. Frequently, the common trait terms are not useful for describing certain consistent attributes of a particular individual that are not shared in any degree by others. The consistencies from which the unique trait is inferred are intraindividual rather than interindividual. That is, the person behaves in a particular manner or has some characteristic that is unique to him and characterizes him much of the time. Allport (1937), in his important book on personality, has argued for a sharp distinction between common and unique traits, focusing on the uniqueness of the individual.

An interesting problem arises with unique traits because we cannot think of terms that are recognizable to others to describe such traits. If they are unique to a single person, they represent a way in which he is different from all others. Thus, such a term would not be applicable to anyone else. In other words, terms like honesty, aggressiveness, submissiveness, dependency, and pessimism all have interpersonal reference and are common traits. If we speak of an individual as aggressive, this aggressiveness is compared with the degree of aggressiveness of other persons as well. It is easy to describe persons in terms that have interindividual implications, even though such terms tend to force everyone into a common mold. Although we can recognize abstractly that each

individual has combinations of characteristics unique to him and unlike any other, it is difficult to apply this distinction in practice because a different set of terms would be required for each individual and we could not relate the terms used for one person to the terms used for another. For this reason trait descriptions in practice generally depend upon some common social reference; that is, the traits apply more or less to everyone.

Surface versus depth traits: Most writers about traits have recognized a further distinction with respect to trait dimensions, one that should be readily understandable in the context of the previous discussion of theory construction and consistency of underlying personality structure. Traits considered at the behavioral or action level are called *surface traits* as opposed to underlying or *depth traits* (constructs). In the illustration used previously in this chapter, size of vocabulary, arithmetical ability, and tactfulness in social situations might be considered as surface traits because they describe behaviors that are directly observable. Tactfulness is a disposition to perform certain acts in social situations that are interpreted as tactful; similarly, size of vocabulary and score on an arithmetic test are directly derived from behavioral responses. On the other hand, the underlying sources or structures that determine these behavior characteristics must be inferred rather than directly measured. General intellectual capacity in the earlier illustration is a substance trait accounting for the observed surface manifestations.

Writers have used a variety of terms to make the same distinction between surface and depth traits. Cattell (1950), for example, referred to "surface" and "source" traits. Allport borrowed the terms "genotypical" and "phenotypical" from Lewin, who took them from the field of genetics and applied them by analogy to the surface-depth dimension. Allport presented the distinction with great clarity, as follows (1937, pp. 324–325):

> It is obvious that what seems to be the *same* trait may, in different people, have quite diverse origins. Shyness in one person, for example, may be due to hereditary influences that no amount of contrary pressure from the environment has been able to offset; in another person, shyness may stem from an inferiority feeling built by an abnormally exacting environment. In spite of dissimilar histories, in appearance and in effect, the shyness of these two persons may be very much alike. Conversely, two youths suffering some shocking experience of grief or bitter disappointment, objectively alike, may be affected very differently. One of them becomes morose and ineffectual, lost in his trouble; the other stiffens his back and becomes more realistic and aggressive. The same fire that melts the butter, hardens the egg.
>
> Lewin has shown this general problem of appearance versus underlying cause to be of considerable importance in the investigation of personality.

Description in terms of here-and-now attributes are phenotypical; explanatory accounts, seeking underlying motives and stresses are genotypical.

Broad versus narrow traits: Another dimension along which traits can be considered has to do with the number of types of behavior that can be considered under a particular trait term. For example, in Cattell's system of classifying traits the smallest behavior fragments or narrow traits are called *trait elements.* Cattell wrote: "The dictionary gives the trait of 'manual dexterity'; but this could be split into 'dexterity in shuffling cards,' 'dexterity with a screwdriver,' and so on." In other words, many trait elements make up broad or general traits like manual dexterity, which can include a wide variety of specific acts (namely, dexterity in shuffling cards, etc.). Each of these specific acts could be considered a minor trait. However, these individual behaviors tend to cluster together to form a relatively large constellation of acts, which is classified as a *broad trait.*

It would be an endless and impractical task to try to describe personality in terms of the thousands of narrow traits that can be identified. It is more economical to look for groups or clusters of traits that ordinarily go together. There is clinical and statistical evidence to show that persons who are dominant in their relationships with others tend also to be assertive, egotistic, tough, vindictive, and hardhearted. Thus, trait elements or narrow traits are grouped together in such a way that specific behavior patterns can be organized under a single, more general heading of a broad trait.

Dynamic, stylistic, and ability traits: This consideration of trait dimensions emphasized formal characteristics of traits, that is, their scope or breadth, their surface or substance characteristics, and the extent to which a trait is common or unique. Traits can also be classified by content, that is, the kind of behavioral characteristic to which they apply. For example, Cattell (1950) identified three rough modes for source traits. He spoke of *ability traits* such as general intelligence, which concern "how well the person makes his way to the accepted goals." *Dynamic traits* primarily concern enduring or stable motivational patterns and regulative or controlling characteristics of the personality. *Temperament traits* have to do with the style or manner in which an individual functions within the context of his capacities and motivations. Temperament traits in Cattell's system are largely constitutional in nature and include speed or tempo, energy, and emotional reactivity.

Many writers have objected to this inclusion of dynamic as well as stylistic characteristics under the concept of trait. For example, McClelland (1951) reserved the term "trait" to apply to characteristics that are essentially stylistic, and he used the separate term "motive" to apply

to the forces that power behavior. Thus, whereas Allport and Cattell are willing to speak of motive traits, McClelland speaks of traits and motives separately. For present purposes, this is a terminological distinction rather than one of any important functional significance.

Organization of Traits

As pointed out earlier, it is economical to group trait characteristics on the basis of those qualities that tend to go together in the same individual. It is possible by such grouping to reduce them to a practicable number, which can be managed readily and used for the description of personality. The nearly 18,000 trait names found in the English language include many duplications and many characteristics that, although related to separate behavior patterns, tend to be found together. Thus, being an outgoing person in social situations tends to be associated with being good-natured and adaptable; these three separately described traits can be organized into a single trait, which can then be given a name that refers to the characteristics included.

One of the recently developed statistical methods used to identify patterns of traits that go together is *factor analysis*. Factor analysis has a mathematical basis that need not concern us here. However, it is a statistical variant of a logical method for studying the organization of traits and can be readily understood as such.

Factor analysis depends upon the concept of *correlation*. Two traits can vary together so that a person who has a high degree of one is likely to have a high degree of the other as well. This going-togetherness of two characteristics represents a positive relationship or correlation. In a previous illustration arithmetical ability and size of vocabulary were positively correlated, meaning that, if a person has a large vocabulary, he is also likely to be good in arithmetic. The extent to which these two traits are related or correlated can be expressed quantitatively by the mathematical term "coefficient of correlation."

If the relationships between a number of traits were studied, it might be found that five traits are all positively correlated with each other, and four other traits are not correlated with any of the first five but are, in turn, correlated with each other. The five correlated traits have something in common, as do the four traits. Some more basic factor underlies the five correlated traits, but this factor is not found in the four correlated traits, which are themselves unified by some different underlying factor. Through studying such patterns of correlation, by factor analysis one can determine how many factors are needed to explain the pattern of relationships found between a large number of traits. Thus, in any factor analysis a large and unwieldy number of traits can be reduced to a relatively small and manageable number of basic factors, which are

Table 5

CATTELL'S FORMULATION OF PRIMARY TRAITS OF PERSONALITY*

I. Cyclothymia	vs.	Schizothymia
Outgoing		Withdrawn
Good-natured		Embittered
Adaptable		Inflexible
II. Intelligence	vs.	Mental defect
Intelligent		Stupid
Painstaking		Slipshod
Deliberate		Impulsive
III. Emotionally mature	vs.	Demoralized
Realistic		Evasive
Stable		Changeable
Calm		Excitable
IV. Dominance	vs.	Submissiveness
Assertive		Modest
Headstrong		Gentle
Tough		Introspective
V. Surgency	vs.	Melancholy
Cheerful		Unhappy
Placid		Worrying
Sociable		Aloof
VI. Sensitive	vs.	Tough poise
Idealistic		Cynical
Imaginative		Habit-bound
Grateful		Thankless
VII. Trained, socialized	vs.	Boorish
Thoughtful		Unreflective
Sophisticated		Simple
Conscientious		Indolent
VIII. Positive integration	vs.	Immature, dependent
Mature		Irresponsible
Persevering		Quitting
Loyal		Fickle
IX. Charitable, adventurous	vs.	Obstructive, withdrawn
Cooperative		Obstructive
Genial		Cold-hearted
Frank		Secretive
X. Neurasthenia	vs.	Vigorous character
Incoherent		Strong-willed
Meek		Assertive
Unrealistic		Practical
XI. Hypersensitive	vs.	Frustration tolerance
Demanding		Adjusting
Restless		Calm

Table 5 (*Continued*)

	Self-pitying	Self-effacing
XII.	Surgent cyclothymia vs.	Paranoia
	Enthusiastic	Frustrated
	Friendly	Hostile
	Trustful	Suspicious

* Each trait is defined by a pair of opposed qualities, with descriptive words to clarify the meaning.
SOURCE: Cattell, 1946, pp. 313–316.

independent of each other and which underlie the relationships found among the large number of traits.

The factor-analysis method in the study of personality traits can be illustrated with a study by Cattell (1946), who is one of the scientists responsible for the development of factor analysis of personality. Originally, Cattell began with a list of 4,000 trait names. He was able to reduce this list to 171 by eliminating qualities that overlapped (duplicated terms) or were extremely rare. By means of preliminary correlation, he further reduced the list to 35 clusters of traits, which accounted for most of the variation found in the 171 and which represented pairs of opposed qualities such as sociable-seclusive. A sample of 208 adult men were rated on each of the traits included. Correlations were obtained among the traits and the underlying factors were isolated. Included in the study also were data from personality questionnaires, from objective tests, and from clinical case studies. Twelve basic factors were identified by Cattell, which are presented in Table 5. These factors represent primary traits, which can be described along a dimension that includes the extremes of a scale of measurement from one end of the factor to the other. For example, factor 2 is intelligence–mental defect. A person can be rated on a scale of high intelligence to low intelligence or mental defect, as in the case of any other of the twelve dimensions or primary traits of personality. Under each end of the continuum of each factor are a number of adjectives that illustrate the meaning of the factor suggested by Cattell.

There are a number of limitations to the factor-analysis approach to the study of personality. For one thing, the nature of the factors derived from such studies depends upon the types of tests or behavioral data that are sampled in the population being studied. Questionnaires, for example, or the observations derived from short samples of the behavior offer rather restricted views of the personality being studied. There are likely to be many characteristics of great importance in personality organization that do not appear in such samples. Therefore, important traits can be overlooked.

Another defect is that a factor analysis, which produces a number of independent factors or primary traits of personality, does not answer the

important question of how these traits are organized within the personality. For example, a person who is hypersensitive and intelligent will be a very different kind of person from one who is hypersensitive and intellectually dull. There is a tendency, in this type of approach to personality, to treat personality as a collection of independent traits that have no relationship to each other, thus fragmenting the human being into a number of isolated attributes and ignoring the integrity and organization of the whole.

However, the use of factor analysis does represent an objective systematic approach to the assessment of traits and their relationship and has great usefulness in reducing the tremendous overlapping among the many trait names we use commonly in the description of personality.

Trait Generality

The psychologist who attempts to describe personality in terms of traits confronts an especially interesting problem—the generality of traits. If behavior were determined entirely by internal dispositions or structures (the extreme of generality), then a knowledge of them would enable us to predict behavior regardless of what type of situation a person was in. If behavior was highly specific to the situation, then a trait approach would have little value in predicting behavior. Let us consider more fully and concretely what this really means.

For many years psychologists have been interested in how persons protect themselves against threatening experiences. One of the fundamental constructs that has been developed is the defense mechanism. An individual acquires certain methods (defenses) of dealing with threats to his self-esteem or integrity. They deceive him (and perhaps others) about the true nature of motives that, if expressed or gratified, would produce disturbing emotional states. One defense mechanism, first postulated by Freud, is called *repression*. Repression is the process of keeping out of consciousness the dangerous or unacceptable impulses. An individual with hostile impulses can repress them. He is then unaware of their existence and is to some degree protected from the anticipated threatening consequences of having them.

Now the question arises: To what extent is the tendency to repress threatening impulses a consistent trait characteristic of particular persons? Can we say, for example, that some persons tend usually or habitually to use the mechanism of repression whenever threatening impulses arise? Or does the use of the mechanism depend heavily upon particular circumstances, such as the nature and degree of the threat?

If we took the extreme trait-generality position, we might argue that any threatening impulses will be repressed by an individual. In contrast, we could maintain that the mechanism of repression will only be evoked

when certain particular impulses are aroused or when the conditions involved are favorable to the defense mechanism of repression.

If the former position were sound, the identification of the trait or disposition to repress would be tremendously useful, because one could expect that, with any kind of threat, an individual would repress. We would be in a very favorable position to predict behavior that is a consequence of repression. If the latter position were adopted, we could only predict relevant behavior if we could specify precisely a number of specific stimulus conditions. For example, repression might be evoked only when the stimulus conditions aroused sexual impulses but not when the external conditions stimulated hostile feelings. The greater the generality of any trait, the more readily can we infer it from a limited sample of behavior and the more readily can we use it to predict behavior in a wide variety of circumstances.

Let us consider one additional example of this problem of degree of generality of a trait. Some persons have very strong motivation to achieve, and others have relatively weak tendencies to strive for achievement. The former are characterized by the ever-present desire to excel in their performance against some standard of excellence. In college, for example, they study more than persons with low achievement motivation, and their aspirations with respect to college grades and future careers are consistently high. Now the question might be asked at this point: How general is such achievement motivation? Does the desire to excel against some standard apply to any type of task that we give such persons to perform, or is it limited to only certain types of performances and certain types of situations? Does the person whose efforts are greatly mobilized by comparison with others in the area of mathematics or chemistry become equally involved when we compare him with others in, say, musical or artistic appreciation, or is the achievement motive restricted to achievement in certain fields?

The answers to these questions require more systematic research than is available. However, a number of observations from research literature as well as from common sense suggest that, for most persons, an in-between position is most reasonable. There may be some rare persons who are challenged by any comparison or competition with others. There may also be those who will not strive for achievement in any situation. Most of us, however, have achievement motives that are applicable over certain broad classes of situations—situations that have something in common—and we do not blindly strive to achieve in every context.

Neither extreme position, arguing for generality or specificity of traits, is totally sound. It is necessary to study what classes of situations are appropriate to the particular trait characteristics. A trait approach to the description of personality that emphasizes only enduring character-

istics within the person and ignores the limiting external conditions can only go part of the way in permitting us to predict behavior. Its success must then depend upon the generality of the traits abstracted, and, except for the rare individual, it must be in error a large part of the time.

Sometimes, in individual cases, we can identify a trait so broad, so central in importance, and so general in scope that we speak of a consistent *style of life* that characterizes the person. For example, we may find a person whose interpersonal relations are characterized by a passive-dependent attitude. In most social contexts he tends to place himself in such a position that the initiative for action comes from others. He usually takes the role of the dependent person who requires support from others. Having inferred the existence of such a trait by observing some of his interpersonal relations (say, with respect to his employer or immediate supervisor), we will have expectations about other relationships into which he enters, for example, marriage. We expect him to choose a wife who is dominant and aggressive and to establish a relationship with her that might be characterized as passive-dependent.

Although such characterizations of life style are often useful, they are gross oversimplifications in most cases. They overlook the variations in pattern of behavior that are dependent upon particular external stimulus conditions. For example, no matter how passive-dependent an individual might be, he will meet other persons who cannot be forced into a role compatible with his passive-dependent characteristics. The trait approaches have their advantage in a certain amount of simplicity. However, this is their great disadvantage, because behavior is rarely determined by trait characteristics alone.

THE TYPE APPROACH

Traits or combinations of traits can be so broad in scope that they are often referred to as *types*. Because persons have certain very broad traits in common with many others, they are identified as belonging to the same type. For example, we can say that a particular person is seclusive, socially uncomfortable, and shy, thus describing him in terms of a number of traits. We can observe, however, that persons who are seclusive are usually quiet, socially uncomfortable, and shy. These characteristics seem to go together. Persons who have all these characteristics might be called "introverts." They are members of the same class of persons, because they share the same pattern of traits. They belong to the introvert type.

When we shift from a trait-oriented description of personality to a type-oriented one, there is a subtle qualitative change in our form of

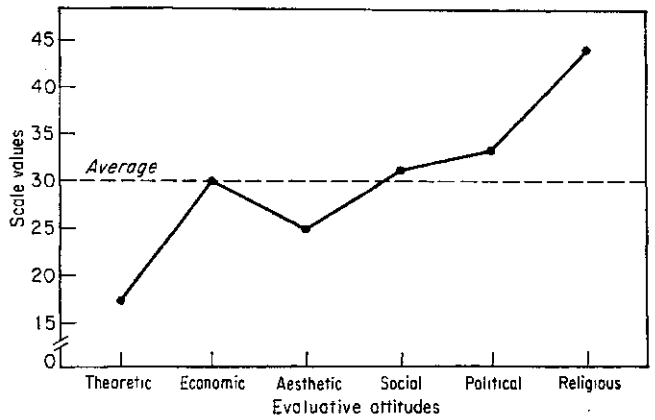

Figure 6. Profile of the evaluative attitudes of Jonathan Swift. (*From Ferguson*, 1952.)

thinking. In the case of trait descriptions, the mode of thought is analogous to a psychogram. A psychogram involves positioning an individual in relation to others on the basis of a series of trait dimensions. That is, he has a great amount of some traits and very little of others. This patterning of traits for an individual is a representation of his personality.

An example of such a psychogram is found in Ferguson (1952) and shows a hypothetical profile of values for the satirist Jonathan Swift. Using the values found in Vernon and Allport's *A Study of Values* (1931), the trait pattern of the famous writer, based upon his writings and available biographical data, was estimated. This pattern or psychogram provides a picture of Swift's values (traits) and is presented in Figure 6.

When we are dealing with typologies, on the other hand, the psychogram model is abandoned in favor of a broad classification or pigeonholing scheme in which, on the basis of the patterning of traits, a person is placed in one of several categories. He is considered to share the pattern of traits with a large class of others. The description is simplified by the use of a few categories, e.g., extrovert or introvert. Persons who have a pattern of traits in common are described as belonging to a particular type classification. The logic of trait descriptions and type classifications is closely related, but the form of representation of the information is somewhat different.

Examples of Psychological Typologies

Because typologies are simple means of classifying persons, they have a long history and a tradition that flourishes even at the present time. It

will be useful at this point to illustrate psychological typing with some of the classical and current typologies.

Typologies of some sort have existed since ancient times and are found in the writings of the Greeks. Theophrastus, who lived at the same time as Aristotle, did a remarkably effective job of describing thirty personality types. But the best known of the ancient personality typologies was set forth by Hippocrates in the fifth century B.C. and dealt primarily with the emotional aspects of personality. In that era the body was thought to contain four fluids or humors: yellow bile, black bile, phlegm, and blood. Hippocrates theorized that these humors determined the fundamental personality characteristics of the person, depending upon which of them predominated. If yellow bile (or *choler*) predominated, an individual would show a *choleric* temperament, characterized by irascibility. If black bile predominated (*melas* and *choler*), an individual would be *melancholy*. Such a person was characterized by a depressed, slow, and pessimistic outlook on life. If phlegm (referring to mucus) predominated, an individual was called *phlegmatic* and was temperamentally sluggish and apathetic. Finally, the predominance of blood (*sanguis*) would make an individual *sanguine*, or cheerful, hopeful, active, and quick. Hippocrates believed that the normal personality resulted from a balance of all these humors.

Hippocrates's concept of personality types has had a considerable influence over many centuries, although the specific typology he espoused is no longer maintained. Typologies, even if implicit, are readily noted in literature. Perhaps one of the most frequently cited is from Shakespeare's *Julius Caesar*. Caesar expresses suspiciousness of Cassius by pointing out that Cassius has a lean and hungry look and stating that such men think too much and are dangerous. In his remarks, Caesar indicates his preference for men in his command who are fat. They are presumably more affable and open. Also in Shakespeare's *Henry IV*, the character Falstaff is presented as fat and jovial, reflecting the popular notion, which still exists, that stout persons are generally good-natured and thin persons are introverted, serious, and of poor disposition.

A huge variety of psychological types have been proposed by writers throughout the ages and even by current psychologists. We cannot possibly elaborate all these typologies here. Most of those mentioned subsequently can be found in Table 6 presented later. To mention some, William James (1890), the great philosopher-psychologist, spoke of the rationalist and empiricist types: the *rationalist* is tender-minded, guided by general principles and abstract ideas and tending to be idealistic and religious; the *empiricist* is tough-minded, a practical person who is influenced primarily by realistic considerations and expediency. Kraepelin (1907) distinguished between the manic-depressive and dementia-praecox

(or schizophrenic) types and developed a classification system or typology for mental illness. Rosanoff (1938) described three types of personalities: the *antisocial,* characterized by criminal tendencies and pathological lying; the *cyclothymic,* showing fluctuations of mood and emotional instability (similar to the manic-depressive described by Kraepelin); and the *schizoid* (like Kraepelin's dementia-praecox), manifesting a separation of intellect from emotional activity, withdrawal from social contacts, and a chaotic and disturbed sexual adjustment. The German philosopher Spranger (1928) propounded a typology in which persons were divided into six fundamental attitudes or dominant value orientations: theoretical, economic, aesthetic, social, political, and religious. In more recent years, Allport, Vernon, and Lindzey (1951) have adapted Spranger's six value types in developing a useful test of personality called the "Study of Values."

Some psychological typologies have had greater influence on current thought than others. Among these are the typological systems of Jung and Freud, which are presented in some detail below.

Jung's Typology

In the early part of his career, Jung was a close follower of Freud, with whom he later disagreed, developing his own conceptual system for viewing personality. The theory of psychological types proposed by Jung (1922) is one of the best known and most influential psychological typologies among both lay persons and professional workers.

Jung identified two broad organizations of psychological traits: the *extrovert,* whose primary orientation is toward the external world, and the *introvert,* whose orientation centers on himself and his subjective world. Jung further argued that these external and internal orientations could also be divided into rational processes, which emphasize the examination or verification of experiences by logical analysis, and irrational processes, which are determined largely by chance, accidental perceptions, or illogical associations. The rational processes are further divided into two subfunctions, thinking and feeling. The irrational processes can be divided into the functions of sensation and intuition. The rational processes, thinking and feeling, are characterized by reasoning and judgment, whereas the irrational processes, sensation and intuition, are characterized by intensity of perceptions. Thus, each of the two broad types, extrovert and introvert, is organized around the four subfeatures of thinking, feeling, sensation, and intuition.

From Jung's point of view, one of the four subprocesses can be particularly differentiated or well developed in a person and play a dominant role in his adjustment or orientation to life. Eight special classes of personality can be derived from this analysis: the extroverted thinker, the

extroverted feeling type, the extroverted sensation type, and the extroverted intuition type, and the same subcategories applied to the introvert class. Thus, although Jung is most remembered for what might be called a "dichotomous typology," that is, a twofold classification of extrovert-introvert, his system of classification is really an eightfold one and somewhat more complicated than is typically realized.

The *extroverted thinker* is largely oriented to facts and logical classification, with the emphasis upon the actual construction of reality and the tendency to check logical analysis against the external objective facts. He is somewhat like James's empiricist. The *introverted thinker*, on the other hand, who is also rationally oriented, is characterized by a more theoretical bent and is more concerned with his own subjective organization of the world of ideas. Because he is introverted and subjectively oriented, he is likely to be impractical and rather indifferent to such external things as his appearance and the attitudes of persons around him. This type appears like James's rationalist. The *extroverted feeling type* is oriented toward establishing harmony with the outside world and developing close sympathetic relationships with others, and the *introverted feeling type* is chiefly concerned with his internal harmony, frequently preoccupied with his own dreams and feelings. The *sensation types, both extroverted and introverted,* are principally influenced by pleasure and pain, either externally or interpersonally oriented, as in the case of the extrovert, or internally and subjectively, as in the case of the introvert. The *intuitive types* are affected predominantly by hunches, speculation, and judgments for which no rational or observable basis can be indicated. The intuitive types can also be extroverted or introverted.

Further complicating Jung's eightfold classification is his notion that an individual can be extroverted for one function, say, thinking, but introverted for another, say, sensation. Moreover, an individual can be consciously oriented in the extroverted direction but unconsciously introverted, or vice versa. In other words, a person can believe that he is oriented to interpersonal relations but have a fundamentally introversive personality. Such a discrepancy can plunge an individual into conflict.

Jung seemed to take the view that all persons clearly belonged to one or another of the eight personality subtypes and that the influences determining such membership in a type were largely biological in nature, although these biological tendencies could be somewhat modified by experience. That is, he would expect persons to be distributed predominantly in one of the two poles of the typology, extrovert or introvert. Most modern writers, however, maintain that traits are better viewed as continuously distributed and that most persons probably lie between the two extremes, showing features of both. The term *ambivert* has

often been used to refer to persons who could be classified as neither extroverts nor introverts.

Freud's Psychoanalytic Typology

Freud is not usually identified as a personality typologist. Actually, however, in developing his theory of psychosexual development (the elements of which are described in Chapter 6), Freud (1932, 1949) identified three fundamental types of personalities. The type depends on the stage of psychosexual development an individual has reached or upon which a great deal of sexual energy has been fixated. These types are called the "oral-erotic type," the "anal-erotic type," and the "phallic type." If an individual functions primarily at the oral, anal, or phallic levels, respectively, then certain appropriate characteristics can be observed in his behavior.

The *oral* stage of development was considered by Freud to be the infant's first organized form of sexual gratification and involved activity related to the mouth. Oral-erotic persons show an exaggerated degree of erotic pleasures associated with oral activity. During the first part of the oral stage a more passive type of activity is found, characterized behaviorally by sucking. Later, oral activity can shift toward an emphasis on biting. The *oral-passive type* (linked to the sucking period of the oral stage) is identified as a dependent, optimistic, immature person, expecting nourishment from the world and wishing to continue (like an infant) being cared for by his parents or by parent substitutes. His adjustment to the world as an adult is still characterized by the passive, sucking type of orientation, in which he receives his nourishment from some protective figure. The *oral-sadistic type* has reached the level of biting and chewing, and his basic outlook, though like the oral-passive type in seeking sustenance and support from others, is pessimistic about receiving it and suspicious that he will be thwarted in this need. His manner is often sarcastic or bitter, an attitude that is illustrated in the common English metaphor "biting speech," with which this type of person tends to attack others.

The *anal type* is a personality pattern at the stage of development in which a person obtains primary gratification through anal activities. These activities have to do with the expulsion of fecal material through the anus or the retention of these materials in response to the social demands of toilet training. Freud observed that a variety of traits of anal origin seemed to go together and fit into a type, which he called the "anal or obsessional character." These traits included orderliness, parsimony and even miserliness, and obstinacy. The adult of the anal-erotic type is one who is still seeking (often symbolically) the kind of gratification that he

Table 6

EXAMPLES OF FAMOUS PSYCHOLOGICAL TYPOLOGIES

Author	*Types*		*Central psychological characteristics*
Hippocrates	Choleric (yellow bile)		Irascibility
	Melancholy (black bile)		Depressed, slow, pessimistic
	Phlegmatic (mucus)		Sluggish, apathetic
	Sanguine (blood)		Cheerful, hopeful, active, quick
James	Empiricist		Practical, realistic, tough-minded
	Rationalist		Abstract and theoretical, tender-minded
Kraepelin	Manic-depressive		Swings of mood, outgoing
	Dementia praecox		Withdrawn, intellectually oriented, introspective
Rosanoff	Antisocial		Criminal tendencies, pathological lying
	Cyclothymic		Mood fluctuations, emotional instability
	Schizoid		Separation of intellect from emotions, withdrawal, chaotic and disturbed sexual adjustment
Spranger	Theoretical		Concerned with abstract principles, concepts
	Economic		Oriented toward material things, money
	Aesthetic		Oriented toward beauty, aesthetic experience
	Social		Concerned with interpersonal relations
	Political		Oriented toward power, laws, government, control
	Religious		Concerned with god, prayer, religious experience
Jung	Extrovert		Generally oriented toward external world
	Rational	Thinking	Concerned with facts, logical classification, practical reality
		Feeling	Desire for harmony with world, warm relations with others
	Irrational	Sensation	Oriented toward social and physical sources of pleasure and pain, demands of others
		Intuition	Responsive to superstition, given to judging others on hunch, investing, gambling

Table 6 (*Continued*)

Author	*Types*		*Central psychological characteristics*
	Introvert		Generally oriented toward self and subjective matters
	Rational	Thinking	Theoretical, introspective about ideas, impractical
		Feeling	Desire for internal harmony, preoccupied with own dreams and feelings
	Irrational	Sensation	Oriented toward satisfying sensory experience
		Intuition	Given to introspection of a speculative nature, ritualistic and responsive to own feelings and moods
Freud	Oral erotic		
	Passive (sucking)		Seeking sustenance, dependent, optimistic, immature, trusting
	Sadistic (biting)		Seeking sustenance, pessimistic, suspicious, sarcastic
	Anal erotic		
	Expulsive		Outbursts of aggression, sloppiness, controls others by petulance (defecating on the world)
	Retentive		Obstinate, orderly, miserly, parsimonious
	Phallic		Exhibitionistic, bragging, overambitious, narcissistic
	Genital		Altruistic, harmonious, mature

required as a young child from the bowel function, including, for example, the special attention that came from the parent at toilet time, the praise or punishment that followed cleanliness, and the expressions of hostility toward the parents that sometimes occurred in the form of soiling his clothing. Because he has not fully progressed beyond this childhood level of development, there remains a residue of sexual energy that is still being discharged in adult life in an anal fashion.

The third period of psychosexual development is the phallic period, and it is possible to speak, in psychoanalytic terms, of the *phallic type*. At this stage of psychosexual development a person is struggling with the oedipal problem prior to the transition to a normal, adult sexual adjustment. To achieve this transition, the parent must be given up as the object of sexual love and a peer of the opposite sex must become the primary love object. Transition through this early phallic stage leads

finally to the highest psychosexual level—the genital level—which characterizes normal or ideal development. The phallic type has been less fully described by psychoanalytic writers than either the oral- or the anal-erotic types, but it is generally characterized as exhibitionistic, full of braggadocio, overambitious, and narcissistic or filled with self-love and adulation. These are typically the characteristics of the early adolescent. He seeks the center of attention and shows little tolerance for frustration. Should he advance beyond the phallic to the genital stage, much of the selfishness will be replaced by altruism and there will be a satisfactory balance of dependency-independence and ambition-restraint.

Freud did not argue that these types represented pure categories in which most persons could be necessarily placed but rather that there are usually present in the same individual features of the oral, anal, and phallic stages of development. The psychoanalytic types tend to reflect extremes in a normally distributed continuum, so an individual cannot be identified as an anal-erotic type unless there is a great exaggeration of the anal characteristics.

Evaluation of the Type Approach

Psychologists have often expressed criticism of the type approach to personality. The main criticism is that, as a classification system, a typology results in a great oversimplification of personality by forcing great varieties of behavior into a few limited categories. Most typologies use a relatively limited number of categories. There are dichotomous typologies, trichotomous typologies, and typologies that, like Jung's eightfold system, utilize a larger number of categories. If the number of categories used is small, much variation between persons is overlooked. If the number of categories is enlarged, the system can become unwieldy and one finds it necessary to refer to hundreds of characteristics in describing and classifying individuals. If one wished to have a classificatory scheme that included every possible variation, then the absurd level could be reached at which a type was postulated for every person in the universe because every person is unique in certain respects even though he shares much in common with others.

Any classification system is likely to be too coarse to do justice to all the variation in personality. The point was made in Chapter 2 that science requires classification, even though it overlooks minor variations in the individual specimen in the interests of having general descriptive principles. It is therefore not proper to criticize the type approach to personality on the basis of its being a simplifying classification system alone. Rather, the question should be: How useful is any particular classification scheme, and how may it be refined and made more effective in

description? When we talk about typologies in personality, we are introducing a scientific abstraction, a classification of persons to which any particular individual need not precisely conform. If our problem is the description of a particular individual, then a broad typology will be woefully inadequate. The factor analysts, such as Cattell (1950) and Eysenck (1947), are seriously trying to identify a limited number of basic factors or dimensions that are adequate to describe the basic variations found among different personalities.

Many of the typologies described are particularly useful when we are dealing with an exceptional individual who shows certain extremes in his behavior. For example, if the predominant mode of adjustment of a person involves social withdrawal, preoccupation with his own objective experience, and a disinterest in the social events about him, then we do well to describe him as an introvert because this label says a great deal about him. On the other hand, to the extent that most of us are mixtures of extroversion-introversion, such labels will not work because they require forcing an individual completely into one or another category when he belongs wholly in neither. This particular dimension of personality or typology is clearly insufficient for adequately characterizing large numbers of persons as individuals.

Typologies do serve one very important function that is often overlooked. They are reference points or guides for the examination of dimensions of personality. If we are asked to describe another person, we are all apt to have a wide variety of frames of reference of the kind of characteristics we will look for. Therefore, different persons will give different descriptions, all of which may have a certain validity but which focus on different personality dimensions. However, by reference to a particular kind of classificatory system, we can orient ourselves to any given person in terms of the relevant characteristics to consider. Typologies best serve as anchoring points from which we can examine any individual.

FURTHER CONSIDERATIONS OF TRAIT AND TYPE

It should be recognized also that when we speak of trait and type approaches to personality we are not referring to a specific theory of personality but to ways of looking at it. The notions of trait and type are formal in nature; that is, they do not specify what the traits are that characterize individuals, but merely suggest describing personality by traits or classifying it by types. Thus, two theorists can both employ a trait-and-type frame of reference but have essentially different theories as to what traits exist and how these traits are organized within the individual.

There is one other critical problem with the concepts of trait and type

that should be reemphasized here. The description of a human being in terms of certain traits and, in the broader sense, certain types leads us to examine stable attributes *within the person* and deemphasizes the role of *external circumstances* in the determination of behavior. So far as there exist patterns of behavior that are not stable or consistent or that fluctuate with the changing circumstances, a trait or type description is of limited help in predicting behavior. Examination of personal attributes enables us to make probability statements about what individuals may do, because such traits can be looked upon as tendencies or dispositions to act in certain ways. There are other frames of reference, in contrast with the trait-and-type approaches, that emphasize more heavily the external stimulus, or the interactions between personal attributes and the circumstances in which persons behave. The next chapter deals with a more stimulus-oriented frame of reference: association-learning theory.

how we decide to interact with another person rests on our deep-seated understanding of the nature of people, whether they are essentially animalistic as Freud would have it, motivated by learned behavior as Skinner would propose, or essentially motivated toward socially constructive behavior as Rogers would suggest. Thus, it is not possible to take the grand theories out of psychology, because at the most fundamental level, the practice of psychology is an inevitable expression of a philosophy of human nature, that is, whether one views people's problems in living from an illness ideology or some other conception (Joseph & Linley, 2006; Maddux, Snyder, & Lopez, 2004) and thus whether people seeking help are, for example, to be controlled, empowered, or educated. It is not possible to engage therapeutically with another person without that engagement being an expression of fundamental assumptions.

Thus, although models such as that of McAdams and Pals (2006) can provide useful ways in which to highlight the differences between the grand theorists, we believe that textbooks will always have to consider the grand theorists separately, simply because they are fundamentally incompatible, and ultimately, insofar as theories of personality are also theories of helping, one does have to choose one's favorite.

REFERENCES

Freud, S. (1927). *The ego and the id* (J. Riviere, Trans.). London: Hogarth Press. (Original work published 1923)

Fromm, E. (1973). *The anatomy of human destructiveness.* New York: Holt, Rinehart & Winston.

Joseph, S., & Linley, P. A. (2006). *Positive therapy: A meta-theoretical approach to positive psychology practice.* London: Routledge.

Maddux, J. E., Snyder, C. R., & Lopez, S. J. (2004). Toward a positive clinical psychology: Deconstructing the illness ideology and constructing an ideology of human strengths and potential. In P. A. Linley & S. Joseph (Eds.), *Positive psychology in practice* (pp. 320–334). Hoboken, NJ: Wiley.

Maslow, A. H. (1970). *Motivation and personality* (2nd ed.). New York: Harper & Row.

McAdams, D. P., & Pals, J. L. (2006). A new Big Five: Fundamental principles for an integrative science of personality. *American Psychologist, 61,* 204–217.

Rogers, C. R. (1951). *Client-centered therapy: Its current practice, implications and theory.* London: Constable & Co.

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Personality Theories

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Personality Theories Facilitate Integrating the Five Principles and Deducing Hypotheses for Testing

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In presenting their view of personality science, McAdams and Pals (April 2006) elaborated the importance of five principles for building an integrated science of personality. These principles are stances on evolution and human nature, dispositional signatures, characteristic adaptations, life narratives, and the differential role of culture. Their main emphasis involved differentiating these principles and indicating that they are all relevant to understanding personality. The discussion by McAdams and Pals certainly illuminates the various aspects of personality, but it also cries out for some greater, more systematic integration of the five principles into particular kinds of personality. It is not yet possible, in their approach, to identify different types of personality orientation and to evaluate the relative effectiveness of these orientations. As presented, their approach may be considered a start but hardly a finish.

Let me suggest that the metatheory of personality theories that I have proposed (Maddi, 1969/1996) could accelerate the needed integration of the five proposed principles. The metatheory indicates that, regardless of their specific content, theories of personality include *core, developmental, peripheral,* and *data* statements. At the *core level,* assumptions are made about specific, unlearned characteristics all people bring into life that express the overall purpose of human living. Whether or not particular personality theories explicitly express it, the core level is considered relevant to meeting evolutionary pressures. Like core statements in other areas (in social, biological, and physical sciences), those in personality are never, and probably never can be, tested in any direct, empirical fashion. The main utility of core statements is that they help tie together the other, more concrete statements that are also part of the theory.

The *developmental statement* is where personality theories conceptualize the early interactions between a person and significant others that have a formative influence on learned aspects of personality. The young person acts initially out of the core tendency, and those around him or her react supportively or punitively. Supportive reactions facilitate full expression of the core in the person's functioning, whereas punitive reactions stifle and twist expression of the core. In their relevant discussion of "characteristic adaptations" (pp. 208–209), McAdams and Pals (2006) did not go this far, though personality theories do.

The end result of this learning process is depicted in the *peripheral statement* of a personality theory. This concerns the habitual, learned modes of functioning, such as motives, traits, or defenses, that are readily apparent in the person as he or she becomes an adult. Perhaps this is what McAdams and Pals (2006) called the "dispositional signature" (p. 207), but it would be helpful to be more precise. In this regard, personality theories typically specify personality types, which are telltale combinations of motives, traits, and defenses. One personality type is identified as the fullest expression of the core tendency, whereas the others are more limited, more twisted, or less fulfilling expressions.

The *data statement* of personality theories involves the concrete, everyday expressions in living (e.g., actions, reactions, descriptions of self and of living) of the peripheral characteristics contained in the personality types. This is something like what McAdams and Pals (2006) called "life narratives" (p. 209), but they made the useful addition of the role of culture. Although personality theories have not tended to do this explicitly, it is reasonable to regard one's sense of who one is and what life is all about as one of the options presented by one's culture. Once again, personality theories would regard the life expressions of the ideal personality type as far more fulfilling and evolutionarily valuable than those characteristic of nonideal personality types.

Hopefully, working with the metatheory of personality theories I have identified (Maddi, 1969/1996) will tie together the categories of functioning identified by McAdams and Pals (2006). Rather than just identifying the existence of "characteristic adaptations," it is more precise to conceptualize how the particular interaction—between the youngster acting out of unlearned (core) characteristics and the significant others reacting out of cultural exigencies and their own developed personalities—can lead to a specific personality type that fulfills or stifles the core tendency.

This conceptual precision also facilitates empirical evaluation of personality theories by permitting hypotheses to be deduced from the integrated assumptions of each theory and tested. For example, Freud's (1925a, 1925b) theory specifies

that the core tendency is to maximize expression of our inherently selfish and antisocial sexual instinct while simultaneously minimizing the frustrating punishment and guilt that will result if we and others know about our selfish natures. Ideal development is when parents balance their support and love of the child with control of his or her selfishness. This leads to the ideal, or genital, character type, in which there is much expression of selfish needs but in a manner (through socially acceptable forms of selfishness, and personal defenses) that appears admirable to self and others. But in development, if parents are either too punitive or too indulgent, one or another of the nonideal personality types (oral, anal, phallic) occurs, and this stifles expression of selfish, sexual urges, or leads to massive guilt, or both. Needless to say, the "characteristic adaptations" and "life narratives" attendant on the ideal and nonideal personality types will differ sharply.

As another example, Rogers (1961) specified the actualizing of inherent potentialities as the core tendency. Developmentally, as long as significant others support and accept the person's expressions of his or her core, there is continual openness, defenselessness, and fulfillment. What is learned from this is the ideal personality, called the fully functioning person. In contrast, if others react punitively, conditions of worth and defenses ensue, and the nonideal, learned personality type of maladjustment ensues. Once again, the "characteristic adaptations" and "life narratives" of these two types will differ greatly.

The value of taking the metatheory of personality theories seriously is that it results not only in conceptual clarity but facilitation of empirical testing as well. Within any theory of personality, one can test whether the measurable traits, motives, and defenses fit together as would be expected in the conceptualized personality types, and whether the proposed ideal type leads to a better life than do the nonideal types. This is probably as close to actually testing the evolutionary implications of the theory as one will ever get, as the ideal type best expresses the core tendency, and one can see what kind of life this leads to in comparison with that produced by the nonideal types. This level of theoretical specificity also facilitates empirical comparison of the various personality theories in terms of the relative effectiveness and ineffectiveness of living that ensue from their ideal and nonideal personality types, respectively.

REFERENCES

Freud, S. (1925a). Instincts and their vicissitudes. In S. Freud, *Collected papers* (Vol. 4). London: Institute for Psychoanalysis and Hogarth Press.

Freud, S. (1925b). Some character types met with in psychoanalytic work. In S. Freud, *Collected papers* (Vol. 4). London: Institute for Psychoanalysis and Hogarth Press.

Maddi, S. R. (1996). *Personality theories: A comparative analysis* (6th ed.). Prospect Heights, IL: Waveland Press. (Original work published 1969)

McAdams, D. P., & Pals, J. L. (2006). A new Big Five: Fundamental principles for an integrative science of personality. *American Psychologist, 61,* 204–217.

Rogers, C. R. (1961). *On becoming a person.* Boston: Houghton Mifflin.

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Problems With McAdams and Pals's (2006) Proposal of a Framework for an Integrative Theory of Personality

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I begin with a critique of McAdams and Pals's (April 2006) five principles for a framework for an integrative theory of personality. I next comment on their statements about the person–situation debate and the failure of personality psychologists to produce an integrative theory.

A Critique of McAdams and Pals's (2006) Five Principles

The importance of evolution. McAdams & Pals's (2006, p. 205) statement that "Most of the grand theories are faith-based systems whose first principles are untested and untestable" is inaccurate. The most fundamental first principle of all, the hedonic principle, was incorporated in one form or another (e.g., the "pleasure principle" of Freud) in almost all personality theories and is supported by extensive research with both humans and nonhuman animals. Its evolutionary significance is self-evident. Three other fundamental principles proposed by grand theories are the need to maintain a stable and coherent conceptual system (e.g., Lecky; Pavlov; Rogers; Snygg & Combs), the need for relatedness (e.g., Bowlby; Kohut; Sullivan), and the need to maintain and enhance self-esteem (e.g., Allport; Rogers; Kohut). All are supported by research, and the first two of these have clear evolutionary significance. Another important omission with important evolutionary significance is the development of human speech, which has obvious implications for consciousness and therefore for the unconscious.

The Big Five traits as the fundamental large-unit constructs in an integrative theory of personality. As no more than descriptive attributes, the Big Five are unable to account for the dynamic operation and interactions of personality systems. Rather than explaining behavior, they themselves require explaining. Second, as stable dispositions, traits are unsuitable for examining intra-individual variation over situations and occasions, which is essential for capturing the organization and operation of individual personalities. As I previously discussed and demonstrated (Epstein, 1979a, 1979b, 1983), a full analysis of personality data requires an integrated idiographic–nomothetic design. Motivational, emotional, and cognitive, but not trait, variables are well suited for such a design. Third, the Big Five model fails to take into account unconscious cognitions and motives despite widespread agreement that most information processing occurs outside of awareness.

Characteristic adaptations as the smaller-unit constructs. In the absence of any specification of the motives, cognitions, and situational variables that the smaller units comprise, this recommendation is obviously not very informative. Surprisingly, McAdams and Pals (2006) did not mention Henry Murray, although he provided a list of just such variables. A lack of coherence in McAdams and Pals's framework is indicated by the fact that their large units, unlike their smaller units, are unnecessarily restricted to descriptive attributes because they do not include, for example, the basic *needs* of the grand theories.

Narrative constructions as among the most fundamental constructs in an integrative personality theory. The importance of narrative constructions does not necessarily qualify them to be one of the most fundamental principles. No justification is provided for why narrative constructions are more fundamental than alternative possibilities such as automatic learning from experience; associative, imagistic, and creative thinking; and nonanalytical intuitive, religious, and superstitious beliefs. An overall system that encompasses all of these in addition to narrative constructions would obviously be more fundamental than any

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Personality Theories

Trait and process in personality theory: Defined within two contemporary research traditions

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The concepts of trait and process are examined within the contexts of two types of personality theory: mechanistic (for trait) and holistic (for process). Although the typical instruments employed to map out traits (self-report questionnaires) are easy to handle and produce fairly robust results, trait models often lack an explicit theoretical background and can not, therefore, serve but a limited descriptive purpose. Process research utilizes qualitative methods, often projective tests, but lately also laboratory instruments the results of which can be easily quantified. The advantage of a process approach is its obvious reference to a broad front-line of theorizing, including fields of developmental and dynamic psychology, making process more than a merely descriptive concept. In order to take care of the relative stability over time of certain personality characteristics the concept of structure is introduced as an intrinsic aspect of process, i.e., process with a slow rate of change.

Key words: Trait, process, structure, personality.

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INTRODUCTION

In a previous paper Westerlundh and Smith (1992) assigned current personality theories to two main classes, mechanistic and holistic. As will be evident from the following descriptions of these classes, trait and process represent antagonistic key concepts, each in its own type of theory.*

Mechanistic theories

These are basically atomistic, treating personality as an aggregate of traits, skills or dispositions, more or less reified, with little regard for their mutual interrelations. Interest is mainly focused on durable characteristics, change preferably described in terms of quantities making questionnaires the favored diagnostic instruments.

Holistic theories

These are basically field oriented, treating personality as a system of interrelated functions or structures, the latter not understood as reified entities but rather comprehended in a historical (process) perspective. Since change is often described in qualitative terms, at least in the initial stages of an investigation, the preferred diagnostic tools are interviews and projective tests.

The mechanistic theories reach back to classical association psychology and its inheritor, the Watsonian behaviorism, but are in evidence also in presentday cognitive psychology and among psychometricians intent on measuring variables rather than persons (cf. Magnusson & Törestad, 1993). The holistic theories are rooted in William Stern's personalism, Kurt Goldstein's and Andras Angyal's holism, in developmental psychology as expounded by Erik H. Erikson, and in the psychodynamic tradition generally, but not without glaring exceptions, e.g., in the use of concepts like defense *mechanisms*, a remnant of 19th century mechanistic biology.

As personality models, these two groups of theories have their obvious advantages and disadvantages, the mechanistic models being more safe psychometrically but at the same time more artificial, the holistic ones more apt to give a life-like representation of its object but also more vulnerable to subjective distortions. These differences will here be scrutinized through the lenses of their key concepts: trait and process.

TRAIT

A still applicable definition of trait can be taken from the classical textbook by Krech and Crutchfield (1958): "A trait is an enduring characteristic of the individual which is manifested in a consistent way of behaving in a wide variety of situations" (p. 610). As a matter of fact trait is built on the attributes used by all of us when characterizing our fellow-beings as kind, energetic, orderly, aggressive, spiteful, etc. This explains why trait seems appealing to many personality psychologists and why it has a long history, as once elucidated by Gordon Allport (1937).

The popularity of trait models manifested itself long ago in a series of typologies and dimensional systems. One of the first dimensional systems was created by the Swedish psychiatrist Henrik Sjöbring (1973), although the syntethizing account of his scattered publications was delayed until long after his death. More well-known typologists were Kretschmer (1921) and Sheldon (Sheldon & Stevens, 1942). Sjöbring based his 4-dimensional model (capacity, validity,

* The arguments developed in the present paper reflect, in a very general way, a long tradition in personality psychology, represented by such names as Lewin (1935), Stern (1938), and Danziger (1990).

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stability, solidity) on a theory where experience of striving and its distance to the goal were crucial ingredients. Unfortunately, the model was also closely tied to hypothetical, neurophysiological assumptions which few researchers took seriously at that time but which are now the focus of renewed interest (see Cloninger *et al.*, 1993). Kretschmer and Sheldon associated their typologies with body build. But that association was not statistically convincing.

With standardized questionnaires and factor-analytic programs new models replaced the typologies. But the rapid development of advanced mathematical methods was not matched by an analogous development of the psychological instruments. Most personality questionnaires were still of the self-report variety. This presupposes a fairly honest and systematic reporting. To be true, the best instruments have built-in check points to reveal, e.g., systematic idealization of the self. But even a supposedly honest self-reporting must function poorly in people with a severely disturbed self-image.

An important pioneer in this kind of research was R. B. Catell (e.g., 1946). He started his endeavours with a systematic elimination of superflous descriptive adjectives; all synonyms were, for instance, removed. The ensuing results were 12 primary factors. On top of that further statistical work resulted in additional secondary factors. The final model was a complicated hierarchical web of denominated dimensions. It seems as if the system became too elaborated to be practically useful.

The story of factor models and associated questionnaires is a long and tedious one and will not be told now. The concluding vignette ought to be the Big Five model. Even here the publications are plentiful. A paper by Ostendorf and Angleitner (1992) seems, however, to give an overview of this trait taxonomy which can be regarded as occupying an intermediate position between Eysenck's three-factor PEN model (Eysenck & Eysenck, 1969) and the complex multifactorial systems of Catell (1946) and Guilford (Guilford *et al.*, 1976). An alternative could be the 7-factor model proposed by Cloninger *et al.*, (1993) which has the advantage of differentiating between temperament and character. For the limited purpose of the present paper, however, the reference to the big-five model will suffice.

The five big factors have the following designations: (1) Surgency or extraversion, (2) Agreeableness, (3) Conscientiousness, (4) Emotional stability or, at the other end, neuroticism, (5) Culture, intellect, or openness to experience. The factoring was based on peer ratings ($n = 383$) and self-ratings ($n = 401$). It has been replicated across different languages, adjective samples, groups of raters, rating formats, and statistical procedures. Comparisons with other questionnaires did not unequivocally support the Big Five as a basic dimensional skeleton. Factors 1 and 4 proved to be more robust than the others.

The purpose of the cited study (Ostendorf & Angleitner, 1992) was to compare the Big Five with a comprehensive selection of questionnaire items, in this case 576. Even if the comparisons gave tolerably acceptable results, there still remains a doubt whether any personality questionnaire in use really reflects the personality variation we encounter in everyday life. In addition, the neuroticism dimension betrays an inclination to mix pathological items with normal ones, apparently for practical-clinical purposes. Sjöbring (1973), who wanted to create a dimensional system applicable to normal people, would have objected vigorously to such a mix, in the same way as he criticized Kretschmer for merging his normal cyclothymic/schizothymic types, on the one hand, and the manic-depressive/schizophrenic diseases, on the other.

FURTHER CRITICAL SCRUTINY OF THE TRAIT CONCEPT

Ostendorf and Angleitner (1992) do not seem wholly convinced that the Big Five model represents the apex of personality theorizing. The present author is tempted to share their doubts. There are at least reasons to be dubious. The Big Five model has been criticized by Block (1995), among others. After reviewing the field, he arrives at the conclusion that there are serious uncertainties in regard to the claimed 5-factor structure and the basic meaning of the factors.

Traits are supposed to be stable, at least in adult age, change due to psychiatric or senile pathology being excepted. Apparently, childhood and adolescence did not really concern most constructors of personality factor models, at least not up to the present time. Thus, they felt no urge to examine the robustness of their test instruments in these age groups, ignoring the developmental perspective. A change seems, however, to be under way, as reflected in the work by Magnusson (1988) and Caspi and Bem (1990) among others, and later in the critical appraisal by Magnusson and Törestad (1993). It also ought to be added that the stability of traits has paved the way for their use in, e.g., studies in heritability.

While the older typologies in spite of all were drawn up against a theoretical background, however dim, constructors of factor models appear too often to have renounced explicit claims to theoretical cognizance. Users are often invited to accept a factorial construction like the Big Five as a fact: personality is simply a five-dimensional space. Without the support of a clear theoretical model trait is easily reduced to a purely descriptive concept. As a result, explanatory attempts become circular: trait **a** is used to define factor **A**, factor **A** is invoked to explain **a**. The alternative use of hypothetical trait constructs has been criticized by Higgins (1997) who says of these constructs that they "often suffer from an intrinsic theoretical fuzziness that blurs the distinction between reasons and causes in the explanation of social behavior" (p. 111), a fuzziness, to be true, not reserved for trait constructs but looming over many psychological constructs.

The advantages of factorial models is that traits can be included in a more comprehensive context and, in that way, become more understandable. The information carried by a specific trait is necessarily limited. But if viewed against the more complete information contained in its higher-level factor, it should be possible to broaden and diversify the hypotheses and interpretations associated with that trait. But the primary factors still remain in twilight.

It may be rejoined that personality needs concepts like trait to account for the well known stability of individual characteristics. True enough, we cannot and should not avoid concepts representing long-range perspectives on personality. Later in this text we will, however, substitute structure for trait. One advantage would be that, unlike trait, structure is not regarded as a fait accomplit incompatible with the concept of process.

It would also be proper to say that, by associating trait psychology with factor-analytic models like the Big Five we have not been quite fair. There are alternatives with more fuzzy edges. Current research is thoroughly reviewed in Hogan *et al.* (1997). Researchers are no longer entirely out of sympathy with a combination of trait and process perspectives. The theoretical fragility of the trait model can be openly admitted, as we have seen already. At the same time, this development toward growing self-criticism also implies less distinctness. A promising alternative to the classical trait model in contemporary trait research could be the focusing on persons instead of variables advocated by Magnusson and Törestad (1993) in an attempt to favor a holistic approach to personality, the variable-oriented approach representing a static view.

PROCESS

Rosenbaum and Dyckman (1995) recently declared that the self is not an object but a process. The present author and his colleagues for many years would agree whole-heartedly, though not without further elaboration (e.g., Kragh & Smith, 1970; Brown, 1991; Hanlon, 1991; Smith, 1999, etc). But process is still an unusual word in personality psychology.

In the following, so called perceptgenetic or microgenetic processes will command most of our attention. Still, we would like to give process a broader definition. Evolution excepted, process may be defined on a least three levels: (a) ontogenesis, (b) adaptation, (c) percept- or microgenesis.

Ontogenesis

This is the uppermost level to which the subordinate process levels have to refer, in one way or another. The steering principles discernible on this level have been described by many students of development, but in a fundamental way already long ago by Heinz Werner (1948, 1957). According to him an obvious parallelism can be made out between the gradually increasing mastery of reality, in the ontogenetic perspective as well as in the micro-perspective described later. Early stages in both cases were considered to be more primitive than later ones, characterized in particular by a fusion between feeling and perception, so-called physiognomic perception. Later stages would thus be distinguished by increasing differentiation, articulation, and integration. Outgoing from this division between early and late in development the important concept of regression, to give just one example, could be operationally defined, i.e., as a relapse into earlier, or more primitive, modes of functioning.

When we invoke a historical perspective on the individual it seems like a matter of course. Without considering ontogenesis it is impossible to understand why the individual reacts in a certain way to a situation, often very different from the way other individuals react. To express it in very general terms, her reaction is not solely determined by situational factors but also by personal ones. This does not mean that we take a definite position in the heredity/environment controversy. It only means that the individual carries along her past experiences and reactions and is unable to conjure away that history, however much inclined she is to forgetfulness. Not even the small child within us is totally devoured by our adult person.

Adaptation

The term may convey the notion of a passively docile reaction to whatever happens in the world around the subject. Coping could perhaps be a more active alternative. But because of its obvious behavioristic connotations (Lazarus & Folkman, 1984) we still prefer adaptation. As will become evident from examples presented below the term as used here refers to processes defined by behavioral as well as experiential serials, i.e., chains of observed behavioral reactions to a situation or of reported, serialized impressions of it. What distinguishes adaptation from the micro-processes described in the next section is their extension in macro-time. To be true, the study of adaptation requires a systematic dividing up of the process in observable parcels. But the whole course of events is, so to say, above-board, apprehensible to the acting subject.

Adaptive serials are delimited by the very first reactions to a new situation until, after repeated attempts, the subject has attained relative mastery of the problem confronting him. Relative mastery does not imply complete mastery but is defined by the cessation of systematic developmental change. The classical approach to a sequence of measurements emanating from an adaptive serial would be to calculate their mean value and standard deviation and thus obscure the very process characteristics that the experiment was designed to analyze. Alternative process statistics are required to do the study of adaptive serials full justice.

A behavioral serial can be produced by forcing a subject to perform a simple task via a mirror instead of in direct vision. Let him, for instance, draw diagonals in squares.

When he has learned how to do so his line of vision is blocked by a screen. In order to proceed he must look at his hand in a mirror. Time taken to draw a certain number of diagonals is scored from the very beginning until, over a series of measurements frequent enough to make the adaptive course discernible, the time decrease has leveled out, often terminating in unsystematic variation. The time increase from working in direct vision to working via the mirror, varies considerably between subjects but is not the primary focus of interest in the study of process. Instead, the researcher should ask how, given the initial impediments, the subject successively improves his drawing, perhaps quickly or more gradually, perhaps smoothly or with many relapses, noted as sudden time increments, etc.

This way of utilizing a task originally constructed to measure particular skills was tried with the so-called Stroop test where the subject is confronted with color-words printed in incongruent colors (the word red in blue print, etc.,) and asked to name the color, not read the word (Smith & Klein, 1953). The adaptive style manifested over 5×100 word/color combinations was originally interpreted as reflecting cognitive control mechanisms and allowed successful predictions of behavior in a variety of problem situations. Subsequently, the serial color-word test (S-CWT) was used as a potent personality test (Smith *et al.*, 1999), consistently focusing the serial style, not the performance level. The type of adaptive curve can be described statistically and has proved to correlate with a great number of personality criteria, particularly in the area of psychopathology. Thus, the adaptive style cannot be regarded as a transient attribute but as a reflection of a more or less permanent structural quality (see about structure below).

An example of a process defined by subjective reports could be taken from experiments with visual afterimages (AI), in the present example AIs produced by the fixation of a red, schematic face and subsequently projected at a distance longer than the fixation distance (see Smith, 1999). Studies of children demonstrated very clearly that AIs change with cognitive maturation. In cognitively egocentric children the AI is likely to be regarded as an object, on a par with the projection screen. Consequently, it does not change in size relative to the projection screen but remains approximately size-constant when the screen is moved away from the viewer. It is also likely to keep the reddish hue of the stimulus. A cognitively mature individual, in contrast, regards the AI as a subjective product, different from the world of objects.

Most subjects, even adult ones, have an unclear conception of the nature of AIs when first confronted with them. A series of repeated AI productions are thus likely to represent an adaptive process. And in this process experiential states may be represented in various ways. Anxiety thus manifests itself in unduly large and dark images. If they appear early but disappear later in the process the anxiety is probably latent. Manifest states of anxiety correspond to dark and/or large AIs persisting until the end of the process. Moreover, knowing the character of childish images we can easily spot regressions in the process, e.g., in patients with florid symptoms of schizophrenia (Smith *et al.*, 1972).

Of particular interest is that the specific quality of an AI-process is not evanescent but can be reproduced. If an acoustic signal is sounded after the process has run about half its course (7 AI productions) the process starts from the beginning again, slightly abbreviated but with a similar course as regards its distinctive features (Smith *et al.*, 1971). If, for instance, the original process was characterized by initially large AIs which abruptly changed into considerably smaller ones, the repeat process reiterates this development.

Microprocesses (microgeneseses/perceptgeneses)

To express it summarily, a microprocess implies actualization of reality within the present moment. Most of this course of events unfolds beyond awareness. Since microprocesses cannot be directly observed they have to be reconstructed for scientific purposes by means of artificial prolongation. Generally, this entails piecemeal presentation of the stimulus, at first briefly or with faint illumination, thereafter with systematic increase of exposure times or illumination. A series of reports, starting just below the threshold value and continuing up to correct recognition (the C-phase) is supposed to represent a perceptgenesis (microgenesis). The number of steps defining this genesis depends on the upper and lower threshold levels and on the distance (quotient) between the steps.

The following excerpts from a perceptgenesis are part of a research project dealing with eating disturbances. The stimulus picture, a collage of Picasso figures, included a man and a woman plus a child balancing on one leg in front of them. The tachistoscopic presentations started with a 14 ms exposure value and continued with double presentations at each exposure step, the time increment from one step to the next being constant (the square root of 2). In the example given the letter **a** denotes the first presentation at an exposure step, the letter **b** the second presentation, **4b**, for example, representing the second presentation at the 28 ms level.

The subject's reports

4b. The contours of a cruel hand.

5a. A picture of people, very vague, three of them.

8a. Don't know if I'm right. But doesn't the man sit in a wheel-chair. A lady behind him. The (third) person in bathing-trunks still there.

8b. The man in the wheel-chair seems to be jealous of him in bathing-trunks who can walk. Looks sad.

9b. Difficult to see, all the time. I don't know what the lady really feels or what she looks like. The person caught in a wheel-chair looks dejected and sad.

11a. The same. (Age?) The man in the wheel-chair and the lady a little, older, around 40. The person jumping around seems young, has just started his life. An obvious contrast between him and the wheel-chair man.

12a. Same picture. The young man showing off to make the others happy. Gloomy picture.

13a. Looks different, but I don't know what I saw. The lady was different, seemed serious. The man also changed, but I don't know how.

13b. Now the lady is blurred again, but the man and the boy distinct.

16a. No contact between them. The boy tries desperately to get into contact with the father. But he looks away, the mother too, they just don't care. (Does he try to contact the mother?) Yes, but I think she's farther away, as if she only cared about the wheelchair. (What about the relation between the man and the woman?) A little frosty, she seizes the chair, not him. They don't look at each other.

18a. The lady was a little lower down. Keeps a firm hold of the chair. Don't know if she is happy or sad. (What do you feel about the picture?). It reminds me of home, I recognize myself in the boy who always wants to make everybody happy.

The example is meant to illustrate, among other things, how a particular pathology marks a perceptgenesis, more generally in the beginning, more specifically in the end. Other perceptgeneses may be either more dramatic or more smoothed out. Some additional features in the present perceptgenesis should perhaps be pointed out. The beginning (**4b**) is relatively vague in outline but emotionally charged ("cruel"). The initial interpretation is quickly eliminated, to be replaced by three human beings (**5a**). This basic clarification is successively qualified throughout the rest of the series (cumulation of the motif). But the steady progress toward a definite opinion of the stimulus picture (the C-phase) is broken several times, making the perceptgenesis discontinuous. At **9b** the subject appears to have perceptual difficulties. In numerous previous investigations such reports have indicated mounting anxiety. At **13a** a new meaning emerges, again followed by something like emotional confusion. After a few more steps the series approaches the actual situation of the subject, as reflected in the stimulus picture. Since she is anorectic it may also be interesting to note that on at least three occasions (**9b, 13a, 18a**) she delivers answers indicating alexithymia, i.e., inability to know what "the lady really feels".

As pointed out by Draguns (1984) and Cegalis (1991) appearances of perceptgeneses are favored by impoverished, novel, or ambiguous stimuli. Repeated confrontations with the same stimulus lead to automatization or habituation, i.e., abbreviation of the sequence until near-immediate emergence of a (correct) C-phase.

Since perceptgeneses are not singular events but are cyclical, i.e., repeated in rapid succession, the perceptgeneses following the first confrontation with a new situation are likely to be automatized, if the original situation does not change appreciably. Still, automatization does not imply that a perceptgenesis disappears completely. We assume that it can still be reconstructed, but in an abortive form useless for diagnostic purposes.

The technique of reconstructing microgeneses by means of protraction has, in spite of successful applications in various fields of personality and clinical psychology, certain shortcomings. These have been discussed in detail elsewhere (Kragh & Smith, 1970; Smith, 1999; an interesting discussion on the applied side of perceptgenesis recently appeared in the present journal: Zuber & Ekehammar, 1997; Kragh, 1998). Here I would like particularly to focus the constraints inherent in the very technique of reconstruction where the cognitive/emotional frame of reference defining the present actuality decides what will be allowed to be brought into conscious focus. Among the most important constraints are defences, a topic dealt with in detail in a recent publication (Hentschel *et al.*, 1993) but also in a summing-up of perceptgenetic research in Lund (Smith, 1999). Another constraint is the inability to house and comprehend material reflecting primitive attitudes and ways of thinking associated above all with early stages in the genesis.

We have previously mentioned Heinz Werner's (1957) assumption that microprocesses mirror ontogenesis, but in a very general way implying that what is early and primitive in ontogenesis is similarly primitive in early microgenesis. For Kragh (e.g., 1986), but not for Werner, the parallelism between perceptgenesis and ontogenesis also applies to individual cases, e.g., early frustration in life leaving marks in early perceptgenetic stages. This daring hypothesis is difficult to prove beyond doubt. Instead Brown (1991) pins his faith on a parallelism between microgenesis and evolution. This agrees with his neurological model where microprocesses originate in the evolutionarily old parts of the CNS and proceed to the visual cortex as their endstation. All in all, microprocesses, like ontogenesis and adaptive processes, continue from less to more articulation, from the global to the particular, from the more subjective/person-dependent to the more objective/autonomous.

Brown's (1999) view of microprocesses may complete the above formulations. According to him, the process goes from many to one if we regard it as a transition from the potential for many meanings (in early process stages) to the actuality of one definite meaning (in the last stage). But early stages are not seen as mere aggregates but as wholes with many embedded possibilities. In both perspectives the roots of the end-product, the object, are subjective. And subjectivity or emotional coloring throughout the microgenesis is necessary for the end-product to become virtual.

The reader may have gained the impression, through our interest in perceptgenesis, that we have lost sight of personality in favor of perception. True, the early students of Aktualgenese (microgenesis in the German version) did indeed focus perception, not personality (see Draguns, 1984). But our interest in adaptation as well as perceptgenesis rests on the conviction that these processes reflect what is individually typical of the subject, of how he creates his reality by way of personal experiences. If personality is defined as the organizing center of the individual's adaptive endeavours, and not as a partial perspective besides other ones, e.g., cognitive, the developmental approach as exemplified above is highly relevant for personality theory and

research. By employing suitable stimulus pictures—a family scene being suitable for an anorectic person—it is possible to construct potent diagnostic tools as revealed in a long series of experiments by a host of authors (for examples, see Smith, 1999).

STRUCTURE

By thus mapping out adaptive style, ways of managing anxiety, preference for various defensive strategies, inclination to getting stuck in stereotypies, etc., do we not, via a circuitous route, return to the trait concept? We have indeed pointed out that processes are individually recognizable, i.e., constricted by more or less permanent molds. We prefer to call them structures. It could be argued with seemingly good reason that structure and process are incommensurable concepts, like measuring the "position" and "momentum" of a particle according to Heisenberg's uncertainty principle (see Machenzie, 1997). This way of reasoning seems more applicable to the trait concept, however. If you define trait, process would be irrelevant, if you observe process, trait seems no longer necessary.

One important difference between trait and structure is that the latter, not the former, can easily be, and often is, defined as slow rate of change (Rapaport, 1967). Structures are even "classifiable according to their rate of change and these rates of change will form a transition between processes and structures" (ibid., p. 787). Structure defines itself in that way as the product of process, of adaptation, of ontogeny—often reaching far back in life. While trait psychologists make an effort to find periods in life where traits change as minimally as possible, structure psychologists accept structures with different degrees of permanence, e.g., less stable in childhood and youth than in adult life.

Structures thus serve as constraints for processes: the stronger the structure the more inflexible the process. While processes form structure they are, at the same time, subjected to them. By experimentally analyzing structures, of more or less permanence, the psychologist will be able, not only to diagnose an individual but to predict his future behavior.

CRITICAL SCRUTINY OF THE PROCESS CONCEPT

One disadvantage inherent in the concept of process is that it distances us from the ordinary way of describing our fellow human beings, and also from the easily comprehensible typologies and dimensional systems. In important novels, however, people are not described merely by enumeration of labels but by attempts to follow how they master (or fail to master) problematic encounters, often with analogous encounters in early life as a sounding-board.

At the same time, we distance ourselves from the notion that personality can be understood as a bundle of traits and regard, instead, personality as the center of a system of interrelated processes. This makes it possible to link the characteristics of the present individual with its past. Reference to the past implies reference to previous experiences, not to be confounded with previous environmental factors. If the explanations are rooted in life history, or in the adaptive or microprocesses reflecting that history, peripheral constraints, on their part, clarify why certain potentialities are actualized but not others.

This creates a meaningful frame for personality theories where process, with structure as its natural derivative, is exploited as an explanatory and predictive concept, not just a descriptive one. Process, then, represents the dynamics of the personality model (the ongoing renewal of the individual), structure its relative stability. Such a model also includes the ongoing habituation (automatization) responsible for binding processes in more and more fixed trajectories. A recognizable personality profile is thus created. But even such relatively fixed process patterns have a history and may be open to change.

COMPARISON OF METHODS

Questionnaires seem to be the instruments par preference for trait models. It was argued in the beginning of this paper, as a reflection of the general opinion among psychometricians, that such methods are more reliable than the ones associated with process methods. But there is a snag hidden in this reasoning. To be true, questionnaires produce data in semi-quantified form while those who employ projective/experimental methods may have to do their own quantification. But why is it considered safer to leave the quantification to the test person—while a trained user of the Rorschach or microprocess methods can produce highly reliable estimates of test reports.

Application of self-report questionnaires is usually restricted to adult people, preferably rather normal ones who are less inclined to distort their answers. As far as children are concerned, projective methods are the natural choice. According to our experience (e.g., Smith & Carlsson, 1990) even adolescents are unreliable self informants because of their heavy dependence on group preferences and limited ability to view themselves as autonomous subjects. Process methods, on the other hand, are much less vulnerable to such influences and can be applied down to a very early age (about four years). But they are generally more expensive and necessitate the use of a laboratory.

How do, then, results from trait and process methods compare. Very few data are available. One attempt was made by Smith and Fäldt (1999) who wanted to compare creativity measured by a self-report questionnaire, on one hand, and the perceptgenetic Creative Functioning Test (CFT), on the other (Smith & Carlsson, 1990). As expected, intercorrelations were not impressive. But it could be shown, among other things, that high-creatives, according

to the CFT, preferred the creative questionnaire items both when describing their ideal self and its opposite, leaving many of the low-creative items unused, as if they were generally less appetizing than the high-creative items. It was obviously not impossible to construct a creativity questionnaire which correlated significantly with its perceptgenetic counterpart, although not in a straight-forward way. There were also indications that such a questionnaire would be vulnerable to subjective preferences.

Given such a questionnaire, why not use it, in spite of its limited applicability. It is simple and inexpensive and can be administered anywhere. The basic difference between the two should not be ignored, however. The questionnaire was based on generally adopted knowledge about how creative people think and behave. But this knowledge formed a mosaic of characteristics, not a coherent model. The results merely imply a differential classification of subjects. The Creative Functioning Test was constructed outgoing from an explicit theory of creative functioning. Consequently, its results have implications for a wider context than mere trait labeling; they deal, for instance, with the degree of availability of representations as seen in the perceptgenesis.

CONCLUSION

Of the two concepts, trait and process, discussed in the present text, the former seems more down-to-earth, more intelligible, at least from an everyday point of view. Traits are nothing but reified adjectives used as building stones in many mechanistic personality models. This construction was never meant to illuminate inner dynamics or historical antecedents, often even regarded as irrelevant for the study of personality. The advantage of the trait approach is its association with questionnaire methods which are generally easy to handle. The results prove to be stable, at least in normal adults.

Process turns out to be a more elusive concept, more difficult to translate into commonplace terms. It aims at illuminating inner (mental) connections, both within the present space of time and with an eye to preceding life experiences. A holistic view of personality serves as its general background. While process is meant to explain change, the twin concept of structure accounts for relative stability.

Historically, process as used by clinicians, last but not least psychoanalysts, was associated with qualitative methods like interviewing and projective testing. In the present context process has, above all, been elucidated by means of laboratory methods. Experimental process reconstruction relates to two process levels, one occurring in macro-time (adaptation) and the other in micro-time (perceptgenesis), the latter mostly beyond awareness. But the principles ruling these processes are presumed to reflect analogous principles defining ontogenesis.

Trait dimensions have been related to external data like EEG reactions, often with some success. But since trait theory is often simplistic such connections seldom lead beyond an assertion of a correlational fact. Process, on the other hand, seems like a natural ingredient, not only in psychodynamic theory but in a general biological theory as well, concerned with short-term adaptation (coping) and long-term growth. Trait purportedly belongs to an early tradition still dominating many fields of psychology, process to efforts to make psychology more ripe to take care of live human beings.

The present author's obvious preference for the process perspective could be summarized as follows: (1) When focusing personality as process intrapsychic events are particularly illuminated, events which are both individually typical and recurrent; (2) The distinctive nature of a process is represented by its temporal characteristics as well as its content and intrinsic meaning; (3) These events can be studied in different time perspectives: macro- or ontogenetic, meso- or serial (adaptive), and microgenetic; (4) In case these events are recurrent they are termed structures; (5) Structures, in their turn, can be described as processes with a slow rate of change.

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REFERENCES

Allport, G. W. (1937). *Personality*. New York: Holt.

Block, J. (1995). A contrarian view of the five-factor approach to personality description. *Psychological Bulletin, 117*, 187–215.

Brown, J. W. (1991). Self and process: *Brain states and the conscious present*. New York: Springer-Verlag.

Brown, J. W. (1999). *Foundations of a process neuropsychology*. Monograph to be published.

Caspi, A. & Bem, D. J. (1990). Personality continuity and change across the life course. In L. Pelvis (Ed.), *Handbook of personality: Theory and research*. New York: Guilford Press.

Catell, R. B. (1946). *Description and measurement of personality*. Yonkers, NY: World Book.

Cegalis, J. (1991). Microgenesis: A genesis from prototheory to neuropsychology. In R. E. Hanlon (Ed.), *Cognitive microgenesis: A neuropsychological perspective* (pp. 106–131). New York: Springer-Verlag.

Cloninger, C. R., Svraric, D. M. & Przybeck, T. R. (1993). A psychobiological model of temperament and character. *Archives of General Psychiatry, 50*, 975–990.

Danziger, K. (1990). *Constructing the subject: Historical origins of psychological research. Cambridge*, UK: Cambridge University Press.

Draguns, J. G. (1984). Microgenesis by any other name. In W. D. Fröhlich, G. J. W. Smith, J. G. Draguns & U. Hentschel (Eds.), *Psychological processes in cognition and personality* (pp. 3–17). Washington, DC: Hemisphere.

Eysenck, H. J. & Eysenck, S. B. G. (1969). *Personality structure and measurement*. London: Routledge & Kegan Paul.

Guilford, J. S., Zimmerman, W. S. & Guilford, J. P. (1976). *The Guilford-Zimmerman temperament survey handbook: Twenty-five years of research and application*. San Diego, CA: Edits Publishers.

Hanlon, H. R. E. (1991). *Cognitive microgenesis: A neuropsychological perspective*. New York: Springer-Verlag.

Hentschel, U., Smith, G. J. W., Ehlers, W., Draguns, J. G. (Eds.) (1993). *The concept of defense mechanisms in contemporary psychology*. New York: Springer-Verlag.

Higgins, J. S. (1997). In defense of traits. In R. Hogan, J. Johnson, & S. Briggs (Eds.), *Handbook of personality psychology* (pp. 95–115). New York: Academic Press.

Hogan, R., Johnson, J. & Briggs, S. (Eds.) (1997). *Handbook of personality psychology*. New York: Academic Press.

Kragh, U. (1986). Life panorama under the microscope: A paradigmatic case study. In U. Hentschel, G. Smith & J. G. Draguns (Eds.), *The roots of perception: Individual differences in information processing within and beyond awareness* (pp. 145–159). Amsterdam: North-Holland.

Kragh, U. (1998). In defence of the Defence Mechanism Test. *Scandinavian Journal of Psychology, 39*, 123–124.

Kragh, U. & Smith, G. J. W. (1970). *Perceptgenetic analysis*. Lund, Sweden: Gleerup.

Krech, D. & Crutchfield, R. S. (1958). *Elements of psychology*. New York: Knopf.

Kretschmer, E. (1921). *Körperbau und Charakter*. Berlin: Springer.

Lazarus, R. S. & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer-Verlag.

Lewin, K. (1935). *A dynamic theory of personality*. New York: McGraw-Hill.

Machenzie, D. (1997). *Through the looking glass*. The Sciences, 37, no. 3.

Magnusson, D. (1988). Individual development from an interactional perspective. In D. Magnusson (Ed.), *Paths through life, Vol. I*. Hillsdale, NJ: Erlbaum.

Magnusson, D. & Törestad, B. (1993). A holistic view of personality: A model revisited. *Annual Review of Psychology, 44*, 427–452.

Ostendorf, F. & Angleitner, A. (1992). On the generality and comprehensiveness of the Five-Factor model of personality. Evidence for five robust factors. In G.-V. Caprara & G. L. van Heck (Eds.), *Modern personality psychology* (pp. 73–109). New York: Harvester/Wheatsheaf.

Rapaport, D. (1967). The theory of attention cathexis. In M. M. Gill (Ed.), *The collected papers of David Rapaport* (pp. 778–794). New York: Basic Books.

Rosenbaum, R. & Dyckman, J. (1995). Integrating self and system. *Family process, 34*, 21–44.

Sheldon, W. H. & Stevens, S. S. (1942). *The varieties of temperament*. New York: Harper.

Sjöbring, H. (1973). *Personality structure and development*. Copenhagen: Munksgaard.

Smith, G. J. W. (1999). *The process approach to personality*. Monograph: to be published.

Smith, G. J. W. & Carlsson, I. (1990). *The creative process: A functional model based on empirical studies from early childhood to middle age*. Psychological Issues, Monograph *57*. New York: International Universities Press.

Smith, G. J. K. W. & Fäldt, E. (1999). Self-description or projection: Comparison of two methods to estimate creativity. *Creativity Research Journal, 12*, in press.

Smith, G. J. W. & Klein, G. S. (1953). Cognitive controls in serial behavior patterns. *Journal of personality, 22*, 188–213.

Smith, G. J. W., Nyman, G. E., Hentschel, U. & Rubino, I. A. (1999). *Manual of the serial color-word test (S-CWT)*. Frankfurt: Swets.

Smith, G. J. W., Ruuth, E., Franzén, G. & Sjöholm, L. (1972). Intermittent regressions in a serial afterimage experiment as signs of schizophrenia. *Scandinavian Journal of Psychology, 11*, 274–279.

Smith, G. J. W., Sjöholm, L. & Andersson, A. (1971). Effects of extraneous stimulation on afterimage adaptation. *Acta Psychologica, 35*, 138–150.

Stern, W. (1938). *General psychology from the personalistic standpoint*. New York: Macmillan.

Werner, H. (1948). *Comparative psychology of mental development*. Chicago: Follet.

Werner, H. (1957). The concept of development from a comparative and organismic point of view. In D. B. Harris (Ed.), *The concept of development: An issue in the study of human behavior*. Minneapolis: University of Minnesota Press.

Westerlundh, B. & Smith, G. J. W. (1992). Psychoanalysis as a theory of personality. In G.-V. Caprara & G. L. van Heck (Eds.), *Modern personality psychology* (pp. 113–132). New York: Harvester/Wheatsheaf.

Zuber, I. & Ekehammar, B. (1997). An empirical look at the Defence Mechanism Test (DMT): Stimulus effects. *Scandinavian Journal of Psychology, 38*, 85–94.

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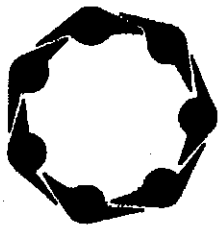
Personality Theories



Classifying the Personality Theories and Personalities of Adler, Freud, and Jung with Introversion/Extraversion

Robert H. Dolliver

Carl Jung developed his concepts of introversion and extraversion from his need to define the ways in which Alfred Adler's theory differed from that of Sigmund Freud (Evans, 1964; Jung, 1963). Jung believed that both theories had something to offer to the understanding of behavior and that neither could be disproved.

Two dimensions repeatedly appear in Jung's definitions of extraversion and introversion. Extraversion is the turning of attention *outward* ("centrifugal," like water flying off a spinning bicycle tire) and focusing on the *object* (other people, the environment). Introversion is the turning of attention *inward* ("centripetal," like water draining from a bathtub) and focusing on the *subject* (the person doing the perceiving), on her or his thoughts and feelings. Jung (cited in Shapiro & Alexander, 1975) identified ". . . two different types of human mentality, one of which [the introvert] finds the determining agency pre-eminently in the subject, the other [the extravert] in the object" (pp. 22–23).

Shapiro and Alexander (1975, p. 23) connect Jung's view of introversion and extraversion to the old philosophical question whether perception is more influenced by the knower (the subject) or that which would be known (the object), i.e., whether the perceiver creates or simply registers that which is perceived. The first is the philosophical position of idealism (connected to the introvert), while the second is realism (connected to the extravert). Wilson (1984/1988) noted that an American writer (Thompson Jay Hudson) in the 1890s had published a description that everyone had two minds, which

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he had called the "subjective" and the "objective" mind. Wilson further claimed (p. 93) it was Furneaux Jordan who (also in the 1890s) invented the notion of introverts and extraverts, which he had called "reflective" and "active," respectively.

Jung's Classification of Adler's and Freud's Theories

Jung classified Adler as having an introvert theory of personality, and Freud as having an extravert theory. Jung further indicated (G. Adler & Jaffe, 1973a, pp. 301–302) that making those classifications was difficult for these reasons: (a) the fact that within Jungian theory, both introversion and extraversion are present in every person (with one usually being developed in consciousness and the other relatively undeveloped in the unconscious); (b) theories represent creative work for which a theorist reaches into his or her undeveloped (inferior) side; and (c) it was difficult to distinguish between considering the theorists as people versus classifying their theories (which was Jung's intent).

Adler's theory was characterized:

> Here psychological phenomena . . . are conceived [of] as "arrangements," as the outcome of intentions and aims of a complex nature. . . . [Adler places importance on the patient's] dominating principles, his "guiding fictions." . . . [For Adler, the determining factors in behavior are] the securing of the individual's power in the face of the hostile environmental influences. (Jung, 1913/1971b, pp. 508–509)

Jung (1913/1971b) characterized Freud's theory as:

> strictly limited to empirical facts, and traces back complexes to their antecedents and to more simple elements. It [psychoanalysis] regards psychological life as consisting in large measure of reactions, and accords the greatest role to sensation. . . . The previous history of the patient and the concrete influences of the environment . . . [are of the greatest importance]. (p. 508)

Jung's classification of Adler's and Freud's theories seemed to have been particularly influenced by William James's types of "tender-" and "tough-minded" (Jung, 1913/1971b). Jung associated tender-minded with Adler and introversion, and tough-minded with Freud and extraversion. Those classifications appear in Jung (1913/1971b) and will not be reviewed here.

In another overall comparison, Jung (1916/1956) commented that Freud's theory espoused Eros and Adler's espoused the will to power. Jung went on to note that, psychologically, Eros is the opposite of the will to power: "Where love reigns, there is not will to power; and where the will to power is paramount, love is lacking. The one is the shadow of the

other" (p. 63). In a later comment, Jung (Black, 1977) contrasted the meaning and applications of Adler's concept of the "inferiority complex" as opposed to Freud's conception of the "sex complex": "You see, the sex complex belongs to the hedonistic type of man who thinks in terms of his pleasure and displeasure, while there is another class of man, chiefly the man who has not arrived, who thinks in terms of power and defeat. . . . (p. 257)

Jung (1921/1971a) described a central contrast between Freud's and Adler's theories: "Freud's is a psychology of instinct, Adler's an ego-psychology. Instinct is an impersonal biological phenomenon. A psychology founded on instinct must by its very nature neglect the ego since the ego owes its existence to . . . individual differentiation . . ." (p. 60).

Jung (1921/1971a) further described the theories of Freud and Adler by focusing on unconscious contents and processes (with no corresponding description being made of Freud's and Adler's theories in terms of the conscious contents and processes). First Jung described Freud's theory in relation to the "attitude of the unconscious" of the extravert: ". . . the unconscious . . . concentrates the libido on the subjective factor, that is, on all those needs and demands that are stifled or repressed by the conscious attitude" (pp.337–338). Next Jung described Adler in terms of "the attitude of the unconscious" of the introvert:

> It is now the unconscious that takes care of the relation to the object, and it does so in a way that is calculated to bring the illusion of power and the fantasy of superiority to utter ruin. The object assumes terrifying proportions in spite of the conscious attempt to degrade it. (pp. 378–379)

Jung's cited comments regarding Adler and Freud came at various times and had various bases. The reader will have to contend with the question that occupied me at various times: Is Jung's view understandable from some larger perspective, which this writer is apparently unable to grasp? The next question is whether Jung offers that larger perspective. Having been critical of the complex and varied perspectives Jung used in classifying Freud's and Adler's theories, the next step is to propose simpler, more straightforward perspectives for classifying those personality theories.

Reclassification of Adler's, Freud's and Jung's Theories

When we apply Jung's original general definitions of extraversion and introversion to the people being depicted in the personality theories, two major theory dimensions emerge: an extravert theory would place an emphasis on social, interpersonal dimensions; an introvert theory would emphasize internal, fantasy processes.

Social (Extravert) Aspects of the Three Theories. Within Freud's psychoanalysis, the concepts of "superego," "transference," "identification," "sublimation," and the "reality principle" might appear to represent social influences; however, the focus of those five concepts is on the associated internal rather than on the external processes. Glover (1956) commented: ". . . from a [Freudian] dynamic point of view, the so-called real world is a collection of objects of instincts, a target for the impulses of the individual . . ." (p. 81). Maddi (1989) noted: "Thus, although Freud talked a great deal about interpersonal relations, his theory rendered persons other than oneself as surprisingly uninfluential except as stereotypic objects of one's instincts" (p. 66).

In contrast, Adler's term "social interest" represents an ideal of understanding, appreciating, and cooperating with other people, which indicates a "centripetal movement" as Jung used the term. Salvatore (1991, p. 30), in integrating Jungian and Adlerian dimensions, associated social interest with extraversion. One of Adler's definitions of "social interest" sounds remarkably close to empathy: "To see with the eyes of another, to hear with the ears of another, to feel with the heart of another" (Adler, cited in Monte, 1991, p. 378). Adler's concept of "birth order" adds a reality-based dimension of social influence from siblings. Ellenberger (1970) commented, ". . . Adler's psychology is essentially a dynamics of interpersonal relationships" (p. 610). Adler emphasized that health meant being involved with others so that the enhancement of an individual also benefits others. Even Adler's theory of neurosis reveals extravert emphases: (a) "Adler's safeguards protect the self-esteem from threats by outside demands and problems of life," (Ansbacher & Ansbacher, 1956, p. 265); (b) Adler pioneered the view that neurotic symptoms are meant to have an effect on other people; and (c) Adler observed how various factors such as emotion function to give one person an interpersonal advantage.

In Jung's personality theory, there is a relative absence of socially oriented concepts. Only in his conception of the persona (the mask, presenting a pleasing appearance) and the shadow (aspects of the personality which are hidden from public view) contain a view of the influence of other, contemporary people within Jung's theory. However, these aspects of Jung's theory are clearly of lesser importance than the collective unconscious, archetypes, anima/animus and the principles of equivalence and of entropy which have a clearly intrapsychic rather than interpersonal focus.

Thus, Freud's apparently socially oriented dimensions are shown to place greater empasis on the internal (e.g., fantasy) rather than on the external orientation. Conversely, when Adler's self-protectiveness conceptions are viewed closely, there is clearly a social emphasis (i.e., it is other people that are being protected against). In addition, Adler's concept

of birth order and social interest are the only clearly social concepts from the three theorists. Progoff (1956) recognized the extraverted implications of Adler's "social feeling" but insisted on the introverted implications of Adler's "feeling of inferiority" conception. The presence of introversion early in life (inferiority) moving to extraversion later in life (social feeling) Progoff presented as paralleling Adler's personality theory in which people are able to move from a felt minus to a plus.

Internal (Introvert) Aspects of the Three Theories. Carl Jung acknowledged that when the introvert looks inward, she or he sees ". . . a world of images generally known as fantasies" (Evans, 1964, p. 68). We will begin with a consideration of the fantasy elements in Adler's theory (in keeping with Jung's classification of Adler's theory as introverted). One example is Adler's concept of "fictional finalism" (or fictional final goals), which is a theoretical statement about the use of fictions to form our goals for living. Adler's concept of "early recollections" also involves fantasy, especially in Adler's belief that even if the recollections are not objectively true, they nevertheless represent the person's life-style in an accurate way. Adler's view of dreams is that they serve a practical purpose for the dreamer, which might be to bring the mood or emotion which the dreamer needs in her or his real life. (In Jung's terms, this would be "centrifugal," in being oriented to the external world.) White (1957) made an overall comment about Adler's psychology: "Insufficient account is taken, for example, of the fantasies that go on . . . and of their demonstrable influence upon behavior and symptom formation" (p. 3).

In contrast, of course, Freud was much more involved with the fantasy of primary process, and of dreams, as represented in *The Interpretation of Dreams*. Such fantasy was centripetal, oriented to clarify the internal world of the person. Freud's view of the wish-fulfillment properties of dreams also indicates that they serve internal purposes. Freud's "pleasure principle" and "nirvana principle," similarly, which are oriented toward the inner regulation of tensions and excess stimulation, certainly describe internal processes of the introvert. After Freud discarded the seduction hypothesis (regarding childhood sexual experience), he considered that the fantasy experience had an impact similar to that of an actual experience. Freud's view of the Oedipal and Electra complexes is another prominent example in Freud's theory of the central place of fantasy.

There are some representations of the external, social world in Freud's theory, but the major emphasis is on the internal world and on internal processes. Similarly, there are some elements of fantasy in Adler's theory, but the major emphasis is on the external, social world. As in Jung's theory of intro- and extraversion, both kinds of orientations are present in Adler's and Freud's theories, but the predominant emphasis will be the dominant

function. So it is that in Adler's theory, exterior and social elements predominate, making Adler's an extravert theory. The opposite is true in Freud's theory: there are some social elements, but clearly the fantasy and interior elements predominate, making Freud's an introvert theory. Implicitly, Jung wanted to build his theory so that it incorporated both an introvert and extravert orientation, which would make his theory broader than the theories of either Adler or Freud. Similar to Freud's theory, Jung's theory had some social elements, but the predominant elements are internal (e.g., collective unconscious, shadow, anima/animus), thus making Jung's theory also introversive.

Given Jung's view that intro- and extraversion are comprehensive worldviews, there is a tendency to use one or the other in describing the world. As a theorist, Jung seemed to think and conceptualize as an introvert. Shapiro and Alexander (1975, p. 25), following Van Kaam, comment that the introversion and extraversion are both "psychological realities" which are not dependent on external reality; thus, at least that dimension of Jung's theory is introversive. Jung's concept of the "persona" (meaning the mask through which we make contact with the world), his conceptions of "archetypes" (the inherited images of ancient meaning), and of anima/animus (internal, idealized images of the other sex) all suggest that Jung was using an introversive point of view in describing the personality of both introverts and extraverts. (There is no known source where Jung indicated that there would be a difference in the person's relationship to her or his "persona," his or her "archetypes," her animus or his anima depending on his or her psychological type. Thus, it appears that Jung had an implicitly introvert personality theory.)

A Hypothesis about Jung's Classification

Surprisingly, in the foregoing review, I came to a different conclusion than did Jung in his application of his own conceptualization, the one which he developed precisely to clarify his understanding of the differences in Freud's and Adler's theories. This divergence of opinion promotes the consideration of a hypothesis which may have led to Jung making the classification which he made of those theories.

The timing (in 1913) of Jung's original classification of Adler's and Freud's theories was probably a major influence on how Jung made that classification. Stepansky (1983) placed in 1913–1914 Adler's introduction of concept of *gemeinschaftsgefuhl* (social interest or community feeling) which represents Adler's social emphasis (and gives his theory an extravert emphasis). Jung had classified Adler's theory as introverted in part because of Adler's concept of "safeguarding tendencies," a concept quite similar

to Freud's concept of defense mechanisms. However, the Ansbachers (1956, p. 265) pointed out that Freud's general use of defense was introduced in the 1920s, well after Jung made the classification of Adler's and Freud's theories. Even in their respective conceptions of self-protectiveness, Adler saw the person as defending from the negative judgments of other people, i.e., that the person is inferior in some important respect. For Freud, the person defends primarily against internal id pressures which would lead to self-censuring. Thus, there are different conceptions of what is being defended (or self-safeguarded) against, which associates Adler's theory with extraversion and Freud's with introversion.

Freud's theorizing about the origins of hysteria also took a decisive turn during that period. Freud first thought that his patients' descriptions of their childhood sexual seduction (what today would be called incest, sexual abuse, or rape) reflected actual events in their lives. During the years of 1897–1916 (Masson, 1984), Freud revised his view so that such events were imaginary (i.e., internal, not external events) reflecting fantasies and perhaps wishes on the part of the child (which seems like a shift from an extravert to an introvert orientation). Lukacher (1982, pp. x–xi) indicated: "Freud's rejection of . . . his 'theory of seduction' . . . marked the beginning of 'the idealist turning point'; for from this moment . . . Freud began to turn away from an *inter*psychic to an *intra*psychic theory of mental disorder" (italics in the original). Similarly, Wallace (1985) commented: ". . . after 1897 [following *Studies in Hysteria*] Freud shifted his focus increasingly to the inner, as opposed to the outer world" (p. 43).

Classifying the Personalities of Adler, Freud, and Jung

Adler's orientation to the outside world of environmental effects seems apparent; his involvement with Socialist causes points to his concern with external circumstances of living. His first book in 1898, *The Health Book for the Tailoring Trade*, was aimed at identifying the social circumstances which caused specific diseases (Ellenberger, 1970; Kaufmann, 1980; Stepansky, 1983). In addition, Adler's pioneering work in schools, mental hygiene clinics, and public education forums indicates his awareness of environmental influences on personality formation and functioning (an extraverted orientation).

Bottome (1939) wrote that she tried to describe both Adler and Freud as people from an unbiased view. Adler ". . . was a magnificent speaker—never at a loss, not even when questioned in a foreign tongue and without time for preparation. . . . but writing bored him . . ." (p. 58). In contrast, she wrote of Freud: "He did not let himself appear where he could be publicly questioned and only spoke in small intimate circles, always

preferring writing to speaking" (p. 58). Bottome also noted Adler's and Freud's contrasting styles of interacting in psychotherapy:

> Adler treated his patients on a footing of absolute equality. . . . There they sat, Adler and his patient, hobnobbing knee to knee and often smoking like chimneys while they talked, each trying to outwit the other, and both agreeing to outwit anything or anyone who came up against them" (pp. 58–59).

In contrast, "Freud never unbent with his patients. He was their master, and his patient had to be a docile pupil. No doubt he was a wise and patient master and a benevolent tyrant when unprovoked; but the dictator influence was always apparent in the Freudian school" (p. 59). Freud's declaration that he didn't like his patients staring at him (and thus having them lie on a couch) also may imply being introverted.

Ernest Jones (cited in Fromm, 1959) gave further indications of Freud as an introvert. Freud's typical working day was mostly spent with patients, in consultation, and on his corresponence and writing. He would take a late evening walk with either his wife, his sister-in-law, or his daughter. During meals, he had a habit ". . . of bringing his latest purchase of an antiquity . . . to the dinner table, and placing it in front of him as a companion during the meal" (p. 24). Freud's wife would have afternoon visitors and if there was ". . . anyone in whom Freud was interested he would drop into the drawing room for a few minutes" (p. 25).

Although it appears in a theoretical text, Freud's famous reaction to "love thy neighbor as thyself" has a personal tone. Freud (1930/1962) responded:

> Let us adopt a naive attitude towards it, as though we were hearing it for the first time; we shall be unable then to suppress a feeling of surprise and bewilderment. Why should we do it? What good will it do us? But above all, how shall we achieve it? How can it be possible? My love is something valuable to me which I ought not to throw away without reflection. It imposes duties on me for whose fulfillment I must be ready to make sacrifices. If I love someone, he must deserve it in some way. . . . He deserves it [my love] if he is so like me in important ways that I can love myself in him; and he deserves it if he is so much more perfect than myself that I can love my ideal of my own self in him. (p. 56)

In these statements, movements of the person toward others are first evaluated internally to gauge their value and meaning to the person, and thus seem introverted.

Donn (1988) cited Freud and Jung describing themselves in ways that suggest they were both introverts. Freud: "It has always taken me a long time to win a friend, and every time I meet someone I notice that to begin with some impulse . . . [which] leads him to underestimate me" (p. 44). Jung:

My "unusualness" was gradually beginning to give me the disagreeable, rather uncanny feeling that I must possess repulsive traits, of which I was not aware, that caused my teachers and schoolmates to shun me. . . . I sensed in others an estrangement, a distrust, an apprehension which robbed me of speech (Donn, 1988, p. 25). Freud and Jung's famous uninterrupted 13-hour first meeting and the intensity of their relationship (as evidenced in the Freud/Jung Letters) suggest that they shared some personal characteristics (which probably included being introverted personalities).

It seems relatively straightforward to classify Jung, the person, as an introvert. In the first place, he acknowledged: "Everyone would call me an introvert" (Black, 1977, p. 256). (It seems surprising, though, that Jung would define his own personality type by the way others would classify him.) The following two excerpts from Jung's (1963) autobiography also clearly point to his being an introvert: "My life is a story of the self-realization of the unconscious" (p. 3).

> Outward circumstances are no substitute for inner experience. Therefore my life has been singularly poor in outward happenings. I cannot tell much about them, for it would strike me as hollow and insubstantial. I can understand myself only in the light of inner happenings. It is these that make up the singularity of my life . . . (Jung, 1963, p. 5)

Overall, the biographical indications are that, in their personal and professional lives, Adler was an extravert, while both Freud and Jung were introverts. Jung, in a 1941 letter (G. Adler & Jaffe, 1973a, pp. 301–302) indicated that, as people in their later lives, Adler was an extravert while Freud was an introvert. In 1955, Jung commented (Black, 1977): ". . . as to his [Freud's] personal type, I would not speculate" (p. 257). However, in a 1957 letter (G. Adler & Jaffe, 1973b) Jung indicated his belief that Freud's personal type classification had shifted over time: "I consider him to have been originally an introverted feeling type. . . . Freud, then [in 1907, when Jung met Freud] as later, presented the picture of an extraverted thinker and empiricist" (p. 347). This is a reversal of Jung's view expressed in 1941.

Way (1950) categorized Adler and Freud in the following manner: Adler as an extravert, Freud as an introvert in their personal lives. However, Progoff (1956) identified Adler as having been introverted early in his life, later becoming extraverted. The latter classification agreed with Jung's view in 1941 of Adler's personality in later life. Progoff noted: "Jung does not consider himself ever to have been an extravert" (p. 129).

Conclusion

Jung's classification of Adler's and Freud's personality theories may

have accurately reflected their early theorizing. In their early years, Adler's and Freud's personality types may have been the opposite of the personality theories and personalities of their mature years. The personality type reflected in the personality theories and the personalities of those theorists seems in agreement during the early and late periods of their lives. Jung, however, remained consistent in his personality theory and in his personality between his earlier and later life. During his later life, Adler had an extravert-oriented personality theory and was an extravert. During his later life, Freud had a personality theory which reflected introverted functioning and was an introverted personality. Jung's personality theory was consistent in describing the functioning of introverts, and Jung was an introvert throughout his life.

References

Adler, G., & Jaffe, A. (1973a). C. G. Jung letters, Vol. 1: 1906–1950 (R. F. C. Hull, Trans.; Bollingen Series 95-1.) Princeton: Princeton University Press.

Adler, G., & Jaffe, A. (1973b). C. G. Jung letters, Vol. 2: 1951–1961. (R. F. C. Hull, Trans.; Bollingen Series 95-2.) Princeton: Princeton University Press.

Ansbacher, H. L., & Ansbacher, R. (1956). The Individual Psychology of Alfred Adler: A systematic presentation of his writings. New York: Basic Books.

Atwood, G., & Tomkins, S. (1976). On the subjectivity of personality theory. Journal of the History of the Behavioral Sciences, 12, 166–177.

Black, S. (1977). The Stephen Black interviews. In W. McGuire & R. F. C. Hull (Eds.), C. G. Jung speaking: Interviews and encounters (pp. 1–12). Bollingen Series 96). Princeton: Princeton University Press.

Bottome, P. (1939). Alfred Adler: A biography. New York: Putnam.

Donn, L. (1988). Freud and Jung: Years of friendship, years of loss. New York: Macmillan.

Ellenberger, H. F. (1970). The discovery of the unconscious: The history and evolution of dynamic psychiatry. New York: Basic Books.

Evans, R. I. (1964). Conversations with Carl Jung and reactions from Ernest Jones. New York: Van Nostrand Reinhold.

Freud, S. (1962). Civilization and its discontents. (J. Strachey, Trans.). New York: Norton. (Original work published 1930)

Fromm, E. (1959). Sigmund Freud's mission: An analysis of his personality and influence. New York: Harper & Bros.

Glover, E. (1956). Freud or Jung? New York: Meridian Books.

Jung, C. G. (1956). *Two essays on analytical psychology*. New York: Meridian. (Original work published 1916)

Jung, C. G. (1963). *Memories, dreams, reflections*. (R. & C. Winston, Trans.). New York: Pantheon.

Jung, C. G. (1971a). *Psychological types* (Vol. 6 of the collected works of C. G. Jung; H. G. Barnes, Trans., & R. F. C. Hull, Rev.; Bollingen Series 20). Princeton: Princeton University Press. (Original work published 1921)

Jung, C. G. (1971b). A contribution to the study of psychological types. In C. G. Jung, *Psychological types* (pp. 499–509). (Vol. 6 of the collected works of C. G. Jung; H. G. Barnes, Trans. & R. F. C. Hull, Rev.; Bollingen Series 20). Princeton: Princeton University Press. (Original work published 1913)

Kaufmann, W. (1980). *Discovering the mind* (Vol. 3: Freud versus Adler and Jung). New York: McGraw-Hill.

Lukacher, N. (1982). Translator's introduction: Freud's phantom. In M. Balmary, *Psychoanalyzing psychoanalysis* (pp. ix–xxiii). Baltimore: Johns Hopkins University Press.

Maddi, S. R. (1989). *Personality theories: A comparative analysis* (5th ed.). Chicago: Dorsey.

Masson, J. M. (1984). *The assault on truth: Freud's suppression of the seduction theory*. New York: Farrar, Straus, & Giroux.

Monte, C. F. (1991). *Beneath the mask: An introduction to theories of personality* (4th ed.). Fort Worth: Holt, Rinehart, Winston.

Progoff, I. (1956). *The death and rebirth of psychology*. New York: Julian.

Salvatore, C. (1991). *Instructor's manual to accompany Beneath the Mask* (4th ed.). Fort Worth: Holt, Rinehart, & Winston.

Shapiro, J. K., & Alexander, I. E. (1975). *The experience of introversion: An integration of phenomenological, empirical, and Jungian approaches*. Durham: Duke University Press.

Stepansky, P. (1983). *In Freud's shadow: Adler in context*. Hillsdale, NJ: Analytic.

Wallace, E. R., IV. (1985). *Historiography and causation in psychoanalysis*. Hillsdale, NJ: Lawrence Erlbaum.

Way, L. (1950). *Adler's place in psychology*. London: George Allen & Unwin.

White, R. W. (1957). Is Alfred Adler alive today? [Review of *The Individual Psychology of Alfred Adler*.] *Contemporary Psychology, 2*, 1–4.

Wilson, C. (1988). *C. G. Jung: Lord of the underworld*. Wellingborough, England: Aquarian. (Original work published 1984)

PERSONALITY THEORIES

TOWARD A MULTIVARIATE THEORY OF PERSONALITY STYLES: MEASUREMENT AND RELIABILITY[1]

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This study reports the development of a theory of multivariate personality styles. Theoretical descriptions of each personality style were operationalized by predicting specific combinations of personality variables, as measured by previously validated personality measures. A test battery composed of scales hypothesized to operationalize the characteristics of the four personality styles thought to be most prevalent was administered to two samples of college students. A cluster analysis methodology reliably isolated four clusters of individuals whose results on the test battery corresponded closely to the predicted profiles of the hypothesized personality styles. Implications for the use of typologies in psychological research are discussed.

Although early typological theories of personality (Jung, 1921; Spranger, 1928) long since have been abandoned by personality researchers, recent awareness of the low level of prediction generated by single-variable personality research (Mischel, 1968) and the increasing support for an interactionist model of personality that combines taxonomies of persons and situations (Bowers, 1973; Ekehammar, 1974) suggest that the time may be ripe for new, more sophisticated typological theories that combine several personality dimensions into multidimensional personality "types."

This paper is the first of a series of studies that investigate a new multivariate theory of personality types or "styles." This theory suggests that any personality type or style consists of a specific combination of psychological defenses, cognitive and affective styles, belief and value systems, moral development, etc. Members within a specific style may vary in the degree to which these common factors or style are manifested, but all members of one style share the same major characteristics. These hypothesized types are not conceptualized as discrete categories; rather they are viewed as hypothetical representations of ideal or theoretical types (Vernon, 1973).

Each style also includes the entire range of adjustment, from well adjusted, "normal" people to poorly adjusted hospitalized patients. That is, no one group is viewed as pathological; rather, each style contains some members typically judged as "abnormal." The names of the poorly adjusted or pathological subgroup of each style are used to identify the entire style that contains them. Although somewhat confusing, these names have been retained to illustrate that the processes involved with each style originally were formulated in literature that pertains to these diagnostic groups. Thus, eight styles are postulated that correspond to the eight traditional diagnostic groups and are called: the Hysteric, Compulsive, Character Disorder, Manic, Depressive, Paranoid, Catatonic, and Schizophrenic styles.

Descriptions of each style have been developed based on the writings of many authors in the areas of personality and abnormal psychology. Although space limitations prevent a complete discussion of these styles, short descriptions of each of the four styles utilized in the study are summarized below. The Hysteric Style (Miller & Magaro, Note 1) is characterized by use of the defense mechanism of repression, combined with global, impressionistic cognitive and affective processes. These characteristics lead to suggestibility, romantic hopefulness, and a tendency to establish dependency relationships. Members of the Hysteric Style were predicted to be repressors on the Repression-Sensitization Scale (Byrne, 1961), altruistic on the Altruism subscale of the Philosophies of Human Nature Scale (Wrightsman, 1974), external on the Locus of Control Scale (Rotter, 1966), and

[1]Portions of this study were presented to the Eastern Psychological Association, New York, April 1975. Requests for reprints should be sent to Ivan W. Miller, III, Department of Psychology, Little Hall, University of Maine, Orono, Maine 04473.

field dependent on the Hidden Figures Test (Briggs & Myers, 1962). Secondary predictions for the Hysteric Scale were high sensation-seeking, extraverted, low dogmatic, low cynicism, and low neurotic.

The Compulsive Style (Miller & Magaro, Note 2) is characterized by a strong need for control that is met by the development of an intellectual system that fits all situations into predetermined categories. These characteristics of need for control and compartmentalized cognitive structure lead to other characteristics of self-doubting, introversion, and a desire for independence and self-sufficiency. Members of the Compulsive Style were hypothesized to be sensitizers on the Repression-Sensitization Scale, introverts on the Social Introversion (Hathaway & McKinley, 1967) and the Eysenck Personality Inventory (Eysenck & Eysenck, 1968), internal on the Locus of Control scale and field independent on the Hidden Figures Test. Secondary predictions were low sensation-seeking and low self-esteem (Hovland & Janis, 1959).

The central characteristic of the Character Disorder Style (Miller & Magaro, Note 3) is manipulation. The Character Disorder is concerned principally with self-gratification, which he attempts to achieve through interpersonal manipulation. This egocentric manipulation leads to further qualities of inconsistency of behavior, lack of affect, and highly developed social skills. The major predictions for members of the Character Disorder Style were high machiavellian on the Machiavellianism Scale (Christie & Geis, 1970), high cyncisim on the Cynicism subscale of the Philosophies of Human Nature Scale, and high sensation-seeking on the Sensation-Seeking Scale (Zuckerman, Kolin, Price, & Zoob, 1964). Secondary predictions include low altruism and extraversion.

The Depressive Style (Miller & Magaro, Note 4) is characterized by a lack of personal self-worth and feelings of dependency that in turn leads to cognitive rigidity, obedience to authority, reduction of personal satisfactions, and prejudice toward outgroups. Members of the Depressive Style were predicted to score highly dogmatic on the Dogmatism Scale (Rokeach, 1960), external on the Locus of Control Scale, field dependent on the Hidden Figures Test, highly neurotic on the Eysenck Personality Inventory, and low on the self-esteem subscale of Ziller's Social Symbols Scale (Ziller, Hagey, Smith, & Long, 1969). Secondary predictions of sensitizer, low sensation-seeker, and introvert also were made.

Attempts to validate previous typological theories, such as that of Jung (1921), have confounded the problem of scale validation with the validation of the typology itself (Stricker & Ross, 1964). This study attempts to overcome this problem by utilizing previously researched and validated scales in combination with a cluster analysis methodology. Studies that use a cluster analysis method also have been criticized for lack of an underlying theory and predictions (Fleiss & Zubin, 1969). Again, this study attempts to overcome this previous limitation by making definite predictions of the characteristics of the obtained clusters.

Experiment 1

Method

The *Ss* were 107 introductory psychology students at the University of Maine, Orono, who were fulfilling a class requirement. Each *S* was given a test booklet comprised of the 10 personality measures in Table 1.

Results

The specific clustering procedure used was Lorr and Radhakrishnan's (1967) Type B. When the congruency coefficient (Cohen, 1969) with a limit for inclusion of $r_c = .50$ was used, four clusters that comprised 46% of the sample were isolated by the clustering procedure. The means of the clusters obtained when the congruency coefficient was used are presented in Table 2. Each cluster then was characterized by those scales in which the obtained mean in the cluster was at least .5

TABLE 1

SAMPLE MEANS AND STANDARD DEVIATIONS OF THE SCALES USED IN EXPERIMENTS 1 AND 2

Scale	Experiment 1		Experiment 2	
	$\bar{X}$	*SD*	$\bar{X}$	*SD*
Sensation-Seeking Scale	17.7	4.9	18.5	5.5
Dogmatism Scale	−11.1	20.2	−19.7	29.8
Repression-Sensitization Scale	63.6	14.6	63.2	16.3
Machiavellian Scale V	82.7	13.3	85.5	6.7
Philosophies of Human Nature Scale				
Cynicism Subscale	2.3	5.0	− 1.7	6.5
Altruism Subscale	.4	5.6	3.8	6.6
Internal-External Locus of Control Scale	11.8	4.5	———	——
Janis Field Self-Esteem Inventory	63.1	11.5	———	——
Social Introversion Scale	27.5	8.6	———	——
Ziller Social Symbols Scale Self Esteem Subscale	23.4	8.0	———	——
Hidden Figures Test	———	——	10.7	6.5
Eysenck Personality Inventory				
Extroversion Subscale	———	——	11.0	3.9
Neuroticism Subscale	———	——	10.1	4.6

*SD*s from the sample mean. As can be seen, the obtained characteristics of the clusters supported 12 of the 23 predictions about particular combinations of personality dimensions. Seven of the non-confirmed predictions were in the predicted direction, but did not reach the required level of difference from the sample mean. Four of 7 predictions about the Hysteric Style were supported. A similar result was found for the Character Disorder Style; 3 of 5 predictions were confirmed. The results that concern the Compulsive and Depressive Styles were not as clear-cut. The characteristics of the first cluster supported 4 of 5 predictions of the Compulsive Style, but also supported 4 of the 6 Depressive Style predictions. The fourth cluster, however, confirmed neither style with 1 of 5 and 1 of 6 predictions supported, respectively. However, the results that concern the major dimension theoretically predicted to distinguish between these two styles, the Locus of Control Scale, suggest tentatively that the first cluster is a Depressive cluster, while the fourth cluster is a Compulsive cluster.

This failure to differentiate between the Depressive and the Compulsive Styles appeared to be attributable, in part, to the similarity of prediction between the Compulsive and Depressive Styles. Because the cluster analysis methodology averages the correlation for each scale to obtain one overall correlation coefficient between each *S* and every other *S*, the one scale theoretically designated to differentiate between the two styles, the Locus of Control Scale, did not carry enough overall weight to overcome the similarities between the two styles on other scales.

In an attempt to overcome this problem of differential weighting of variables, we factor analyzed the test battery in order to use the factor scores in the cluster analysis. As pointed out by Fleiss and Zubin (1969) and Everitt (1974), this procedure corrects for unequal weighting of raw scores by giving each factor an equal weight in the cluster analysis. Unfortunately, the nature of the three obtained factors was such that differential predictions that concern the four styles could not be made on these factors. That is, had the three obtained factors been used as variables, the theoretical predictions of the Compulsive and Depressive Styles would have been identical.

TABLE 2

OBTAINED CLUSTER AND GROUP MEANS IN EXPERIMENT 1

	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Sensation-Seeking Scale	15.1***	21.0***	19.2**	15.9**
Dogmatism Scale	.4**	−23.8**	6.5	18.7
Repression-Sensitization Scale	80.4***	48.5***	62.7	54.4*
Machiavellian Scale	85.2	83.5	90.1***	67.4*
Cynicism Scale	2.4	5.1*	5.6***	−4.7*
Altruism Scale	−.7	3.5***	−7.3***	1.7
Internal-External Locus of Control Scale	15.0***	11.4	11.5	8.3***
Janis-Field Self-Esteem Inventory	77.2*	54.3*	59.1	58.4**
Social Introversion Scale	36.3***	20.4***	26.6**	26.9**
Self-Esteem Scale (Ziller)	23.1	30.1*	16.5*	19.0*
	$N = 19$	$N = 11$	$N = 9$	$N = 10$
	Depressive	Hysteric	Character Disorder	Compulsive

*± .5 *SD*s from sample means.
**in predicted direction but not at .5 *SD* level.
***meets prediction at .5 *SD* level.

To correct for the deficiencies in our first battery and to replicate the results of the first cluster analysis, a second battery was organized that consisted of several of the scales used in the first battery and several new scales.

EXPERIMENT 2

METHOD

The *S*s were 130 students at the University of Maine, Orono. In an effort to increase the heterogeneity of the sample, *S*s were juniors and seniors from a large number of different majors within the University. The *S*s were asked to participate, and if agreeable were given a test booklet comprised of the measures listed in Table 1. The first test, the Hidden Figures Test, was timed and collected, then the *S*s finished the rest of the personality measures.

RESULTS

In order to avoid the weighting problem found in the first experiment, the data were factor analyzed by use of a principal components solution and a varimax rotation. The four factors that emerged tentatively were labeled: Anxiety, Positive Values Toward People, Extraversion, and Field Independent Cognitive Style.[2] Predictions for each style were made on these four factors. The Hysteric Style was predicted to score low on the Anxiety factor, high on the Extraversion factor, high on the Positive Values factor, and low on the Cognitive Style factor. The Compulsive Style was hypothesized to be highly anxious, low extraverted, and highly field independent. No predictions were made for the Compulsive Style on the Values Toward People factor. The Character Disorder Style was predicted to score low on the Anxiety factor, low on the Positive Values Toward People factor, high on the Extraversion factor. No specific predictions with regard to the Cognitive Style factor were made for this style. The Depressive Style was predicted to score high on the Anxiety factor, low on the Extraversion factor, and low on the Field Independence factor.

[2]The obtained factor loadings are available upon request from the first author.

TABLE 3

OBTAINED CLUSTER MEANS IN EXPERIMENT 2

	Cluster 1	2	3	4	5
Sensation-Seeking Scale	15.9 ***	21.6 *	21.1 ***	22.0 ***	18.4 **
Dogmatism Scale	−23.7	−11.7	−3.4 *	−43.3 ***	−24.6
Repression-Sensitization Scale	81.2 ***	67.9	56.1	48.9 ***	59.6
Machiavellian Scale	84.3	81.2 *	87.6 ***	83.6	83.2
Cynicism Scale	−3.5	−1.7	−2.1	2.4	.4
Altruism Scale	2.2	−.2 *	−3.4 ***	9.3 ***	5.4 *
Hidden Figures Test	8.8 ***	4.7 *	15.6 *	6.5 ***	16.8 ***
Extraversion Scale	8.0 ***	13.9 *	14.3 ***	14.4 ***	8.4 ***
Neuroticism Scale	14.6 ***	12.5 *	8.1	6.3 ***	7.2 *
Factor 1 (Anxiety)	.69***	.66	−.23**	−.74***	−.42*
Factor 2 (Postitive Values Toward People)	−.08	−.40	−.80***	.66***	.18
Factor 3 (Extraversion)	−.79***	.59	.77***	.57***	−.29**
Factor 4 (Field Independent Cognitive Style	−.26**	−.77	.60*	−.54***	.78***
	$N = 21$	$N = 14$	$N = 9$	$N = 11$	$N = 5$
	Depressive Style		Character Disorder Style	Hysteric Style	Compulsive Style

*± .5 *SD*s from sample means.
**in predicted direction but not at .5 *SD* level.
***meets prediction at .5 *SD* level.

A factor score for each of these four factors then was computed for each *S*, and those four scores were utilized in the Lorr and Radhakrishnan (1967) Type B cluster analysis used in Experiment 1. With limits for inclusion of $r_s = .50$, five clusters that comprised 46% of the sample were isolated. As in Experiment 1, any scale or factor score that deviated .5 *SD*s from the sample mean was considered to be characteristic of that cluster. The means of each scale and factor for each cluster are presented in Table 3.

As can be seen, 18 of 23 predictions that concern combinations of individual scales and 9 of 13 predictions of combinations of factor scores were supported by the cluster analysis. Three of the factor scores were also in the predicted direction, but did not reach the .5 *SD* criterion.

The profile of the first cluster corresponded to five of the six individual scale predictions for the Depressive Style. The factor scores for this cluster also supported two of the three factor score predictions of the Depressive Style. The second cluster did not appear to correspond to any of the predicted styles. The third cluster was characterized by scale and factor scores that supported four of five scale and two of three factor predictions that concerned the Character Disorder Style. The results of the fourth cluster corresponded to seven of eight scale and four of four factor predictions for the Hysteric Style. The fifth cluster was characterized by scale and factor scores that supported two of the four scale and one of three factor predictions for the Compulsive Style.

Discussion

The results of these two experiments demonstrate that it is possible to isolate reliably four groups of individuals that closely correspond to the descriptions and predictions of the hypothesized personality styles.

The Hysteric Style was supported strongly by both analyses, as four of seven and seven of eight predicted scale and four of four factor score characteristics were obtained. These results strongly support the existence of a group of individuals highly similar to those predicted to be of the Hysteric Style, which is characterized by the defense mechanism repression, global cognitive and affective processes, high suggestibility, naiveté, and dependency.

The Character Disorder Style also was supported in both studies, as three of four and four of five predicted scale and two of three factor score characteristics were obtained. Again, these results strongly suggest that there does exist a group of people highly similar to the theoretical predictions for the Character Disorder Style, which is described as a person who is an egocentric manipulator with highly developed social skills and a relative lack of affect.

Although Depressive and Compulsive clusters could not be distinguished definitively in the results of Experiment 1, the results of Experiment 2 clarify the situation. The first cluster in Experiment 2 clearly conforms to the scale and factor predictions of the Depressive Style with five of six and two of three predictions confirmed, respectively. This cluster also appears to be highly similar to the first cluster in Experiment 1, which conformed to four of six Depressive Style predictions. These combined results support the existence of a group that we have called the Depressive Style, which is characterized by cognitive rigidity, lack of personal self-worth, obedience to authority, reduction of personal satisfactions, and prejudice toward outgroups.

The Compulsive Style received less support from the results than did any other style examined. In the first experiment, the fourth cluster supported only one of five predictions, although three others were in the predicted direction. The fifth cluster of Experiment 2 supported two of four scale and one of three factor score predictions. Most of the unconfirmed predictions can be traced to the Repression-Sensitization Scale. In both obtained clusters, the results of the R-S scale were not in the predicted direction. Similarly, the R-S scale loaded heavily on one factor that did not conform to the predictions of this style. Thus it appears that either the theoretical prediction of the Compulsive as a sensitizer is mistaken or, alternatively, that we have isolated a group that we have not predicted theoretically. Further research is necessary to answer this question.

The one obtained cluster that did not conform to the theoretical predictions was the second cluster in Experiment 2. As can be seen in Table 3, the characteristics of this cluster can be interpreted as a combination of the characteristics of the Hysteric and Depressive Styles. The characteristics of field dependency, low sensation-seeking, and extraversion are characteristics of the Hysteric Style, while the high neuroticism and field dependency scores are characteristic of the Depressive Style. It seems possible, therefore, that this cluster consists of individuals who combine the characteristics of the Depressive and Hysteric Styles. As mentioned earlier, combinations of styles are expected within the theoretical framework. However, we would not expect this group to occur with the frequency or reliability of the other styles. Although the obtained cluster was fairly large (N = 14), it was not found in the first analysis and thus possibly may be an artifact of the particular scales used in the second battery. It is also possible that this group represents a distinct personality style not predicted by the theory. Further study will be needed to decide among these alternative explanations.

In conclusion, there appears to be strong support for the Hysteric, Character Disorder, and Depressive Styles and moderate support for the Compulsive Style. In large degree, then, the predictions of this theory of multivariate personality styles were confirmed by this study. It is possible to isolate reliably clusters of

individuals that closely correspond to the predictions of the theory. While these results on the measurement and reliability of the personality styles are highly encouraging, several further steps will be needed to establish the validity of this typology. The predictive validity of the theory should be investigated by making specific predictions with regard to the behavior of each style in an experimental situation. The construct validity also could be investigated by examining the relationship between the normal members of a particular personality style and their maladjusted, psychiatric subgroup.

Reference Notes

1. Miller, I. W., III, & Magaro, P. A. The hysteric personality style. Unpublished manuscript. Available from I. W. Miller, III, Department of Psychology, Little Hall, University of Maine, Orono, Maine 04473.
2. Miller, I. W., III, & Magaro, P. A. The compulsive personality style. Unpublished manuscript. Available from I. W. Miller, III, Department of Psychology, Little Hall, University of Maine, Orono, Maine 04473.
3. Miller, I. W., III, & Magaro, P. A. The character disorder personality style. Paper presented at the International Institute for the Study of Psychopathic Behavior, Les Arcs, France, September, 1975. Available from I. W. Miller, III, Department of Psychology, Little Hall, University of Maine, Orono, Maine 04473.
4. Miller, I. W., III, & Magaro, P. A. The depressive personality style. Unpublished manuscript. Available from I. W. Miller, III, Department of Psychology, Little Hall, University of Maine, Orono, Maine 04473.

References

Bowers, K. Situationism in psychology: An analysis and critique. *Psychological Review*, 1973, *80*, 307-336.

Briggs, K. E., & Myers, I. B. The *Moyer-Briggs Type Indicator Manual*. Princeton, N.J.: Educational Testing Service, 1962.

Byrne, D. The repression-sensitization scale: Rationale, reliability, and validity. *Journal of Personality*, 1961, *29*, 334-349.

Christie, R., & Geis, F. L. *Studies in machiavellianism*. New York: Academic Press, 1970.

Cohen, J. r_c: A profile similarity coefficient invariant over variable reflection. *Psychological Bulletin*, 1969, *71*, 281-284.

Ekehammar, B. Interactionism in personality from a historical perspective. *Psychological Bulletin*, 1974, *81*, 1026-1048.

Everitt, B. S. *Cluster analysis*. New York: John Wiley, 1974.

Eysenck, H. J., & Eysenck, S. B. *Eysenck Personality Inventory*. San Diego, Calif.: Educational and Industrial Testing Service, 1968.

Fleiss, J. L., & Zubin, J. On the methods and theory of clustering. *Multivariate Behavioral Research*, 1969, *4*, 235-250.

Hathaway, S. R., & McKinley, J. E. *The Minnesota Multiphasic Personality Inventory Manual* (rev.). New York: Psychological Corporation, 1967.

Hovland, C., & Janis, I. (Eds.) *Personality and persuasion*. New Haven, Conn.: Yale University Press, 1959.

Jung, C. G. *Psychological types*. Princeton, N.J.: Princeton University Press, 1921.

Lorr, M., & Radhakrishan, B. K. A comparison of two methods of cluster analysis. *Educational and Psychological Measurement*, 1967, *27*, 47-53.

Mischel, W. *Personality and assessment*. New York: John Wiley, 1968.

Rokeach, M. *The open and closed mind*. New York: Basic Books, 1960.

Rotter, J. Generalized expectancies for internal vs. external control of reinforcement. *Psychological Monographs*, 1966, *80*, 1-28.

Spranger, E. *Types of men*. Halle, Germany: Max Niemeyer Verlag, 1928.

Stricker, L. J., & Ross, J. An assessment of some structural properties of the Jungian personality typology. *Psychological Bulletin*, 1964, *68*, 62-71.

Vernon, P. E. Multivariate approaches to the study of cognitive styles. In J. R. Royce (Ed.), *Multivariate analysis and psychological theory*. London: Academic Press, 1973.

Wrightsman, L. *Assumptions about human nature: A social-psychological approach*. Monterey, Calif.: Brooks/Cole, 1974.

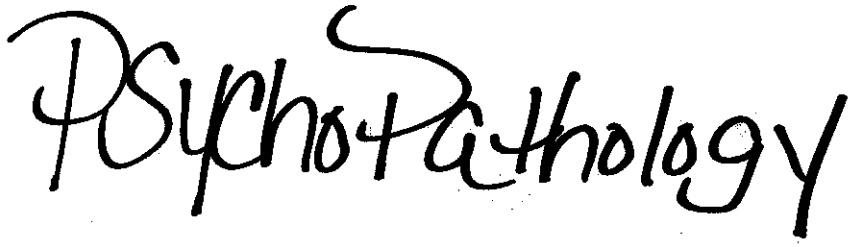
Ziller, R. C., Hagey, J., Smith, D. C., & Long, B. H. Self-esteem: A self-social construct. *Journal of Consulting and Clinical Psychology*, 1969, *33*, 84-95.

Zuckerman, M., Kolin, A., Price, L., & Zoob, I. Development of a sensation-seeking scale. *Journal of Consulting Psychology*, 1964, *28*, 477-482.

13

ASSESSMENT AND TREATMENT OF BINGE EATING DISORDER

WILLIAM G. JOHNSON and LAINE J. TORGRUD



Perhaps the most salient topic in the eating disorders literature over the past few years has been binge eating, and several factors have contributed to this burgeoning interest. First, binge eating is ubiquitous, being widely distributed in both eating-disturbed and normal populations. It has long been recognized as a serious clinical problem in obesity (Loro & Orleans, 1981; Stunkard, 1959) and anorexia nervosa (Garfinkel, Moldofsky, & Garner, 1980), and binge eating is central to the diagnosis of bulimia nervosa and the newly proposed binge eating disorder (American Psychiatric Association, 1994). Furthermore, binge eating is observed with troublesome frequency in college populations (Halmi, Falk, & Schwartz, 1981; Hawkins & Clement, 1980).

A second factor promoting interest in binge eating concerns its relationship to several important clinical features. Bingeing increases with adiposity (Telch, Agras, & Rossiter, 1988), and it is associated with psychopathology in individuals with obesity (Kolotkin, Revis, Kirkley, & Janick, 1987; Marcus et al., 1990a), anorexia nervosa (DaCosta & Halmi, 1992), and nonpurging bulimic individuals (Prather & Williamson, 1988). Binge eating is also related to poor treatment outcome for obesity (Keefe, Wyshogrod, Weinberger, & Agras, 1984; Marcus, Wing, & Hopkins, 1988).

A third factor encouraging attention to binge eating is the development of diagnostic categories in which binge eating is the most prominent

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characteristic. Binging was a major component of bulimia nervosa in *DSM-III* (American Psychiatric Association, 1980), yet research following the publication of *DSM-III* criteria for bulimia nervosa soon identified two groups of bulimic patients: those who purged and those who did not. In *DSM-III-R* (American Psychiatric Association, 1987), bingeing and purging became criteria for bulimia nervosa, and a diagnostic impasse emerged for obese binge eaters (e.g., Marcus et al., 1988; Marcus, Smith, Santelli, & Kaye, 1992) and nonpurging bulimic patients (e.g., McCann, Rossiter, King, & Agras, 1991). Spitzer et al. (1991) proposed that such individuals be diagnosed with binge eating disorder (BED), with binge eating as its central feature.

While some have argued that the proposed BED category is premature (Fairburn, Welch, & Hay, 1993), two multisite studies support the existence of a distinct BED syndrome, with approximately 30% of the obese population and 2% to 5% of the general population satisfying diagnostic criteria (Spitzer et al., 1992, 1993). In addition, BED has been associated with severe obesity, marked weight fluctuations, impaired social and work functioning, overconcern with body shape and weight, psychopathology, amount of adult lifetime spent on diets, and a history of treatment for emotional problems. Presently, BED has been included in the appendix of *DSM-IV* as a category warranting further study (American Psychiatric Association, 1994).

CHARACTERISTICS OF BINGE EATING DISORDER

The proposed diagnostic criteria for BED are listed in Exhibit 1. In brief, the diagnosis requires that binge episodes occur at least twice weekly for 6 months and be experienced as distressing. Also, for an eating episode to be identified as a binge, it must satisfy at least three of the five associated features in section B of Exhibit 1. Because the diagnosis of BED is a recent development, only a handful of studies have targeted subjects satisfying the formal criteria for the disorder (e.g., Fichter, Quadflieg, & Brandl, 1993; Nangle, Johnson, Carr-Nangle, & Engler, 1994; Yanovski et al., 1992). Fortunately, information prior to the development of formal BED criteria can be gleaned from the literature on obese binge eaters and nonpurging bulimic patients—many of whom would satisfy current criteria for BED (Antony, Johnson, Carr-Nangle, & Abel, 1994). Together these groups will be referred to as pre-BED subjects.

Binge Eating Behavior

Central to the diagnosis of BED is binge eating, and research has addressed its frequency, size, composition, duration, and relation to antecedents and consequences in both pre-BED and BED populations.

EXHIBIT 1
Proposed *DSM-IV* Diagnostic Criteria for Binge Eating Disorder

A. Recurrent episodes of binge eating, an episode being characterized by both of the following:
   1. Eating, in a discrete period of time (e.g., within any 2-hour period), an amount of food that is definitely larger than most people would eat during a similar period of time in similar circumstances.
   2. A sense of lack of control during the episodes, for example, a feeling that one cannot stop eating or control what or how much one is eating.
B. During some of the episodes, at least three of the following:
   1. Eating much more rapidly than usual.
   2. Eating until feeling uncomfortably full.
   3. Eating large amounts of food when not feeling physically hungry.
   4. Eating alone because of being embarrassed by how much one is eating.
   5. Feeling disgusted with oneself, depressed, or feeling very guilty after overeating.
C. Marked distress regarding binge eating.
D. The binge eating occurs, on average, at least twice a week for a 6-month period.
E. Does not occur only during the course of bulimia nervosa or anorexia nervosa.

From Spitzer et al. (1993)

Frequency

Binge frequencies in excess of those required by *DSM-IV* diagnostic criteria have been reported in studies of both pre-BED and BED individuals. For example, Marcus et al. (1992), employing a semistructured interview, obtained an average reported binge frequency of approximately 16.0 episodes in 28 days for obese binge eaters. Average frequencies over 10 weeks have been found for nonpurging bulimic subjects (Rossiter, Agras, Telch, & Bruce, 1992). In a comparison of BED, nonclinical binge eaters, and normal subjects, Johnson, Schlundt, Barclay, Carr-Nangle, and Engler (1995) found that BED subjects were more likely to identify eating episodes as binges (36.2% of episodes vs. 23.2% for nonclinical binge eaters and 12.1% for normal subjects). These data translate to a weekly binge frequency of approximately 10 for BED subjects, 7 for nonclinical binge eaters, and 3 for normal subjects. Clearly, binge eating is a frequent phenomenon in clinical populations and in many normal individuals who may not satisfy other diagnostic criteria. It has been suggested that number of binge days, as opposed to the frequency of binge episodes, may be the preferred index of binge severity in nonpurging subjects because of the difficulty of demarcating binge episodes that do not end with purging (Rossiter et al., 1992). This difficulty in specifying the termination of a binge contributes to the problem of defining binge episodes, an issue that pervades research on the various aspects of binge behavior.

Amount and Composition

Studies investigating the amount of food consumed during binge episodes reveal considerable variability. Using self-monitoring records, Rossiter et al. (1992) reported an average consumption of approximately 600 kcal (range: 25–6000) in nonpurging bulimic patients. This finding contrasts with the laboratory study of Yanovski et al. (1992) on a BED sample in which an average of nearly 3000 kcal (range: 2300–3600) was observed. This difference in self-monitored versus laboratory estimates of caloric consumption is no doubt a result of methodological variables such as demand characteristics among others and is also evident in similar studies on subjects with bulimia nervosa (e.g., Rossiter & Agras, 1990; Walsh, Kissileff, Cassidy, & Dantzic, 1989). Regardless of actual size, however, it is clear that binge episodes vary greatly among individuals with BED. Variability in the size of binges and the number that are relatively small in size has led to the recommendation that size be deemphasized as an operational criterion for *binge* (Rossiter & Agras, 1990).

Data on food composition confirms that binges typically involve high calorie, fattening foods (Loro & Orleans, 1981; Marcus et al., 1988) with the likelihood of macronutrient differences between binge and normal meals. Rossiter et al. (1992) found that the binge episodes of pre-BED subjects typically involved consumption of less protein and fiber than was consumed on nonbinge days, with a difference in fat content approaching significance. The results of laboratory studies are consistent with the self-report data in showing that obese women meeting BED criteria consumed a greater percentage of energy as fat than did non-BED obese subjects (38.9% vs. 33.5%) and a lesser percentage as protein (11.4% vs. 15.4%) when both groups were instructed to binge (Yanovski et al., 1992).

Duration

Similar to the data on amount, data on the duration of binges also displays considerable variation. To illustrate, Rossiter et al.'s (1992) nonpurging bulimic subjects reported binge lengths ranging from 1 to nearly 900 minutes (averaging around 40). Binges in the upper end of this range appear to violate the *DSM-IV* specification of occuring "in a discrete period of time" (American Psychiatric Association, 1994, p. 545). Excluding binge episodes of lengthy duration may constitute a significant problem because nearly 24% of binge episodes identified by Marcus et al.'s (1992) subjects lasted the entire day. Measuring binge days has been offered as an alternative (Rossiter et al., 1992).

Loss of Control

The variability in amount and duration of binge episodes may be accounted for by subjective variables such as loss of control. Consistent

with this notion, Johnson, Carr, Zayfert, Nangle, & Antony (1993) provided both non-eating-disordered peers and dieticians with 3 weeks of self-monitoring records of BED and nonclinical bingeing subjects. There was little agreement between the judgments of the subjects themselves regarding the status of their own eating episodes (binge vs. nonbinge) and the judgments of peers and dieticians based solely on amount and duration criteria. This disagreement suggests that subjective information available only to the subjects, such as the degree of perceived control during an eating episode, may significantly influence perceptions of the nature of eating episodes. This finding also raises the possibility of defining binge episodes exclusively from the patient's perspective (Johnson et al., 1993). Although clinician–patient collaborative judgments likely will continue to be the standard (Cooper & Fairburn, 1987), the literature provides compelling support for emphasizing this subjective dimension (Beglin & Fairburn, 1992).

Antecedents and Consequences

Negative emotional states, social situations, time of day, and the type of meal have been associated with bingeing in BED. Arnow, Kenardy, and Agras (1992) interviewed pre-BED individuals about their thoughts and feelings that occurred before, during, and after a binge episode. Negative moods were common preceeding binges, with the most predominant being anger and frustration, anxiety and agitation, and sadness and depression. Emotions occurring during binge episodes were evenly split between negative and positive, and those following a binge were overwhelmingly negative, with guilt, regret, and self-directed anger evident.

Johnson et al. (1995) examined emotions and other situational variables associated with eating behavior for BED, nonclinical binge eaters, and normal subjects. BED subjects were equally likely to binge whether alone or with others and whether at home or in a restaurant. BED subjects were also unique by virtue of a strong association between bingeing and snacking, particularly after midnight. Also, in contrast to the comparison groups, the BED subjects showed no relationship between feeling very hungry and bingeing. Rather, these individuals typically felt full when they were bingeing. BED subjects reported greater overall emotional distress associated with eating and a tendency to binge in response to less negative moods than did nonclinical binge eaters and normal subjects.

The eating behavior of individuals with BED and pre-BED is characterized by frequent binge episodes during which they consume snack and dessert foods. Furthermore, binge eating in BED subjects is more likely to occur in the evening while snacking and is relatively unaffected by social variables. Negative emotional states typically precede and follow binges.

Distinctiveness From Bulimia Nervosa

In addition to the lack of compensatory behavior, the research evidence suggests that individuals with BED also differ in other clinically meaningful ways from those diagnosed with bulimia nervosa. Pre-BED subjects consume approximately half the calories of those with bulimia nervosa during binges (Rossiter et al., 1992; Rossiter & Agras, 1990; Walsh et al., 1989; Yanovski et al., 1992) and they also binge less frequently (Fairburn et al., 1991; Marcus et al., 1992; McCann et al., 1991). Since the binge episodes of bulimia nervosa are easily discriminated by purges (Rossiter et al., 1992), the differences in amount and frequency may be attenuated.

Further distinctions between BED and bulimia nervosa are evident in the multisite study in which Spitzer et al. (1993) found that BED subjects reported a history of severe obesity (defined as a body mass index of 35 or greater) and greater weight fluctuations than did bulimia nervosa subjects. Higher levels of impairment in work performance, weight and shape concerns, depression, alcohol and drug abuse, and sexual abuse, however, were endorsed more often by subjects with bulimia nervosa. Interesting gender differences emerged between BED and bulimia nervosa in that BED is slightly more common in females than males in weight-control patients and occurs equally in college and community nonpatient samples. In contrast, females make up the majority of patients with bulimia nervosa (American Psychiatric Association, 1987).

There is also evidence that individuals with BED may differ from those with bulimia nervosa in dietary restraint (Brody, Walsh, & Devlin, 1994). Marcus et al. (1992) found that bulimic patients scored significantly higher than obese binge eaters on the restraint subscale of the Eating Disorders Examination, whereas scores for the two groups were similar on the other subscales. McCann et al. (1991) obtained similar data by comparing the responses of purging and nonpurging bulimic patients. Purging bulimic individuals scored higher on the restraint measure, as well as disinhibition, relative to nonpurging subjects.

Psychopathology

The distinctiveness of the BED syndrome is also evident in comparisons of BED and pre-BED patients with bulimic, obese nonbinge eaters, and normal subjects on measures of psychopathology. Individuals satisfying various pre-BED criteria have lower levels of depression (Brody et al., 1994; Katzman & Wolchik, 1984; McCann et al., 1991; Schmidt & Telch, 1990), lower rates of panic and personality disorders (McCann et al., 1991; Schmidt & Telch, 1990), higher self-esteem (Katzman & Wolchik, 1984), and less tendency toward impulsive and self-defeating behavior (Schmidt & Telch, 1990) than those with bulimia nervosa. By contrast, pre-BED

individuals score higher on many measures of psychopathology relative to obese subjects (Fitzgibbon & Kirschenbaum, 1990; Kirkley, Kolotkin, Hernandez, & Gallagher, 1992; Marcus et al., 1988, 1990a) and normal controls (Prather & Williamson, 1988; Schmidt & Telch, 1990; Williamson, Prather, McKenzie, & Blouin, 1990). To summarize, while the data are not entirely definitive (e.g., see Crowther & Chernyk, 1986; Prather & Williamson, 1988), the general finding is that bulimic patients exhibit the highest level of psychopathology, followed by pre-BED patients, obese subjects, and normal controls, in descending order.

Studies employing explicit BED diagnostic criteria confirm these group differences (e.g., Fichter et al., 1993; Telch & Agras, 1994). In a prospective study, Antony et al. (1994) used the Questionnaire of Eating and Weight Patterns (QEWP) to compare BED, nonclinical binge eaters, and normal groups. The BED group reported higher levels of psychopathology than normal subjects on measures of depression, anxiety, fatigue, and confusion. In general, conclinical binge eating subjects scored between the BED and normal groups, falling closer to the subjects without eating problems. Overall, the available evidence appears to justify the conclusion that individuals with BED and pre-BED fall somewhere between bulimic patients and normal subjects on general and specific measures of psychopathology (Antony et al., 1994; Schmidt & Telch, 1990). This distinct pattern of psychopathology lends support to the integrity of the BED diagnosis and, in addition, suggests clinical levels of psychopathology that deserve therapeutic intervention.

Body Image

Body image disturbance with both size overestimation and dissatisfaction is a significant clinical feature among individuals with anorexia nervosa and bulimia nervosa (see Part I, this volume). With BED patients, however, body size overestimation appears to be less of a clinical problem, perhaps because their conspicuous obesity precludes significant perceptual distortion. In contrast, body image dissatisfaction has been a more fruitful line of investigation with the general finding that individuals meeting BED criteria are dissatisfied with their appearance, perhaps because of their objective obesity. Using the Body Image Assessment (see chapter 3, this volume) that requires individuals to select their current and ideal body sizes from a set of nine size-graded silhouettes, Williamson, Gleaves, and Savin (1992) found a mean current body size estimate of 8.83 (9 being the largest), and a mean ideal body size preference of 5.00 for subjects with BED. The difference between current and ideal body size (3.83) is considered a measure of body size dissatisfaction, and large differences consistently have been found in studies comparing BED (Antony et al., 1994) and pre-BED populations (Williamson et al., 1990) to normal controls. Indeed,

greater body size dissatisfaction among those with BED occurs even when the degree of obesity is covaried (Antony et al., 1994). These data concur with alternative measures such as the body dissatisfaction subscale of the Eating Disorder Inventory (de Zwaan et al., 1994) and the shape concern subscale of the Eating Disorders Examination (Smith, Marcus, & Kaye, 1992) in which pre-BED groups score higher than normal subjects (Cooper, Cooper, & Fairburn, 1989; Garner, Olmstead, & Polivy, 1983).

The degree of body dissatisfaction exhibited by individuals with BED versus bulimia nervosa and obese groups is less clear. For example, while several studies suggest greater dissatisfaction among pre-BED and BED samples relative to bulimia (Fichter et al., 1993; Williamson et al., 1990), others show little difference (Williamson et al., 1992). Conflicting data also emerge from the literature comparing the body dissatisfaction of BED and pre-BED subjects to obese subjects. On the one hand, research supports a positive relationship between binge severity and body dissatisfaction in obese subjects (de Zwaan, Nutzinger, & Schoenbeck, 1992; Marcus et al., 1990b; but see Lowe & Caputo, 1991) and an association between BED diagnosis and weight and shape concern (Spitzer et al., 1993). On the other hand, comparisons of pre-BED and obese subjects have found similar body size dissatisfaction (Williamson et al., 1990), and comparisons of BED and obese subjects have failed to find differences in Eating Disorder Inventory body dissatisfaction scores (de Zwaan et al., 1994; Fichter et al., 1993). At present, it seems that individuals with BED are dissatisfied with their bodies and that there is some empirical justification (e.g., de Zwaan et al., 1992; Spitzer et al., 1993) to expect this dissatisfaction to be greater than that exhibited by non-binge-eating obese persons. These data suggest that any comprehensive treatment program for BED must include techniques designed to modify self-evaluative assumptions and body disparagement, as is the case in the treatment of obesity (Garner & Wooley, 1991).

ASSESSING BINGE EATING DISORDER

Assessing BED has employed a wide range of methods including questionnaires, self-monitoring, diagnostic interviews, and laboratory observation. Because the diagnosis of BED shares with bulimia nervosa a focus on binge eating, instruments measuring eating behavior have clinical utility for assessing both disorders.

Questionnaire Measures

The Questionnaire of Eating and Weight Patterns (Spitzer et al., 1992, 1993) is the sole diagnostic procedure used exclusively for identifying BED. Thirteen items serve to classify respondents with BED, purging bu-

limia nervosa, or nonpurging bulimia nervosa (Spitzer et al., 1993), and psychometric data on the questionnaire are encouraging. The BED diagnosis based on the Questionnaire of Eating and Weight Patterns is moderately stable over a 3-week interval (kappa = .58; Nangle, Johnson, Carr-Nangle, & Engler, 1994), correlates well with the diagnosis based on structured interview (kappa = .57; de Zwann, et al., 1993), and differentiates high- versus low-frequency binge eaters with sufficient predictive efficiency (71% to 73%; Nangle et al., 1994).

The Binge Eating Scale is a 16-item questionnaire originally designed to describe binge behavior and associated thoughts and feelings in the obese (Gormally, Black, Daston, & Rardin, 1982). This scale addresses several diagnostic characteristics of BED, including all five aspects of Criterion B (see Exhibit 1). The Binge Eating Scale has been shown to identify individuals with no, moderate, or severe binge eating as assessed by structured interview (Gormally et al., 1982). The Binge Scale is a 9-item measure of binge severity (Hawkins & Clement, 1980). This scale provides information on several aspects of Criterion B (Exhibit 1) and, unlike the Binge Eating Scale, probes for binge frequency. The Bulimia Test is a 32-item, self-report scale originally designed to measure the symptoms of *DSM-III* bulimia and to distinguish bulimic from anorexic patients (Smith & Thelen, 1984). The test was revised to accommodate *DSM-III-R* criteria for bulimia nervosa (Thelen, Farmer, Wonderlich, & Smith, 1991). Although Bulimia Test scores can distinguish obese binge eaters from obese subjects (Prather & Williamson, 1988) and BED subjects from both subclinical binge eaters and normal subjects (Antony et al., 1994), its capacity to distinguish obese binge eaters from individuals with bulimia nervosa is questionable (Williamson et al., 1990). The Bulimia Test–Revised options for binge frequency are equal to the diagnostic demands of BED, although the 6-month history of binge eating necessary for a diagnosis of BED cannot be determined. The Eating Disorder Inventory is a 64-item scale (Garner et al., 1983), recently revised to 91-items (Garner, 1991), that measures clinical features of bulimia nervosa and anorexia nervosa (see chapter 9, this volume). The validity of this instrument for BED and related populations has yet to be established, and the few questions pertaining to bingeing are confined to the bulimia subscale. The potential utility of this instrument in the assessment of BED, however, can be adduced from its increasing use in identifying the characteristics of obese binge eaters (e.g., de Zwaan et al., 1994).

The Drive for Thinness and Ineffectiveness subscales, for example, have been shown to predict binge eating severity among the obese (Lowe & Caputo, 1991) and may discriminate subjects satisfying full BED criteria from obese binge eaters not meeting criteria (de Zwaan et al., 1994). Interoceptive awareness may also relate to binge eating status (Kuehnel & Wadden, 1994; Lowe & Caputo, 1991; Marcus et al., 1990b), as may body

dissatisfaction (Marcus et al., 1990b), although the latter relationship remains equivocal (de Zwaan et al., 1994; Lowe & Caputo, 1991). Body dissatisfaction and ineffectiveness scores may differ between BED and bulimia nervosa patients (with bulimic patients scoring lower on body dissatisfaction and higher on ineffectiveness), although these relationships disappear when the body mass index is controlled (Fichter et al., 1993). Among the subscales introduced in the Eating Disorder Inventory–2, impulse regulation may be associated with BED diagnosis in the obese (Kuehnel & Wadden, 1994).

Questionnaires have been developed to assess dietary restraint, a concept that occupies a prominent position in current theoretical (Heatherton, Polivy, King, & McGree, 1988; Lowe, 1993; Ruderman, 1986) and empirical (Heatherton, Polivy, & Herman, 1989; Johnson, Corrigan, Crusco, & Schlundt, 1986; Lowe, 1992) work on eating behavior and its disorders. The initial measure of dietary restraint, the Restraint Scale (Herman & Mack, 1975), has found favor among researchers because it predicts many of the behavioral phenomena that gave impetus to the concept of restraint (see Lowe, 1993). Other recently developed measures, such as the Three-Factor Eating Questionnaire (Stunkard & Messick, 1985) and the Dutch Eating Behavior Questionnaire (Van Strien, Frijters, Bergers, & Defares, 1986) are popular among researchers because, in addition to cognitive restraint, they measure functionally related variables such as disinhibition and hunger.

Several lines of evidence suggest that dietary restraint, disinhibition, and hunger are important in assessing individuals with BED. First, individuals diagnosed with *DSM-III* bulimia nervosa have elevated restraint scale scores (Ruderman, 1985). Second, some evidence suggests a relationship between dieting and binge eating in the obese. Telch and Agras (1993), for example, showed that administration of a very low calorie diet produced a subsequent increase in binge behavior in subjects identified as nonbinging obese. Finally, a number of studies have shown a positive association between indices of restraint and measures of binge behavior or BED diagnostic status (Antony et al., 1994; Goldfein, Walsh, LaChaussee, Kissileff, & Devlin, 1993; Gormally et al., 1982).

It must be acknowledged, however, that the degree of association between restraint and binge eating in individuals with BED remains debatable (Yanovski, 1993). In contrast to Telch and Agras (1993), weight-loss dieting actually has been shown to reduce the frequency and severity of binge eating among those diagnosed with BED (Yanovski & Sebring, 1994). Furthermore, of the individuals with BED surveyed by Spitzer et al. (1993), 48.6% reported that they began binge eating *before* dieting, compared with 37.0% who reported the reverse.

The utility of measures of dietary restraint in the understanding of BED will depend ultimately on their capacity to predict clinical features of the disorder that influence therapeutic interventions. At present, the disinhibition subscale of the Three-Factor Eating Questionnaire appears to have particular relevance. It measures emotional eating (Ganley, 1988), which is consistently elevated in individuals with BED and pre-BED (Fichter et al., 1993; Goldfein et al., 1993; Marcus et al., 1988). Furthermore, scores on this subscale appear to decrease in the course of both psychotherapeutic (Wilfley et al., 1993) and pharmacological (McCann & Agras, 1990) interventions that reduce binge eating. It is interesting to note that binge reduction in the obese has also been associated with elevations on the cognitive restraint subscale that brings their total scores more closely in line with the higher scores of bulimic patients (Brody et al., 1994; McCann et al., 1991).

Each of the questionnaires listed previously has potential utililty in assessing and treating BED, but no single measure provides a picture of this disorder that is both comprehensive and detailed. The Questionnaire of Eating and Weight Patterns, for example, is preferable for diagnostic purposes because it derives directly from BED criteria. However, information on psychological correlates of the disorder must be obtained from instruments such as the Eating Disorder Inventory–2, Three-Factor Eating Questionnaire, and Restraint Scale. In a similar way, the Binge Scale and the Binge Eating Scale provide multifaceted measures of binge severity, yet lack the Questionnaire of Eating and Weight Pattern's capacity to measure binge frequency. In the interest of obtaining comprehensive information, several measures are justified, particularly given the nascent state of BED assessment.

Self-Monitoring

Self-monitoring has long been a mainstay in assessing eating behavior in obesity (Bellack, 1976) and bulimia nervosa (Schlundt, Johnson, & Jarrell, 1986). The procedure typically involves recording eating episodes and their situational contexts. A primary advantage of self-monitoring is the direct measurement of eating episodes, which theoretically reduces the potential for distortion relative to recall-based methods such as questionnaires and interviews. Self-monitoring can also elicit the comprehensive information required for abstracting functional relationships between situational events and eating behavior (Schlundt et al., 1986). Given these advantages, it is not surprising that self-monitoring has been applied to such diverse topics as treatment outcome (e.g., Agras, Schneider, Arnow, Raeburn, & Telch, 1989; Leitenberg, Rosen, Gross, Nudelman, & Vara, 1988), binge characteristics (Rossiter et al., 1992), mood correlates

(Lingswiler, Crowther, & Stephens, 1987), and energy intake (Yanovski & Sebring, 1994) in populations spanning the range of eating disorders.

Although the potential reactivity of self-monitoring procedures is recognized (e.g., Wilson, 1987), several studies comparing subjects and other observers support the validity of self-monitoring as an assessment method. Crowther, Lingswiler, and Stephens (1984), for example, found excellent agreement between subjects and their partners for both the type (86.4%) and quantity (90.3%) of food consumed during eating episodes. No differences were found between partner-present and partner-absent meals, suggesting that significant reactivity did not occur. Self-monitored binging also has been shown to vary with diagnostic classification based on the Questionnaire of Eating and Weight Patterns (Nangle et al., 1994). In this latter study, a comparison of self-monitoring over a 3-week period with the questionnaire revealed a significant relationship between diagnostic categories and the recorded frequency of binge eating.

One factor ensuring the continued use of self-monitoring in eating disorders research is its amenability to functional analysis (Johnson et al., 1995; Schlundt, 1989; Schlundt, Johnson, & Jarrell, 1985, 1986). Recent findings suggest important similarities and differences between subjects diagnosed with BED and both nonclinical binge eaters and normal controls (Johnson et al., 1995). Future research using self-monitoring may elucidate similar differences between BED and other eating-disordered populations. A second factor ensuring the continued utility of self-monitoring concerns the diagnostic criteria for BED. Unlike anorexia nervosa, in which the diagnostic criteria are largely attitudinal and nonepisodic in nature, the criteria for BED (particularly Criteria A, B, and D—see Exhibit 1) require detailed information on binge frequency, size, physical and social antecedents, and associated emotions—the very characteristics self-monitoring data are suited to illuminate.

Several caveats can be offered with respect to self-monitoring. First, in constructing self-monitoring forms, the advantages of detail must be weighed against the potential aversiveness of recording demands. Ideally, self-monitoring provides information on time, physical location, type and quantity of food or drink, social and emotional context, and perception of amount consumed for any eating or drinking episode. Excessively demanding forms may compromise the validity of self-monitoring by encouraging subjects to respond carelessly rather than accurately in an effort to complete the recording process. Second, providing subjects with explicit instructions not to alter their eating habits (e.g., Johnson et al., 1995) may reduce the potential for reactivity. Third, subjects should receive precise training in self-monitoring to ensure that subject and experimenter share an understanding of the information the self-monitoring system is designed to elicit.

Interview

Of the interview formats that address binge eating (see Wilson, 1993, p. 234), the Eating Disorder Examination (Cooper & Fairburn, 1987; see chapter 9, this volume) is used most widely. Unfortunately, while this examination has been employed extensively in the study of bulimia nervosa (e.g., Wilson, Eldredge, Smith, & Niles, 1991; Wilson & Smith, 1989), data are scarce on individuals with BED and pre-BED diagnoses. Existing data suggest differences between pre-BED and normal weight bulimic patients on the restraint subscale (Marcus et al., 1992; Wilson & Smith, 1989). In addition, Wilson, Nonas, and Rosenblum (1993) demonstrated that 16 items from a questionnaire version of the Eating Disorder Examination discriminated obese binge eaters from nonbinge eaters. The largest *t* values were for items targeting preoccupation with weight and concern about being seen eating.

An interesting aspect of the Eating Disorder Examination is its use of *DSM-IV* definitions for "large amount of food" and "loss of control" to categorize overeating episodes. As shown in Figure 1, two

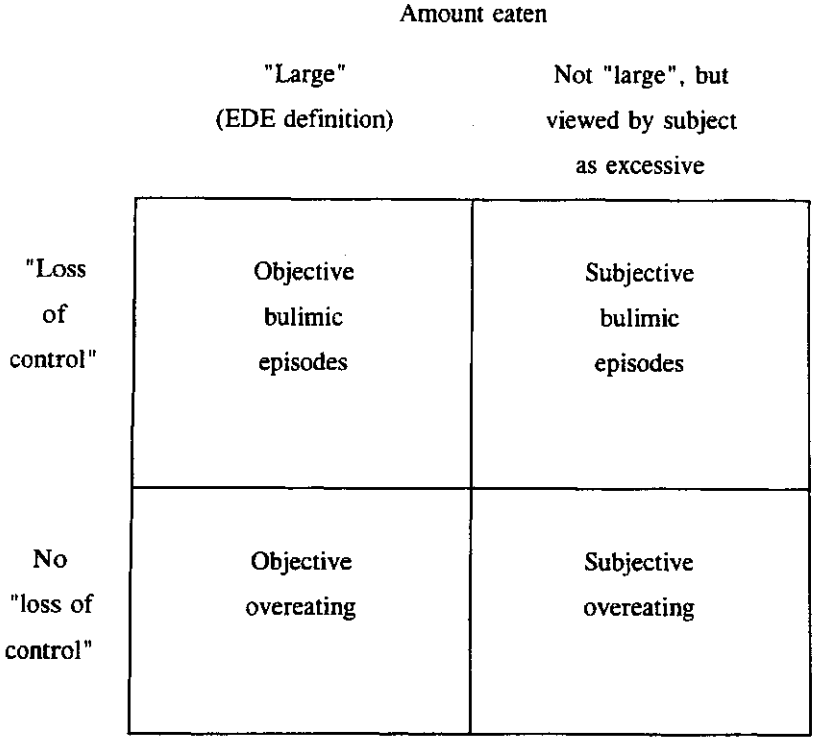

Figure 1. The Eating Disorder Examination scheme for classifying episodes of overeating. From Fairburn and Wilson (1993).

dimensions—namely, perceived loss of control and amount eaten—are used to define a four-fold classification of eating episodes. Unfortunately, use of the *DSM-IV* definition of binge imports into the examination conceptual scheme the problems of classification mentioned earlier: How much food is definitely larger than most people would eat in similar circumstances? A number of subjective elements pervade this supposedly objective criterion (e.g., *definitely larger*, *most people*, and *similar circumstances*) allowing so-called *objective bulimic episodes* and *objective overeating* to become personal judgments of the interviewer. An additional concern is raised by the variable size of eating episodes identified by subjects as binges (Rossiter & Agras, 1990; Rossiter et al., 1992) and by the poor agreement between bingers and judges about the status (i.e., binge vs. nonbinge) of the bingers' own eating episodes (Johnson et al., 1993). These data suggest that the experience of bingeing may be so tied to subjective variables such as loss of control and the violation of internal dietary standards (Schlundt & Johnson, 1990, pp. 77–91) that any *objective* definition may be of questionable utility. This having been said, the depth and breadth of information generated by the Eating Disorder Examination makes it particularly suitable for the study of BED. Detailed information will become increasingly important as new and subtle diagnostic distinctions continue to emerge.

Assessment: Summary and Recommendations

Data obtained from questionnaires, self-monitoring, and interviews all may contribute to the assessment of patients with BED. Questionnaires and interviews provide diagnostic and clinically relevant information, whereas self-monitoring measures the severity, change, and associated variables. Future research should determine which measures best reflect the core symptoms of the BED diagnosis and are sensitive to changes produced by interventions.

TREATMENT OF BINGE EATING DISORDER

The treatment of BED has focused on two separate yet complimentary objectives—namely, weight management and a reduction in binge eating. Since the majority of patients meeting BED criteria are obese, treatment efforts directed at weight control are indicated, and they typically involve comprehensive cognitive–behavioral programs that attempt to modify disordered eating behaviors, among others. Also, with the recognition of binge eating per se as a clinical problem, other treatment interventions have been directed almost exclusively toward controlling eating behavior. Although

these two treatment objectives and their interventions are interrelated, for the most part, the literature has addressed them separately.

Weight Management

In contrast to early evidence (Keefe et al., 1984), more recent findings show that BED and pre-BED individuals appear to lose as much weight as nonbingers over the course of behavioral weight control programs (LaPorte, 1992; Marcus et al., 1988). In some cases, these losses are quite significant (Wadden, Foster, & Letizia, 1992). Drop-out and maintenance may be more problematic. For example, both drop-out and relapse rates are higher for obese individuals with BED than those without BED (Keefe et al., 1984; Marcus et al., 1988; Yanovski, 1993). Marcus et al. (1988) employed Binge Eating Scale scores and *DSM-III* criteria to divide obese subjects into binge eating and nonbinge eating groups. Subsequently, subjects participated in either a standard weight control program or one modified for binge eating. While the treatments were not differentially effective, the binge eaters were more likely to drop out of treatment and regained significantly more weight at 6-month follow-up than nonbinge eaters.

Managing Eating Behavior

Both pharmacological and psychotherapeutic interventions have been evaluated for the management of eating behavior, and the results are largely consistent with those of weight control studies in demonstrating difficulty in adherring to interventions, as well as higher drop-out and relapse rates. Pharmacological treatments have relied primarily on antidepressants, and desipramine and imipramine have been shown to reduce the frequency and the duration of binge eating, respectively, in pre-BED obese subjects. McCann and Agras (1990), for example, randomly assigned women diagnosed with *DSM-III-R* bulimia nervosa who did not regularly purge to either a desipramine treatment or a placebo control group. By week 12 of the trial, subjects treated with desipramine reduced their binge frequency by 63%, compared to a 16% increase for control subjects. Binge frequency approached baseline rates following medication withdrawal, suggesting that either the act of taking medication or some aspect of the drug was responsible for the reduction in binge frequency.

As with weight control, psychotherapy for the management of eating behavior involves a number of cognitive–behavior therapy interventions that are designed to establish regular eating patterns. These interventions include self-monitoring, exposure to forbidden foods, challenging dysfunctional beliefs about eating, and training in relapse prevention. The response to these interventions shows a similar pattern, with clinical improvement

followed by relapse—although the extent of relapse is relatively small compared to that observed following pharmacotherapy termination (McCann & Agras, 1990). Telch, Agras, Rossiter, Wilfley, and Kenardy (1990) evaluated cognitive–behavioral therapy for binge eating and found reductions in binge frequency of 94% for nonpurging bulimics compared to 9% in a control group, with many of the treated subjects eliminating binge eating entirely. Although relapse was significant—only 46% of subjects remained binge-abstinent at 10-week follow-up—binge frequency remained significantly improved over baseline levels. Similar binge frequency changes were obtained by Wilfley et al. (1993), who found comparable treatment efficacy for cognitive–behavioral therapy and interpersonal psychotherapy.

Treatment for Binge Eating Disorder: Summary and Recommendations

In light of the existing data on the characteristics of individuals with BED, it is obvious that treatment should be directed at the disordered eating and associated psychopathology. Most prominent in this regard are binge eating and its antecedents—nutrition, body image dissatisfaction, and depression. The interrelated nature of these symptoms indicates that improvement on one target such as weight reduction may yield positive changes in another. For example, depressed mood is usually elevated with weight loss. However, in a practical, programmatic sense, the idiosyncratic nature of these relationships for specific subjects appears to require a comprehensive program, and the available literature supports these inclusive efforts.

Current cognitive–behavioral therapy programs reduce binge eating during implementation (Smith et al., 1992; Wilfley et al., 1993), however, the poor maintenance of these reductions (e.g., Telch et al., 1990) suggests that further efforts at relapse prevention are needed. A fruitful avenue for preventing relapse may be the treatment of clinical problems associated with BED, including psychopathology (Schmidt & Telch, 1990; Williamson et al., 1990) and body size dissatisfaction (de Zwaan et al., 1994). Interventions directed at the psychopathology associated with BED could reduce the influence of emotional cues on binge eating (Johnson et al., 1995), and antidepressant medications may be helpful in combination with cognitive–behavioral therapy (Alger, Schwalberg, Bigaouette, Michalek, & Howard, 1991; McCann & Agras, 1990). Treatment of body size dissatisfaction, either through modification of self-evaluative assumptions (Smith et al., 1992) or weight reduction (Wadden et al., 1992), may attenuate the tendency for individuals treated only for bingeing to engage in self-imposed dieting, a practice that could contribute to future binge eating (Telch & Agras, 1993; Telch et al., 1990). Consistent with this notion, there is evidence that weight loss may reduce binge eating severity in subjects with BED (Yanovski & Sebring, 1994). In summary, the available data strongly

suggest that the effective treatment of BED requires the management of clinical features beyond those defined solely by its formal criteria.

Although comprehensive interventions may increase the efficacy of current treatments for BED, these developments in treatment should be complemented with efforts at prevention to reduce the prevalence of this disorder. In their recent multisite study, Spitzer et al. (1993) found that, among individuals enrolled in weight control programs, those diagnosed with BED reported an earlier onset of both overweight and dieting than did those without the diagnosis. These data underscore the necessity of early intervention and suggest that child and adolescent weight management programs that deemphasize dieting and weight per se, and at the same time promote nutritional, activity, and lifestyle changes, may play an important prophylactic role with respect to BED (chapter 12, this volume).

Several questions regarding future developments in BED are indicated from the foregoing review. In spite of its apparent simplicity, the nature and origin of binge eating is still fraught with more than a modicum of uncertainty. As we have discussed, the definition of a binge is ambiguous because it relies on quantity and temporal criteria that are suspect and inconsistent with empirical data. Equally important is research on the development of binge eating in children, as there is compelling evidence that BED is associated with early onset of both overweight and dieting (Brody et al., 1994; de Zwaan et al., 1992; Spitzer et al., 1993).

REFERENCES

Agras, W. S., Schneider, J. A., Arnow, B., Raeburn, S. D., & Telch, C. (1989). Cognitive–behavioral and response–prevention treatments for bulimia nervosa. *Journal of Consulting and Clinical Psychology, 57*, 215–221.

Alger, S. A., Schwalberg, M. D., Bigaouette, J. M., Michalek, A. V., & Howard, L. J. (1991). Effect of a tricyclic antidepressant and opiate antagonist on binge-eating behavior in normoweight bulimic and obese, binge-eating subjects. *American Journal of Clinical Nutrition, 53*, 865–871.

American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.). Washington, DC: Author.

American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed., rev.). Washington, DC: Author.

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

Antony, M. M., Johnson, W. G., Carr-Nangle, R. E., & Abel, J. (1994). Psychopathology correlates of binge eating and binge eating disorder. *Comprehensive Psychiatry, 35*, 386–392.

Arnow, B., Kenardy, J., & Agras, W. S. (1992). Binge eating among the obese: A descriptive study. *Journal of Behavioral Medicine, 15*, 155–170.

Beglin, S. J., & Fairburn, C. G. (1992). What is meant by the term "binge"? *American Journal of Psychiatry, 149*, 123–124.

Bellack, A. S. (1976). A comparison of self-reinforcement and self-monitoring in a weight reduction program. *Behavior Therapy, 7*, 68–75.

Brody, M. L., Walsh, B. T., & Devlin, M. J. (1994). Binge eating disorder: Reliability and validity of a new diagnostic category. *Journal of Consulting and Clinical Psychology, 62*, 381–386.

Cooper, Z., Cooper, P. J., & Fairburn, C. G. (1989). The validity of the Eating Disorder Examination and its subscales. *British Journal of Psychiatry, 154*, 807–812.

Cooper, Z., & Fairburn, C. G. (1987). The Eating Disorder Examination: A semi-structured interview for the assessment of the specific psychopathology of eating disorders. *International Journal of Eating Disorders, 6*, 1–8.

Crowther, J. H., & Chernyk, B. (1986). Bulimia and binge eating in adolescent females: A comparison. *Addictive Behaviors, 11*, 415–424.

Crowther, J. H., Lingswiler, V. M., & Stephens, M. A. P. (1984). The topography of binge eating. *Addictive Behaviors, 9*, 299–303.

DaCosta, M., & Halmi, K. A. (1992). Classification of anorexia nervosa: Question of subtypes. *International Journal of Eating Disorders, 11*, 305–313.

de Zwaan, M., Mitchell, J. E., Seim, H. C., Specker, S. M., Pyle, R. L., Raymond, N. C., & Crosby, R. B. (1994). Eating related and general psychopathology in obese females with binge eating disorder. *International Journal of Eating Disorders, 15*, 43–52.

de Zwaan, M., Mitchell, J. E., Specker, S. M., Pyle, R. L., Mussell, M. P., & Seim, H. C. (1993). Diagnosing binge eating disorder: Level of agreement between self-report and expert rating. *International Journal of Eating Disorders, 14*, 289–295.

de Zwaan, M., Nutzinger, D. O., & Schoenbeck, G. (1992). Binge eating in overweight women. *Comprehensive Psychiatry, 33*, 256–261.

Fairburn, C. G., Jones, R., Peveler, R. C., Carr, S. J., Solomon, R. A., O'Connor, M. E., Burton, J., & Hope, R. A. (1991). Three psychological treatments for bulimia nervosa: A comparative trial. *Archives of General Psychiatry, 48*, 463–469.

Fairburn, C. G., Welch, S. L., & Hay, P. J. (1993). The classification of recurrent overeating: The "binge eating disorder" proposal. *International Journal of Eating Disorders, 13*, 155–159.

Fairburn, C. G., & Wilson, G. T. (1993). Binge eating: Definition and classification. In C. G. Fairburn & G. T. Wilson (Eds.), *Binge eating: Nature, assessment, and treatment* (pp. 3–14). New York: Guilford Press.

Fichter, M. M., Quadflieg, N., & Brandl, B. (1993). Recurrent overeating: An empirical comparison of binge eating disorder, bulimia nervosa, and obesity. *International Journal of Eating Disorders, 14*, 1–16.

Fitzgibbon, M. L., & Kirschenbaum, D. S. (1990). Heterogeneity of clinical presentation among obese individuals seeking treatment. *Addictive Behaviors, 15,* 291–295.

Ganley, R. M. (1988). Emotional eating and how it relates to dietary restraint, disinhibition, and perceived hunger. *International Journal of Eating Disorders, 7,* 635–647.

Garfinkel, P. E., Moldofsky, H., & Garner, D. M. (1980). The heterogeneity of anorexia nervosa. *Archives of General Psychiatry, 37,* 1036–1040.

Garner, D. M. (1991). *Eating Disorder Inventory–2.* Odessa, FL: Psychological Assessment Resources.

Garner, D. M., Olmsted, M. P., & Polivy, J. (1983). Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders, 2,* 15–34.

Garner, D. M., & Wooley, S. C. (1991). Confronting the failure of behavioral and dietary treatments for obesity. *Clinical Psychology Review, 11,* 729–780.

Goldfein, J. A., Walsh, B. T., LaChaussee, J. L., Kissileff, H. R., & Devlin, M. J. (1993). Eating behavior in binge eating disorder. *International Journal of Eating Disorders, 14,* 427–431.

Gormally, J., Black, S., Daston, S., & Rardin, D. (1982). The assessment of binge eating severity among obese persons. *Addictive Behaviors, 7,* 47–55.

Halmi, K. A., Falk, J. R., & Schwartz, E. (1981). Binge-eating and vomiting: A survey of a college population. *Psychological Medicine, 11,* 697–706.

Hawkins, R. C., & Clement, P. (1980). Development and construct validation of a self-report measure of binge eating tendencies. *Addictive Behaviors, 5,* 219–226.

Heatherton, T. F., Polivy, J., King, G. A., & McGree, S. T. (1988). The (Mis)measurement of restraint: An analysis of conceptual and psychometric issues. *Journal of Abnormal Psychology, 97,* 19–28.

Heatherton, T. F., Polivy, J., & Herman, C. P. (1989). Restraint and internal responsiveness: Effects of placebo manipulations of hunger state on eating. *Journal of Abnormal Psychology, 98,* 89–92.

Herman, C. P., & Mack, D. (1975). Restrained and unrestrained eating. *Journal of Personality, 43,* 647–660.

Johnson, W. G., Carr, R. E., Zayfert, C., Nangle, D. W., & Antony, M. (1993, November). *What is binge eating? A comparison of binge eater, peer, and professional judgments.* Paper presented at the annual meeting of the Association for Advancement of Behavior Therapy Convention, Atlanta, GA.

Johnson, W. G., Corrigan, S. A., Crusco, A. H., & Schlundt, D. G. (1986). Restraint among bulimic women. *Addictive Behaviors, 11,* 351–354.

Johnson, W. G., Schlundt, D. G., Barclay, D. R., Carr-Nangle, R. E., & Engler, L. E. (1995). A naturalistic functional analysis of binge eating. *Behavior Therapy, 26,* 101–118.

Katzman, M. A., & Wolchik, S. A. (1984). Bulimia and binge eating in college women: A comparison of personality and behavioral characteristics. *Journal of Consulting and Clinical Psychology, 52,* 423–428.

Keefe, P. H., Wyshogrod, D., Weinberger, E., & Agras, W. S. (1984). Binge eating and outcome of behavioral treatment of obesity: A preliminary report. *Behaviour Research and Therapy, 22,* 319–321.

Kirkley, B. G., Kolotkin, R. L., Hernandez, J. T., & Gallagher, P. N. (1992). A comparison of binge-purgers, obese binge eaters, and obese non-binge eaters on the MMPI. *International Journal of Eating Disorders, 12,* 221–228.

Kolotkin, R. L., Revis, E. S., Kirkley, B. G., & Janick, L. (1987). Binge eating in obesity: Associated MMPI characteristics. *Journal of Consulting and Clinical Psychology, 55,* 872–876.

Kuehnel, R. H., & Wadden, T. A. (1994). Binge eating disorder, weight cycling, and psychopathology. *International Journal of Eating Disorders, 15,* 321–329.

LaPorte, D. J. (1992). Treatment response in obese binge eaters: Preliminary results using a very low calorie diet (VLCD) and behavior therapy. *Addictive Behaviors, 17,* 247–257.

Leitenberg, H., Rosen, J., Gross, J., Nudelman, S., & Vara, L. (1988). Exposure plus response–prevention treatment of bulimia nervosa. *Journal of Consulting and Clinical Psychology, 56,* 535–541.

Lingswiler, V. M., Crowther, J. H., & Stephens, M. A. P. (1987). Emotional reactivity and eating in binge eating and obesity. *Journal of Behavioral Medicine, 10,* 287–299.

Loro, A. D., & Orleans, C. S. (1981). Binge eating in obesity: Preliminary findings and guidelines for behavioral analysis and treatment. *Addictive Behaviors,* 6, 155–166.

Lowe, M. R. (1992). Staying on versus going off a diet: Effects on eating in normal weight and overweight individuals. *International Journal of Eating Disorders, 12,* 417–424.

Lowe, M. R. (1993). The effects of dieting on eating behavior: A three-factor model. *Psychological Bulletin, 114,* 100–121.

Lowe, M. R., & Caputo, G. C. (1991). Binge eating in obesity: Toward the specification of predictors. *International Journal of Eating Disorders, 10,* 49–55.

Marcus, M. D., Smith, D., Santelli, R., & Kaye, W. (1992). Characterization of eating disordered behavior in obese binge eaters. *International Journal of Eating Disorders, 12,* 249–255.

Marcus, M. D., Wing, R. R., Ewing, L., Kern, E., Gooding, W, & McDermott, M. (1990a). Psychiatric disorders among obese binge eaters. *International Journal of Eating Disorders,* 9, 69–77.

Marcus, M. D., Wing, R. R., Ewing, L., Kern, E., McDermott, M., & Gooding, W. (1990b). A double-blind, placebo-controlled trial of fluoxetine plus behavior modification in the treatment of obese binge-eaters and non-binge eaters. *American Journal of Psychiatry, 147,* 876–881.

Marcus, M. D., Wing, R. R., & Hopkins, J. (1988). Obese binge eaters: Affect, cognitions, and response to behavioral weight control. *Journal of Consulting and Clinical Psychology, 56*, 433–439.

McCann, U. D., & Agras, W. S. (1990). Successful treatment of nonpurging bulimia nervosa with desipramine: A double-blind, placebo-controlled study. *American Journal of Psychiatry, 147*, 1509–1513.

McCann, U. D., Rossiter, E. M., King, R. J., & Agras, W. S. (1991). Nonpurging bulimia: A distinct subtype of bulimia nervosa. *International Journal of Eating Disorders, 10*, 679–687.

Nangle, D. W., Johnson, W. G., Carr-Nangle, R. E., & Engler, L. E. (1994). Binge eating disorder and the proposed *DSM-IV* criteria: Psychometric analysis of the Questionnaire of Eating and Weight Patterns. *International Journal of Eating Disorders, 16*, 147–157.

Prather, R. C., & Williamson, D. A. (1988). Psychopathology associated with bulimia, binge eating, and obesity. *International Journal of Eating Disorders, 7*, 177–184.

Rossiter, E. M., & Agras, W. S. (1990). An empirical test of the *DSM-III*-R definition of binge. *International Journal of Eating Disorders, 9*, 513–518.

Rossiter, E. M., Agras, W. S., Telch, C. F., & Bruce, B. (1992). The eating patterns of nonpurging bulimic subjects. *International Journal of Eating Disorders, 11*, 111–120.

Ruderman, A. J. (1985). Restraint, obesity and bulimia. *Behaviour Research and Therapy, 23*, 151–156.

Ruderman, A. J. (1986). Dietary restraint: A theoretical and empirical review. *Psychological Bulletin, 99*, 247–262.

Schlundt, D. G. (1989). Assessment of eating behavior in bulimia nervosa: The self-monitoring analysis system. In W. G. Johnson (Ed.), *Advances in eating disorders Vol. II* (pp. 1–41). New York: JAI Press.

Schlundt, D. G., & Johnson, W. G. (1990). *Eating disorders: Assessment and treatment*. Boston: Allyn & Bacon.

Schlundt, D. G., Johnson, W. G., & Jarrell, M. P. (1985). A naturalistic functional analysis of eating behavior in bulimia and obesity. *Advances in Behavior Research and Therapy, 7*, 149–162.

Schlundt, D. G., Johnson, W. G., & Jarrell, M. P. (1986). A sequential analysis of environmental, behavioral, and affective variables predictive of vomiting in bulimia nervosa. *Behavioral Assessment, 8*, 253–269.

Schmidt, N. B., & Telch, M. J. (1990). Prevalence of personality disorders among bulimics, non-bulimic binge eaters, and normal controls. *Journal of Psychopathology and Behavioral Assessment, 12*, 169–185.

Smith, D. E., Marcus, M. D., & Kaye, W. (1992). Cognitive–behavioral treatment of obese binge eaters. *International Journal of Eating Disorders, 12*, 257–262.

Smith, M. C., & Thelen, M. H. (1984). Development and validation of a test for bulimia. *Journal of Consulting and Clinical Psychology, 52*, 863–872.

Spitzer, R. L., Devlin, M., Walsh, B. T., Hasin, D., Wing, R., Marcus, M., Stunkard, A., Wadden, T., Yanovski, S., Agras, S., Mitchell, J., & Nonas, C. (1991). Binge eating disorder: To be or not to be in *DSM-IV*. *International Journal of Eating Disorders, 10*, 627–629.

Spitzer, R. L., Devlin, M., Walsh, B. T., Hasin, D., Wing, R., Marcus, M., Stunkard, A., Wadden, T., Yanovski, S., Agras, S., Mitchell, J., & Nonas, C. (1992). Binge eating disorder: A multisite field trial of the diagnostic criteria. *International Journal of Eating Disorders, 11*, 191–203.

Spitzer, R. L., Yanovski, S., Wadden, T., Wing, R., Marcus, M., Stunkard, A., Devlin, M., Mitchell, J., Hasin, D., & Horne, R. L. (1993). Binge eating disorder: Its further validation in a multisite study. *International Journal of Eating Disorders, 13*, 137–153.

Stunkard, A. J. (1959). Eating patterns and obesity. *Psychiatry Quarterly, 33*, 284–295.

Stunkard, A. J., & Messick, S. (1985). The Three-Factor Eating Questionnaire to measure dietary restraint, disinhibition and hunger. *Journal of Psychosomatic Research, 29*, 71–83.

Telch, C. F., & Agras, W. S. (1993). The effects of a very low calorie diet on binge eating. *Behavior Therapy, 24*, 177–193.

Telch, C. F., & Agras, W. S. (1994). Obesity, binge eating, and psychopathology: Are they related? *International Journal of Eating Disorders, 15*, 53–61.

Telch, C. F., Agras, W. S., & Rossiter, E. M. (1988). Binge-eating increases with increasing adiposity. *International Journal of Eating Disorders, 7*, 115–119.

Telch, C. F., Agras, W. S., Rossiter, E. M., Wilfley, D., & Kenardy, J. (1990). Group cognitive–behavioral treatment for the nonpurging bulimic: An initial evaluation. *Journal of Consulting and Clinical Psychology, 58*, 629–635.

Thelen, M. H., Farmer, J., Wonderlich, S., & Smith, M. (1991). A revision of the Bulimia Test: The BULIT-R. *Psychological Assessment: A Journal of Consulting and Clinical Psychology, 3*, 119–124.

Van Strien, T., Frijters, J. E., Bergers, G. P. A., & Defares, P. B. (1986). Dutch Eating Behaviour Questionnaire for assessment of restrained, emotional and external eating behavior. *International Journal of Eating Disorders, 5*, 295–315.

Wadden, T. A., Foster, G. D., & Letizia, K. A. (1992). Response of obese binge eaters to treatment by behavior therapy combined with very low calorie diet. *Journal of Consulting and Clinical Psychology, 60*, 808–811.

Walsh, B. T., Kissileff, H. R., Cassidy, S. M., & Dantzic, S. (1989). Eating behavior of women with bulimia. *Archives of General Psychiatry, 46*, 54–58.

Wilfley, D. E., Agras, W. S., Telch, C. F., Rossiter, E. M., Schneider, J. A., Cole, A. B., Sifford, L., & Raeburn, S. D. (1993). Group cognitive–behavioral therapy and group interpersonal psychotherapy for the nonpurging bulimic individual: A controlled comparison. *Journal of Consulting and Clinical Psychology, 61*, 296–305.

Williamson, D. A., Gleaves, D. H., & Savin, S. S. (1992). Empirical classification of disorder not otherwise specified: Support for *DSM-IV* changes. *Journal of Psychopathology and Behavioral Assessment, 14*, 201–216.

Williamson, D. A., Prather, R. C., McKenzie, S. J., & Blouin, D. C. (1990). Behavioral assessment procedures can differentiate bulimia nervosa, compulsive overeater, obese, and normal subjects. *Behavioral Assessment, 12*, 239–252.

Wilson, G. T. (1987). Assessing treatment outcome in bulimia nervosa: A methodological note. *International Journal of Eating Disorders, 6*, 339–348.

Wilson, G. T. (1993). Assessment of binge eating. In C. G. Fairburn & G. T. Wilson (Eds.), *Binge eating: Nature, assessment, and treatment* (pp. 227–249). New York: Guilford Press.

Wilson, G. T., Eldredge, K. L., Smith, D., & Niles, B. (1991). Cognitive–behavioural treatment with and without response prevention for bulimia. *Behaviour Research and Therapy, 29*, 575–583.

Wilson, G. T., Nonas, C. A., & Rosenblum, G. D. (1993). Assessment of binge eating in obese patients. *International Journal of Eating Disorders, 13*, 25–33.

Wilson, G. T., & Smith, D. (1989). Assessment of bulimia nervosa: An evaluation of the Eating Disorder Examination. *International Journal of Eating Disorders, 8*, 173–179.

Yanovski, S. Z. (1993). Binge eating disorder: Current knowledge and future directions. *Obesity Research, 1*, 306–324.

Yanovski, S. Z., Leet, M., Yanovski, J. A., Flood, M., Gold, P. W., Kissileff, H. R., & Walsh, B. T. (1992). Food selection and intake of obese women with binge eating disorder. *American Journal of Clinical Nutrition, 56*, 975–980.

Yanovski, S. Z., & Sebring, N. G. (1994). Recorded food intake of obese women with binge eating disorder before and after weight loss. *International Journal of Eating Disorders, 15*, 135–150.

REGULAR ARTICLE

Psychopathology

Shared Psychopathology in Obese Subjects with and without Binge-Eating Disorder

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ABSTRACT

Objective: To investigate obese people with/without binge-eating Disorder (BED) in terms of shared psychopathological features pertaining to spectrum of eating disorders.

Method: One-hundred obese adult patients with a BMI > 30 kg/m^2 referred to an Eating Disorder Unit and/or hospital weight-loss programs were administered the BED Clinical Interview, the Eating Disorder Inventory, and the Structured Clinical Interview for Anorexic-Bulimic Spectrum, Self-Report.

Results: Twenty-seven subjects satisfied DSM-IV research criteria for current BED; compared to nonbingeing obese subjects, BED ones were characterized by greater weight-shape concerns influencing self-esteem ($p = .05$), overall impairment due to the overweight condition ($p < .005$), psychological distress leading to professional help ($p < .001$), dichotomous reasoning ($p = .01$) and secondary social phobia due to the overweight condition ($p < .005$). Compared to the other group, BED obese subjects scored higher at the following EDI subscales: bulimia ($p < .0001$), ineffectiveness ($p < .01$), interoceptive awareness and social insecurity ($p < .05$).

Conclusion: The results of this study highlight the role of cognitive mechanisms such as dichotomous reasoning and weight-shape concerns unduly influencing self-esteem as a hallmark of BED in obese patients, and the importance of investigating eating disorder psychopathology by adopting a dimensional perspective, rather than strictly focusing on categories when dealing with obese patients.

Keywords: obesity; self-esteem; binge-eating disorder; weight-shape concerns; dichotomous thinking; interpersonal distress

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Introduction

Though recently conceptualized in a specific eating disorder subtype, i.e., binge-eating disorder (BED), the phenomenon of binge-eating episodes in overweight people has long been described. As depicted by DSM-IV provisional criteria,[1] BED is characterized by recurrent episodes of binge-eating (at least two times per week over the past 3 months), in addition to other evidence of eating discontrol (i.e., eating more rapidly than normal, eating until feeling uncomfortably full; eating large amounts of food when not feeling physically hungry; eating alone; feeling disgusted with oneself after overeating). The absence of any compensatory behavior to counteract food assumption, including fasting and excessive physical exercise, differentiates BED from bulimia nervosa (BN), particularly the non-purging subtype. The manual does not mention, among proposed criteria, the issue of weight and shape concerns that unduly govern self-esteem, which is typical of both anorexia and BN, though increasing evidence from the literature indicates that this construct is core to BED individuals too.[2–4]

Obesity itself is not included among DSM-IV eating disorders (ED), and is considered a general medical condition, but its relationship with psychiatric disorders is under research. It has long been questioned whether overweight itself is a risk factor for psychiatric disorders,[5,6] even with the exclusion of BED cases, which seem responsible for the high comorbidity rates.[7] In any case, clinical experience with obese people suggests the presence of a substantial psychological burden. In fact, hyperphagia is indeed emotionally satisfying, and eating is often used as a coping mechanism for anxiety, depres-

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sion, and interpersonal problems; furthermore, obese people are subject to social stigmatization and its psychological sequelae, thus starting a vicious cycle that may help in the maintenance the overweight condition.[8,9] Finally, the increasing number of patients undergoing bariatric surgery, because of the development of laparoscopic techniques, highlights the importance of screening obese patients for the presence of ED symptomatology in order to enhance treatment effectiveness.[10,11]

Given these premises, we tried to characterize a sample of patients presenting for obesity treatment from a qualitative viewpoint, focusing attention not only on the presence of an ED, such as BED, but also on the cognitive and interpersonal aspects of eating behavior and weight status. Preliminary data at the end of the first phase of recruitment suggested the salience of self-esteem depending upon weight and shape as a distinctive trait of eating-disordered obese subjects.[3] We now present final results from that research conducted on a greater sample of patients in order to further investigate obese people with and without BED, in terms of eating disorders spectrum, i.e., the presence of cognitive and behavioral patterns shared by patients with anorexia and BN.

Method

Subjects

The whole study population consisted of 100 obese subjects [body mass index (BMI), higher or equal to 30 kg/m^2] either directly referred to the Eating Disorder Unit Section of Psychiatry, DPPhNB, University of Pisa, or recruited from an hospital weight-loss program (pertaining to the Department of Internal Medicine) involving the Eating Disorder Unit as consultants, from May 1998 to May 2003. Written informed consent was given before the assessment began.

Patients underwent standard clinical psychiatric assessment comprehensive of the administration of the BED Clinical Interview, (BEDCI)[12] and were also asked to complete the Eating Disorder Inventory-2,[13] and the Structured Clinical Interview for Anorexic–Bulimic Spectrum Anorectic–Bulimic Spectrum, Self-Report[14]; note that for subjects recruited prior to year 2000, a pilot version of the instrument was used (see later).

Instruments

Binge-Eating Disorder Clinical Interview. The BEDCI is a structured interview designed to assess the presence of BED according to DSM-IV research criteria. The interview contains 47 items; besides diagnostic items (presence and frequency of binge-eating, eating discontrol, absence of regular purging behaviors for an exclusionary diagnosis of BN), the other items provide additional information about demographics; educational level; weight history; description of latest binge-eating episode (when it occurred; time of day; duration; amount; and type of food eaten); current maladjustment due to the overweight condition and eating behavior in either social or work-related functioning; degree to which self-esteem depends on weight and shape; time spent on a diet since adulthood; previous attempts to lose weight and their effectiveness; temporal relationship between onset of binge-eating and dieting; brief psychiatric history (depressive episodes, alcohol and/or substance abuse; sexual harassment, i.e., victim of incest, sexual abuse, or rape; previous mental health advice); suspicion of binge-eating in parents.

Note that some of the variables investigated by either the BEDCI were dichotomized for statistical purposes (see Appendix) i.e., weight cycling, current social or work-related maladjustment; degree to which self-esteem depends on weight and shape (binary cutoff set at score ≥ 3 considered as *present*).

Eating Disorder Inventory-2 (EDI-2). The Eating Disorder Inventory-2 (EDI-2) is a self-report questionnaire. It consists of 91 items presented in a six-point format (from "always" to "never"). The inventory comprises measures on 11 cognitive and behavioral dimensions characteristic of eating disorders: drive for thinness (relentless pursuit of thinness), bulimia (tendency to engage in bouts of uncontrollable overeating), body dissatisfaction (dissatisfaction with the overall shape and size of regions of the body of concern), ineffectiveness (feelings of inadequacy), perfectionism (extent to which one believes that personal achievements should be superior), interpersonal distrust (feelings of alienation and reluctance to form close relationships), interoceptive awareness (confusion and apprehension in recognizing and responding to emotional states), maturity fears (desire to retreat the security of childhood), asceticism (tendency to seek virtue through the pursuit of spiritual ideals), impulse regulation (impulsivity and self-destructiveness), social insecurity (tendency to experience social self-doubts and unhappiness).

Structured Clinical Interview for Anorexic-Bulimic Spectrum, Self-Report (SCI ABS-SR). The ABS-SR is a self-report questionnaire designed to investigate the presence of signs, symptoms, cognitive schemes, and behavioral patterns typical of patients with AN or BN, and other features frequently associated to both disorders. The interview is focused on the whole life span to identify whether the subject has had these symptoms at any time, especially if having them bothered him/her. It provides

TABLE 1. Demographic characteristics, weight history, and comorbidity in our sample assessed by the administration of the BEDCI

	BED ($n = 27$)	Non-BED ($n = 63$)	p
Age (years)	37.3	42.3	—
Body mass index	37.3 ± 14.3	36.5 ± 13	—
Female (%)	87.5	91.6	—
Age at onset of			
¤ Overweight	25 ± 9.7	22 ± 10	—
¤ Dieting	24.5 ± 14.3	23.5 ± 12	—
¤ Binge-eating	29 ± 10.5		
Most of the time spent on a diet since 18 years (%)	55.3	61.5	—
Weight cycling (%, present)	38.5	22.2	—
Sexual harassment	15.4	12.9	—

No significant differences were found between the two groups as regards any of the items explored.

100 items, with a yes/no answer, producing a total score (number of items endorsed) pertaining to attitudes and beliefs; weight history; self-esteem and satisfaction; phobias (dysmorphic phobias, secondary social phobia, visceral perceptions); avoidant and compulsive behaviors; weight control (eating habits, physical exercise; purging, binge-eating; associated features (impulse discontrol; personality traits, medical conditions); level of impairment and insight (see Appendix).

For the present study, only some of the items were used for statistical analyses, as patients interviewed prior to 2,000 were administered a pilot version of the questionnaire. These selected items were clustered in three dimensions: secondary social phobia (i.e., interpersonal distress and/or avoidance related to the overweight condition, Nos. 38–45; present when ≥5 out of eight items were endorsed); avoidant and compulsive behaviors (i.e., compulsive monitoring of weight and shape, Nos. 49–53, present when ≥3 out of five items were endorsed); avoidance of mirrors and scales (Nos. 54–55, present when at least one item was endorsed); dichotomous all-or-nothing thinking was explored by a single item (No. 119).

Statistics

Continuous variables were analyzed using Student's *t*-test (two-tailed for unpaired data), whereas categorical variables were analyzed with the χ^2 test. Statistical significance was set at the 5% level ($p < .05$).

Results

Twenty-seven subjects satisfied the DSM-IV research criteria for a diagnosis of BED (6 month-prevalence 27%). Age and BMI did not differ significantly among the two groups (see **Table 1**), which also displayed a similar weight cycling rate, as defined by "losing and gaining back 10 kg at least three times" (BED 38%, non-BED 22%, ns.).

Using the BEDCI, weight and shape concerns were assessed in terms of their impact on self-esteem: to score positively on this item the individual had to select one of two extreme points on the four-point scale (weight and shape were among the main things/the most important things that affected how you felt about or evaluate yourself as a person, compared with other aspects of your life). Thus the tendency to evaluate self-worth in terms of weight and shape was reported by 48% of BED obese subjects vs. 23% of non-BED ones ($p = .05$). BED subjects were more severely impaired than non-BED ones in their overall functioning by the overweight condition (68% vs. 31%, respectively, $p < .005$) and more likely to report psychological distress leading to professional help (61.5% of BED patients vs. 23.2% of non-BED ones, $p < .001$). Sexual harassment preceding the onset of the overweight condition was equally reported in both groups (BED 15.4%, non-BED 12.9%).

BED patients scored higher than non-BED ones when considering the ABS-SR section exploring the presence of secondary social phobia—i.e., interpersonal distress due to the overweight condition- (positive in 88% vs. 34.3%, $p < .005$) and the item investigating dichotomous, all-or-nothing reasoning (endorsed by 37.5% vs. 17.7%, $p = .01$), whereas no significant difference was found as regards frequent monitoring of weight and shape and avoidant behaviors related to weight and body image (see **Fig. 1**).

Considerable overlap in the EDI profiles of the two groups was found (**Table 2**), except for the following subscales, where BED patients obtained higher scores than non BED ones: bulimia ($p < .0001$), ineffectiveness ($p < .01$), interoceptive awareness and social insecurity ($p < .05$).

Because of the presence of different recruitment sources, we also performed statistical analyses comparing the findings in BED patients from the Psychiatry Eating Disorder Unit vs. those from the internal medicine weight-loss program. Results show that the two groups are similar as regards BMI; EDI profiles differed significantly as regards the bulimia, perfectionism and avoidance EDI subscale, with the former scoring higher than the latter ($p < .05$).

Conclusion

BED was proposed in 1994 as a new diagnostic category related to, but quite distinct from, both

FIGURE 1. Cognitive schemes and behavioral patterns pertaining to eating disorders' spectrum in obese with vs. without BED. [Color figure can be viewed in the online issue, which is available at www.interscience.wiley.com.]

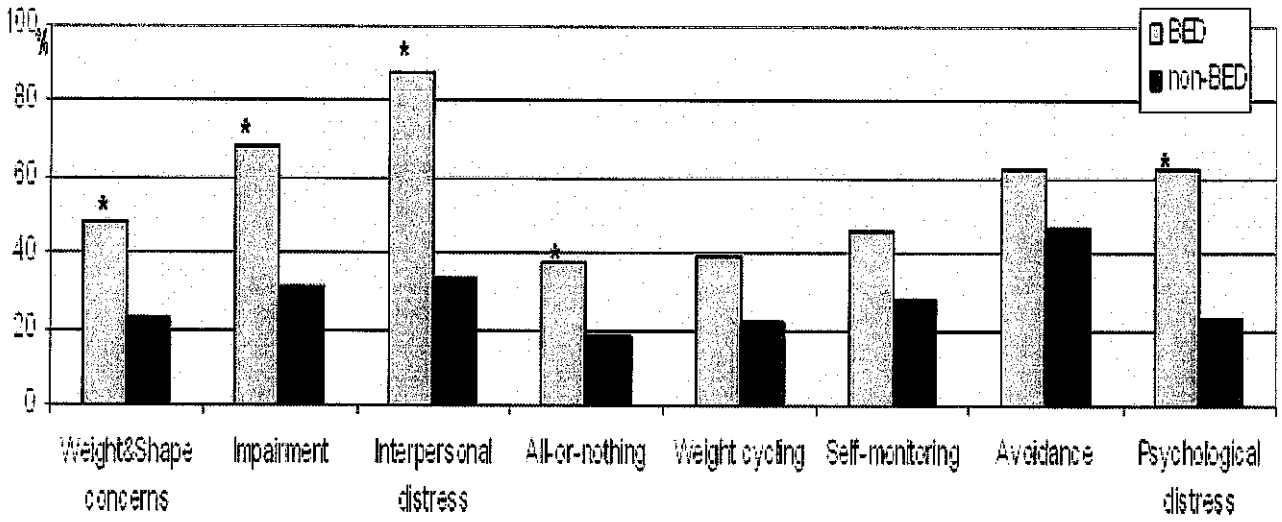

TABLE 2. Comparison between EDI scores in obese subjects with and without binge-eating disorder

	Mean ± SD		
	BED (n = 27)	Non-BED (n = 63)	p
Drive for thinness	11 ± 8.7	9.6 ± 6.2	
Bulimia	6.7 ± 1.5	2.7 ± 2.7	<.001
Body dissatisfaction	22.8 ± 4.2	16.8 ± 5.6	
Ineffectiveness	12.3 ± 5.7	5 ± 4.6	<.01
Perfectionism	2 ± 3.1	2.4 ± 2.8	
Interpersonal distrust	4.6 ± 3.7	4.5 ± 2.6	
Interoceptive awareness	8.2 ± 7	4,1 ± 4.1	<.05
Maturity fears	6.1 ± 3.7	4.8 ± 4	
Asceticism	4 ± 1.52.1	5.1 ± 3.3	
Impulse regulation	4.2 ± 3.8	2.7 ± 3.1	
Social insecurity	6.5 ± 2.5	5.2 ± 3.5	<.05

obesity and BN; actually, even if not required by diagnostic criteria, most of BED patients display an overweight condition, and the prevalence of the disorder increases with the degree of obesity and the specificity of the treatment program (0.7–2% in the general population, to 10–20% in clinical ones, up to 70% among overeaters anonymous.[15–19] In the preliminary results of this study,[3] we showed a 12.1% 6-month prevalence of BED in Italy among patients seeking obesity treatment at a general hospital-affiliated program for weight management. Current data indicate a higher prevalence (27%) of the disorder, probably because of the fact that the second recruitment involved more patients referring to a specialist Eating Disorder Unit.

The issue of the relationship with BN, especially the nonpurging subtype, characterized by the absence of any counter-regulatory behavior, is still controversial and many researchers have focused their attention on the psychological constructs sustaining disturbed eating. In the present study, when investigating obese patients in terms of descriptive psychopathology, we found that neither body dissatisfaction, nor drive for thinness, indeed, turned out to be a specific feature of obese binge-eaters, being rather shared values for all EDs. This finding partially agrees with that of Barry et al.[20] who comparing patients with BN and patients with BED with/without obesity, found that the nonobese BED group and the obese one did not differ from each other in any area (including body dissatisfaction) with the exception of drive for thinness. On the other hand, the discrepancy from our previous finding of greater body dissatisfaction in BED patients suggests the questionable validity of this construct, which is affected by different variables, such as presence of a true overweight condition or body image disturbances. In the effort to eliminate the effects of body weight on levels of body dissatisfaction, an adjustment of the EDI score, i.e., the "body illusion index", was proposed but with no great success.[21] Though drive for thinness may reflect the construct of weight and shape overconcern more closely than body dissatisfaction, recent studies have shown that fat phobia is only one of the pathways to eating disorders, and probably a culture bound phenomenon.[22] Indeed, obese binge eaters and nonobese binge eaters, though characterized by similar levels of body dissatisfaction, significantly differ as regards the central role of these concerns in governing self-esteem. BED subjects in fact, like anorexic and bulimic ones, show a tend-

ency to judge their self-worth largely, or even exclusively, in terms of their shape and weight, although this issue has been totally ignored in provisional criteria set by DSM-IV. Thus, self-evaluation unduly influenced by body shape, seems to be a more useful disease indicator than body dissatisfaction, particularly for BED patients, suggesting the opportunity to shift from body image disturbances to self-concept deficits and overvaluation of the personal significance of body weight and shape as the trans-nosographic dimension in ED.[4,23–25]

A growing body of evidence adds to the issue of a greater psychiatric burden in obese patients compared to normal-weight subjects,[26] with the exceeding prevalence mainly due to the comorbidity with BED.[16,27] Few studies have shown a consistent psychosocial impairment even including patients with subthreshold BED syndromes.[28–30] In our study, obese binge-eaters were more likely than obese nonbinge-eaters to have requested professional psychological help: actually the greater sense of social insecurity, and specifically the impairment in interpersonal relationships associated with overweight condition leading to a severe maladjustment in overall functioning may contribute to this issue. Furthermore, this "secondary social phobia" may stem from an intrinsic feeling of ineffectiveness and self-deprecation maintained by social stigmatization that promotes the vicious circle leading to binge-eating through negative feedback on self-esteem.[31,32] Extreme overconcern with weight and shape, in combination with low self-esteem, may lead some people to adopt, or think they should adopt, strict and rigid dietary rules and to restrict eating in unrealistic ways. Propensity for setting unrealistic aims as regards body appearance and food intake, unsuccessfully striving to meet them and equating lack of complete achievement with abject failure, can be the seed for the disruption of eating behavior. Because of the inflexibility of these eating schemes, any minor transgression can lead to an all-or nothing reaction, such that all attempts to control eating are abandoned, resulting in a binge. Dichotomous reasoning is indeed a common cognitive distortion among patients with AN and several studies have concluded that among patients with AN, dieting is not a necessary precondition for binge-eating in the absence of an all-or-nothing reaction to the perceived violation of dietary restraint.[33] Interestingly, in our sample, this attitude seems to be distinctive, among obese patients, of those with BED, even if this finding needs to be replicated with a more thorough cognitive investigation. Note that the tendency to evaluate self-worth in terms of weight and shape and a dichotomous (black-and-white) thinking style, together with having unrealistic weight goals, low self-efficacy, poor coping, or problem-solving skills, has been identified as significant psychological predictors of weight regain in obesity.[34–36] These studies lack a thorough ED symptomatology assessment, but we can speculate that these psychologically impaired patients lie on an eating disorders dimension and a specifically oriented treatment—i.e., one based on a cognitive rather than a strictly behavioral approach—could result in a minimization of relapse risk.

The present study shows some limitations, such as the cross-sectional nature of the assessment, which does not permit inferences about the causal relationships between psychological features and BED, and the sampling. First of all, results from clinical studies may not be totally transferred to the general population; then different recruitment sources may have helped highlightening differences between BED subjects and non-BED ones. However, these results add further evidence to the debate on disordered eating as a continuum, from pure obesity (i.e., that of metabolic disturbances) to BED, where weight-related self-evaluation acts as the fundamental maladaptive cognitive feature. Future research should aim to investigate these shared psychopathological markers not only for a better definition of provisional DSM-IV BED criteria, currently under debate, but mainly for the recognition of an "eating disorder attitude" (i.e., spectrum) and its relationship with the outcome of the overweight condition, in terms of adherence to weight-loss treatment, amount of weight loss, and maintenance of correct eating habits.

References

1. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, 4th ed. Washington, DC: American Psychiatric Press, 1994.
2. Fairburn CG. Eating disorders. In: Clark DM, Fairburn CG, editors. Cognitive Behavior Therapy: Science and Practice. Oxford: Oxford University Press, 1997, p 209–241.
3. Ramacciotti CE, Coli E, Passaglia C, LaCorte M, Pea E, Dell'Osso L. Binge eating disorder: Prevalence and psychopathological features in a clinical sample of obese people in Italy. Psychiatry Res 2000;94:131–138.
4. Masheb RM, Grilo CM. The nature of body image disturbance in patients with binge eating disorder. Int J Eat Disord 2003; 33:333–341.
5. Sullivan M, Karlsson J, Sjostrom L, Backman L, Bengtsson C, Bouchard C, et al. Swedish obese subjects (SOS)-an intervention study of obesity. Baseline evaluation of health and psychosocial functioning in the first 1743 subjects examined. Int J Obes Relat Metab Disord 1993;17:503–512.

6. Roberts RE, Kaplan GA, Shema SJ, Strawbridge WJ. Are the obese at greater risk for depression? Am J Epidemiol 2000;152:163–170.
7. Yanovski SZ, Nelson JE, Dubbert BK, Spitzer RL. Association of binge eating disorder and psychiatric comorbidity in obese subjects. Am J Psychiatry 1993;150:1472–1479.
8. Carr D, Friedman MA. Is obesity stigmatizing? Body weight, perceived discrimination, and psychological well-being in the United States. J Health Soc Behav 2005;46:244–259.
9. Friedman KE, Reichmann SK, Costanzo PR, Zelli A, Ashmore JA, Musante GJ. Weight stigmatization and ideological beliefs: Relation to psychological functioning in obese adults. Obes Res 2005;13:907–916.
10. Hsu LKG, Benotti PN, Dwyer J, Roberts SB, Saltzman E, Shikora S, Rolls BJ, Rand W. Nonsurgical factors that influence the outcome of bariatric surgery: A review. Psychosom Med 1998; 60:338–346.
11. Kral JG. Selection of patients for anti-obesity surgery. Int J Obes Relat Metab Disord 2001;25(1 suppl):S107–112.
12. Spitzer RL, Yanovski SZ, Marcus MD. Binge Eating Clinical Interview. Pittsburgh, PA: HaPI Record, 1994.
13. Garner DM. Eating Disorder Inventory-2 (EDI-2). Professional Manual. Odessa: Psychological Assessment Resources Inc, 1991.
14. Cassano GB, Borri C, Benvenuti A, Shear MK, Coli E, Maser JD, Frank E, Dell'Osso L, Endicott J, Mauri M. Spettro Anoressico-Bulimico: Questionario di autovalutazione (ABS-SR). Pisa: Pacini Editore, 2000.
15. Spitzer RL, Devlin M, Walsh TB, et al. Binge eating disorder: A multisite field trial of the diagnostic criteria. Int J Eat Disord 1992;11:191–203.
16. Yanovski SZ. Binge eating disorder: Current knowledge and future directions. Obes Res 1993;1:306–324.
17. De Zwaan M, Mitchell JE, Raymond NC, Spitzer RL. Binge eating disorder: Clinical features and treatment of a new diagnosis. Harv Rev Psychiatry 1994;1:310–325.
18. Basdevant A, Poullon M, Lahlou N, Le Barzic M, Brillant M, Guy-Grand B. Prevalence of binge eating disorder in different populations of French women. Int J Eat Disord 1995;18:309–315.
19. Giusti V, Heraief E, Burckhardt P. Eating behavior and prevalence of eating disorders in 138 out-patients searching to lose weight. Paper presented at the 8th International Congress on Obesity, Paris, France, 29 August—3 September, 1998.
20. Barry DT, Grilo CM, Masheb RM. Comparison of patients with bulimia nervosa, obese patients with binge eating disorder, and nonobese patients with binge eating disorder. J Nerv Ment Dis 2003;191:589–594.
21. Garner DM, Garner MV, Van Egeren LF. Body dissatisfaction adjusted for weight: The body illusion index. Int J Eat Disord 1992;3:263–271.
22. Ramacciotti CE, Dell'Osso L, Paoli RA, Ciapparelli A, Coli E, Kaplan AS, Garfinkel PE. Characteristics of eating disorder patients without a drive for thinness. Int J Eat Disord 2002;32:206–212.
23. Wade TD, Lowes J. Variables associated with disturbed eating habits and overvalued ideas about the personal implications of body shape and weight in a female adolescent population. Int J Eat Disord 2002;32:39–45.
24. Stein KF, Corte C. Reconceptualizing causative factors and intervention strategies in the eating disorders: A shift from body image to self-concept impairments. Arch Psychiatr Nurs 2003;17:57–66.
25. Jacobi C, Paul T, De Zwaan M, Nutzinger DO, Dahme B. Specificity of self-concept disturbances in eating disorders. Int J Eat Disord 2004;35:204–210.
26. Simon GE, Von Korff M, Saunders K, Miglioretti DL, Crane PK, van Belle G, Kessler RC. Association between obesity and psychiatric disorders in the US adult population. Arch Gen Psychiatry 2006;63:824–830.
27. Mitchell JE, Mussel M. Comorbidity and binge eating disorder. Addict Behav 1995;20:725–732.
28. Striegel-Moore RH, Wilson GT, Wilfley DE, Elder KA, Brownell KD. Binge eating disorder in an obese community sample. Int J Eat Disord 1998;23:27–37.
29. Striegel-Moore RH, Dohm FA, Solomon EE, Fairburn CG, Pike KM, Wilfley DE. Subthreshold binge eating disorder. Int J Eat Disord 2000;27:270–278.
30. Crow SJ, Stewart Agras W, Halmi K, Mitchell JE, Kraemer HC. Full syndromal versus subthreshold anorexia nervosa, bulimia nervosa, and binge-eating disorder: A multicenter study. Int J Eat Disord 2002;32:309–318.
31. Drewnowski A. Metabolic determinants of binge eating. Addict Behav 1995;20:733–745.
32. Striegel-Moore R. Psychological factors in the etiology of binge eating. Addict Behav 1995;20:713–723.
33. Byrne SM, McLean NJ. The cognitive-behavioral model of Bulimia Nervosa. A direct evaluation. Int J Eat Disord 2002;31:17–31.
34. Byrne SM. Psychological aspects of weight maintenance and relapse in obesity. J Psychosom Res 2002;53:1029–1036.
35. Byrne S, Cooper Z, Fairburn C. Weight maintenance and relapse in obesity: A qualitative study. Int J Obes Relat Metab Disord 2003;27:955–962.
36. Byrne SM, Cooper Z, Fairburn CG. Psychological predictors of weight regain in obesity. Behav Res Ther 2004;42:1341–1356.

Appendix A: Noticeable Items from the BEDCI and the SCI ABS-SR

TABLE A1. BEDCI

No. of Item	Score	Binary Cutoff
No. 15. Weight cycling Have you ever lost 20 lbs or more-when you weren t sick-and then gained it back? If Yes: How many times did that happen to you?	1-Never/no 2-Once or twice 3-Three or four times 4-Five times or more	Present if score ≥3
No. 25. Current social maladjustment During the past 6 months, how much have your relationships with people been affected by any of the following: overeating or thinking about eating, being upset about your eating, or being upset about your weight?	1-Not at all 2-A little 3-A fair amount 4-Quite a lot 5-To an extreme degree	Present if score ≥3

TABLE A1. (Continued)

No. of Item	Score	Binary Cutoff
No. 26. Current work-related maladjustment During the past 6 months, how much have your work, schoolwork, or housework been affected by any of the following: overeating or thinking about eating, being upset about your eating, or being upset about your weight?	1-Not at all 2-A little 3-A fair amount 4-Quite a lot 5-To an extreme degree	Present if score ≥3
No. 35. Degree to which self-esteem is dependent on weight and shape During the past 6 months, how important has your weight or shape been in how you feel about or evaluate yourself as a person-as compared with other aspects of your life, such as how you do at work, as a parent, or how you get along with other people? Would you say...	1- Weight and shape were not very important 2-Weight and shape played a part in how you felt about yourself 3-Weight and shape were among the main things that affected how you felt about yourself 4-Weight and shape were the most important things that affected how you felt about yourself	Present if score ≥3

TABLE A2. SCI-ABS-SR

Secondary Social Phobia
Have you ever had extended periods of time when you felt very badly or you avoided...
No. 38. . . .going out for dinner because of your figure or the amount you eat?
No. 39. . . .eating as much when you were out for a meal as you would eat at home alone?
No. 40. . . .going shopping for clothes because you felt too fat or you did not want to admit your size?
No. 41. . . .using dressing rooms, public showers, etc. because you felt too fat?
No. 42. . . .wearing close-fitting clothes because you were not satisfied with your body?
No. 43. . . .going to the beach or to the swimming pool because you felt too fat wearing a swimsuit?
No. 44. . . .having sex because you felt too fat?
No. 45. . . .having a physical examination because you felt too fat?

Avoidant and Compulsive Behaviors
Have you ever had extended periods of time when you...
No. 49. . . .checked your weight more than once a day, or felt anxious if a scale was not available?
No. 50. . . .checked your weight almost every time you ate?
No. 51. . . .checked your mirror everyday looking for fat?
No. 52. . . .regularly checked your body dimensions with a tape measure?
No. 53. . . .checked your body dimensions and weight by how tight your clothes fit?
No. 54. . . .avoided weighing yourself?
No. 55. . . .avoided looking at your image in the mirror and shop windows?

Personality
Do you see yourself or do others see you as...
No. 119. . . .seeing things as either "Black or white" or having an "all or nothing" way of thinking?

REGULAR ARTICLE Psychopathology

Emotional Overeating and its Associations with Eating Disorder Psychopathology among Overweight Patients with Binge Eating Disorder

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ABSTRACT

Objective: The current study examined emotional overeating in overweight patients with binge eating disorder (BED). A new measure—the Emotional Overeating Questionnaire (EOQ)—was developed to measure the frequency of overeating in response to emotions. The internal consistency, test-retest reliability, and factor structure of this measure were examined, and its associations with eating disorder psychopathology, depression, and gender were explored.

Method: Two hundred twenty consecutive overweight (body mass index [BMI] $\geq$ 25) treatment-seeking BED patients (48 men and 172 women) were administered the EOQ, which assesses overeating frequency in response to six emotions (anxiety, sadness, loneliness, tiredness, anger, and happiness). A subset of patients (n = 83) completed the measure again approximately 1 week later. BMI was measured, and participants completed measures of eating disorder psychopathology.

Results: The EOQ was internally consistent (α =.85), its items were significantly and moderately correlated (range .32 to .70) with each other, and principal components analysis revealed one factor accounting for 58% of the variance. The EOQ items and total score were characterized by good test-retest reliability (intraclass correlation coefficients [ICCs] ranged from .62 to .73). Significant correlations were found between the emotional overeating items and total score, and binge frequency, eating disorder features, and depressive symptomatology. Emotional overeating was unrelated to BMI, and men and women reported similar rates of emotional overeating.

Conclusion: Emotional overeating was significantly associated with binge frequency, eating disorder features, and depression, but was not related to BMI or gender. © 2005 by Wiley Periodicals, Inc.

Keywords: binge eating disorder; emotional eating; assessment; measurement; obesity

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Introduction

Despite the clinical interest overeating in response to emotions, and the investigation of emotions as triggers for other behaviors (e.g., substance use), there has been a surprising lack of attention to this construct in the binge eating disorder (BED) and eating disorder literature. The BED diagnosis, as defined in the 4th ed. of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV),[1] includes recurrent episodes of binge eating during which there is a subjective sense of a lack of control. As noted in the DSM-IV,[1] some individuals report that binge eating is triggered by dysphoric moods, such as depression and anxiety. Yet, there are few data to support the frequency with which this occurs, which moods may serve as triggers, and what factors may be associated with emotional overeating.[2]

Arnow et al.[3] has articulated a number of reasons for the lack of knowledge regarding the relation between emotions and eating in obese individuals. First, the notion that obese individuals are more likely to eat in response to external cues rather than internal stimuli had been a major theoretical paradigm for many years.[4,5] This paradigm stands in contradiction to a prominent role for emotions in relation to eating behavior. Second, the current dominant eating disorder theory, restraint theory,

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has been widely applied to the maintenance of BED and posits that negative moods play a secondary role to dieting.[6] Finally, it has been speculated that the psychoanalytic writings of emotional eating may have also dampened scientific interest in this area.[3]

Existing measures of emotional eating include the Three-Factor Eating Questionnaire (TFEQ[7]), the Dutch Eating Behavior Questionnaire (DEBQ[8]), and the Emotional Eating Scale (EES[3]). The TFEQ has a Disinhibition subscale that has been described as a two-factor scale,[9] one being Emotional Eating. However, the six items are limited by the true-false response set for items such as, "When I feel anxious, I find myself eating." Arnow et al.[3] developed the EES and reported adequate psychometrics in a sample of obese binge eating females. Subjects were asked to rate their desire or urge to eat on a 5-point scale (from *no desire to eat* to *an overwhelming urge to eat*) for 25 emotions.

The DEBQ and the EES items are based on the desire to eat, rather than on the frequency of eating in response to emotions. The use of a frequency response set has become standard practice in the eating disorder literature.[10] In addition, all three existing instruments—the TFEQ, the DEBQ, and the EES—measure eating rather than overeating. To date, there are no known measures that assess the frequency of emotional overeating.

The purpose of the current study was to examine the frequency of emotional overeating in a sample of overweight patients with BED. A new measure, called the Emotional Overeating Questionnaire (EOQ), was developed that measures the frequency of overeating in response to emotions during the past 28 days. The internal consistency and test-retest reliability of the EOQ were examined in patients with BED. In addition, the factor structure of the measure and associations with eating disorder symptomatology, depression, and gender were explored.

Method

Participants

Participants were a consecutively evaluated series of 220 treatment-seeking overweight (body mass index [BMI; kg/m^2] $\geq$ 25) adults (48 men and 172 women) who met DSM-IV[1] research criteria for BED. DSM-IV diagnoses were based on the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I/P[11]). Exclusionary criteria were any concurrent treatment for weight or eating, medical conditions (diabetes, thyroid problems, or hypoglycemia) that influence weight or eating, and severe current psychiatric conditions requiring different treatments (psychosis, bipolar disorder, substance dependence, or suicidality). Written informed consent was obtained from all participants.

The participant group had a mean age of 45.2 years (SD = 8.8), and 79.6% (n = 175) were Caucasian, 10.9% (n = 24) were African American, 8.2% (n = 18) were Hispanic American, and 1.4% (n = 3) were other. Overall, total of 84.5% (n = 186) attended or finished college. The mean BMI was 36.4 (SD = 6.8).

Measures

The EOQ is a six-item self-report questionnaire developed for the current study to measure of overeating in response to emotions. Items, and the responses for the items, were developed with language similar to that used in the Eating Disorder Examination-Questionnaire (EDE-Q). Each item begins with, "On how many days out of the past 28 days have you eaten an unusually large amount of food, given the circumstances, in response to feelings of..." Each of six emotions is presented in all capital letters, followed by three more synonyms in parentheses and lower case as follows: (a) ANXIETY (worry, jittery, nervous), (b) SADNESS (blue, down, depressed), (c) LONELINESS (bored, discouraged, worthless), (d) TIREDNESS (worn-out, fatigued), (e) ANGER (upset, frustrated, furious), and (f) HAPPINESS (good, joyous, excited). The response set for the six items is a 7-point scale reflecting the frequency of days in which the behavior occurred in the past 28 days (i.e., 0 = no days, 1 = 1–5 days, 2 = 6–12 days, 3 = 13–15 days, 4 = 16–22 days, 5 = 23–27 days, and 6 = every day). The total score is obtained by adding the responses of the six items and dividin by six. Higher scores reflect more frequent overeating. The use of a 28-day time frame and frequency response set was deemed important in the development of this measure as it has become standard practice in the eating disorder literature to anchor eating behaviors in this way.[10] All 220 participants completed this measure at Time 1, and a subset of 83 consecutive participants completed this measure again at Time 2, approximately 1 week later.

The EDE-Q[12] is a 32-item self-report measure of eating disorder psychopathology based on the Eating Disorder Examination interview (EDE[13]). The EDE-Q assesses the frequency of different forms of overeating behaviors, including objective bulimic episodes (i.e., binge eating defined as consuming an unusually large amount of food, given the circumstances, with a subjective feeling of loss of control). The EDE-Q also comprises four subscales, including Dietary Restraint, Weight Concern, Shape Concern, and Eating Concern. Higher scores reflect greater binge frequency or eating disorder severity. In this patient study group, coefficient alphas for the EDE-Q subscales are as follows: .75 for Dietary Restraint,

.56 for Weight Concern, .67 for Shape Concern, and .72 for Eating Concern. The EDE-Q has received empirical support for use with BED.[14,15]

The TFEQ[7] is a 51-item self-report questionnaire that is a widely used and established measure of eating problems.[16] The measure has three subscales reflecting the following disordered eating domains: Cognitive Restraint, Disinhibition, and Hunger. Higher scores reflect worse eating problems. In this patient study group, coefficient alphas for the scales are as follows: .67 for Cognitive Restraint, .50 for Disinhibition, and .69 for Hunger. The TFEQ has demonstrated clinical utility for treatment studies of overeating and obesity.[17]

The Beck Depression Inventory (BDI[18]) is a 21-item self-report measure used to evaluate the cognitive, affective, motivational, and somatic symptoms of depression. Higher scores reflect greater depressive symptomatology and negative affect. Psychometric evaluations have reported adequate internal consistency, retest reliability, and convergent validity.[18] In this patient study group, the coefficient alpha is .88. For each item, participants are asked to pick one statement out of a group of statements (e.g., I do not feel sad; I feel sad; I am sad all the time and I can't snap out of it; or I am so sad or unhappy that I can't stand it) that best describes how they have been feeling during the past week.

This study was reviewed and approved by an institutional review board.

Results

Psychometric Findings

Table 1 shows a correlation analysis of the EOQ items and total score. The six items were moderately and significantly correlated with one another (Pearson product-moment correlation coefficients (*rs*) ranging from .32 to .70, $p < .0001$) and with the total score (*rs* ranging from .60 to .84, $p < .0001$). The internal consistency of the measure was high with $\alpha = .85$.

Table 2 summarizes the test-retest study of the EOQ in a subset of 83 patients. Means and standard deviations for each of the six items and the total score at Time 1 and Time 2 are shown along with intraclass correlation coefficients (ICCs). ICCs, which ranged from .62 to .73 ($p < .0001$), demonstrate adequate test-retest reliability for these items and for the total score.

Exploratory principal components factor analysis revealed a one-factor solution (eigenvalue = 3.484) accounting for 58.07% of the variance. Factor loadings for the individual items were as follows: .77 for anxiety, .86 for sadness, .79 for loneliness, .74 for tiredness, .81 for anger, and .58 for happiness. This supports the unidimensional structure of the instrument.

Frequency of Emotional Overeating and Gender Differences

For the overall sample, overeating in response to anxiety was the most frequently cited emotion ($M = 2.75$, $SD = 1.94$) occurring on approximately one-half the days, and overeating in response to happiness ($M = 1.40$, $SD = 1.61$) was the least frequently cited emotion occurring on approximately one-fourth the days in the past 28 days (Table 3). Table 3 also shows that men and women did not differ significantly on the EOQ with the exception of loneliness. Women ($M = 2.77$, $SD = 1.97$) reported overeating more frequently in response to loneliness than men ($M = 2.06$, $SD = 1.88$), $F(1, 219 = 4.89$, $p = .028$.

Associations with Emotional Overeating

A correlation analysis was performed with the EOQ, and BMI, binge episodes, eating disorder features, and depressive symptomatology (Table 4). The six emotional overeating items were unrelated to BMI. All six items and the total score were significantly related to the frequency of binge episodes (*rs* ranging from .17 to .31, $p < .05$) and to most eating disorder symptomatology (i.e., Eating Concern, Shape Concern, Weight Concern, Disinhibition, and Hunger; *rs* ranging from .14 to .39,

TABLE 1. Correlation coefficients among the emotional overeating variables ($N = 220$)

	Anxiety	Sadness	Loneliness	Tiredness	Anger	Happiness	Total Score
Emotional eating variables							
Anxiety	—						
Sadness	.67*	—					
Loneliness	.45*	.70*	—				
Tiredness	.50*	.48*	.46*	—			
Anger	.53*	.65*	.58*	.53*	—		
Happiness	.33*	.32*	.38*	.43*	.37*	—	
Total score	**.77***	**.84***	**.79***	**.75***	**.80***	**.60***	—

*$p < .0001$.

TABLE 2. Means, standard deviations, and intraclass correlation coefficients (ICCs) for test-retest reliability (n = 83)

	Time 1		Time 2		
	M	(*SD*)	*M*	(*SD*)	ICC
Anxiety	3.06	(1.95)	3.01	(1.75)	.64*
Sadness	2.88	(1.98)	2.64	(1.95)	.72*
Loneliness	2.72	(2.08)	2.34	(1.98)	.63*
Tiredness	2.28	(2.11)	2.39	(2.01)	.62*
Anger	2.52	(1.95)	2.58	(1.94)	.66*
Happiness	1.75	(1.72)	1.82	(1.77)	.63*
Total score	2.53	(1.56)	2.45	(1.47)	.73*

*p < .0001.

TABLE 3. Means, standard deviations, and analyses of variance (ANOVAs) comparing males and females

	Overall Sample (N = 220)		Male (n = 48)		Female (n = 172)		ANOVA	
	M	(*SD*)	*M*	(*SD*)	*M*	(*SD*)	*F*	*p*
Anxiety	2.75	(1.94)	2.48	(1.70)	2.83	(2.00)	1.24	.267
Sadness	2.66	(1.91)	2.31	(1.76)	2.76	(1.94)	2.04	.155
Loneliness	2.61	(1.97)	2.06	(1.88)	2.77	(1.97)	4.89	.028
Tiredness	2.06	(2.02)	1.87	(2.00)	2.11	(2.03)	0.51	.476
Anger	2.27	(1.92)	2.02	(1.90)	2.34	(1.92)	1.02	.313
Happiness	1.40	(1.61)	1.44	(1.60)	1.40	(1.62)	0.03	.873
Total score	2.29	(4.44)	2.03	(4.32)	2.37	(1.47)	2.03	.155

p < .05). Greater emotional overeating was related to more frequent binge episodes and more frequent and severe eating disorder symptomatology. The six emotional overeating items were unrelated to restraint, measured with both the EDE-Q and the TFEQ. In addition, the six emotional overeating items and the total score were significantly correlated with the BDI (*r*s ranging from .31 to .49, p < .001), such that greater emotional overeating was related to greater depressive symptomatology.

Conclusion

The current study represents a preliminary investigation of emotional overeating in overweight men and women with BED. The development and psychometric investigation of a measure of emotions for overeating behaviors seemed indicated given that it has been presumed that some individuals with BED report binge eating triggered by dysphoric moods.[1] Clinically, we have found that some participants in our BED trials self-identify as "emotional eaters."

We developed the EOQ, a measure specifically designed to assess the frequency that patients with BED report overeating in response to emotions. Overeating in response to anxiety was the most frequently cited emotion and occurred on approximately one-half the days, whereas overeating in response to happiness was the least frequently cited emotion and occurred on approximately one-fourth the days during the previous month. Overeating in response to sadness, loneliness, tiredness, and anger occurred between one-half and one-fourth the days during the previous month.

With regard to its psychometric properties, the EOQ was found to be internally consistent. The six items were moderately and significantly correlated with one another, suggesting that they are related but not redundant. Factor analysis revealed a single-factor solution that accounted for 58% of the variance. Specific associations with binge frequency, eating disorder features, and depressive symptomatology were found to be consistent across the six emotions and the total score. The EOQ items and total score demonstrated good test-retest reliability. These findings suggest that examining the specific emotions may not be as important as examining emotional overeating globally, thus supporting the use of a total score for this instrument. Alternatively, the variation in correla-

TABLE 4. Correlation coefficients for the emotional overeating variables with eating-related measures (N = 220[a])

	Anxiety	Sadness	Loneliness	Tiredness	Anger	Happiness	Total score
BMI	−.03	.04	.09	.10	.02	.18**	.08
EDE-Q binge episodes	.25***	.31***	.25***	.17*	.28***	.17**	.31***
Eating disorder symptomatology							
EDE-Q Restraint	.15*	.11	.08	.06	.13	−.03	.11
EDE-Q Eating Concern	.38***	.38***	.27***	.22***	.28***	.14*	.39***
EDE-Q Shape Concern	.26***	.34***	.24***	.15*	.28***	.21**	.32***
EDE-Q Weight Concern	.30***	.39***	.28***	.22***	.30***	.16*	.36***
TFEQ Cognitive Restraint	.04	−.06	−.08	−.11	−.10	−.20**	−.11
TFEQ Disinhibition	.25***	.25***	.12	.21**	.28***	.14*	.27***
TFEQ Hunger	.29***	.30***	.25***	.34***	.22***	.19**	.35***
Beck Depression Inventory	.33***	.46***	.45***	.31***	.42***	.25***	.49***

Note: BMI = body mass index; EDE-Q = Eating Disorder Examination-Questionnaire; TFEQ = Three-Factor Eating Questionnaire.
[a]N = 220 for all variables except BMI (N = 212), EDE-Q objective binge episodes (N = 218), and TFEQ Cognitive Restraint (N = 219).
*p < .05. **p < .01. ***p < .001.

tions, coupled with the adequate test-retest stability observed for the specific emotions, suggests that they can potentially be considered separately in future research.

Men and women with BED differed little in their reports of overeating in response to emotional triggers. One exception was that women were more likely to report eating in response to loneliness than men. This finding differed from a previous study of men and women with BED using the EES, which reported that women were more likely to report overeating in response to a range of negative emotions, particularly anxiety, anger and frustration, and depression.[19] Our measure assessed the frequency of eating in response to emotions whereas the Arnow et al.[3] measure assessed the urge to eat in response to emotions. In other words, it may be that women reported a greater urge to eat in response to emotions, but engage in this behavior at a similar frequency as men. Another important distinction is that our measure asked about eating an unusually large amount of food (i.e., overeating), whereas the Arnow et al.[3] items asked about eating. Thus, it may be that women and men may binge eat or overeat with a similar frequency in response to emotions, but women may generally eat more than men in response to emotions.

As expected, emotional overeating was related to the frequency of binge episodes and disinhibition, but it was not related to restraint. This suggests that emotional overeating is an important area of investigation as a trigger for binge eating and disinhibition among individuals with BED. Similarly, Arnow et al.[3] found associations between binge eating and disinhibition, but not restraint, for the three factors (i.e., Anger/Frustration, Anxiety, and Depression) of the EES. We also found associations between emotional overeating and the more cognitive features of eating disorders, such as eating concern, and overevaluation of weight and shape. Of note was the absence of an association between BMI and emotional overeating.

There are several potential limitations to the current study. First, only six emotions were chosen for this measure based on clinical judgment. Rather than trying to include more items reflecting diverse emotions, we selected items representing a range of positive and negative emotions that vary in energy/arousal. We attempted to create more of a behavioral measure of emotional overeating based on the frequency of eating in response to emotions, rather than a more cognitive measure based on the urge to eat in response to emotions. However, this measure was also based on retrospective recall of the past 28 days, thus precluding any specific statements that these emotions actually served as proximal antecedents or triggers for the overeating.[3] Such studies would require application of methods such as ecologic momentary assessment.[20] In addition, the measure developed for the current study did not take into account that overeating episodes might be triggered by a combination of emotions. Finally, the generalizability of our findings is limited to treatment-seeking overweight individuals with BED.

In summary, this report details the development of the EOQ, a measure to assess the frequency of overeating in response to six emotions (i.e., anxiety, sadness, loneliness, tiredness, anger, and happiness), and provides findings based on a study group of treatment-seeking overweight men and women with BED. The EOQ demonstrated high internal consistency and adequate test-retest reliability, and concurrent validity with measures of binge frequency, eating disorder features, and depressive symptomatology. The item level can be maintained for its clinical utility, or a single total score can be used since the measure yields a single factor. Given the high frequency of emotional overeating reported in this sample (i.e., between one-fourth and one-half the days of the previous month for each of the six emotions), future research should investigate whether treatment for BED is associated with changes in the frequency of emotional overeating, as measured by this scale.

References

1. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4th ed. Washington, DC: American Psychiatric Association; 1994.
2. Grilo CM, Shiffman S, Carter-Campbell JT. Binge eating antecedents in normal-weight nonpurging females: is there consistency? Int J Eat Disord 1994;16:239.
3. Arnow B, Kenardy J, Agras WS. The emotional eating scale: the development of a measure to assess coping with negative affect by eating. Int J Eat Disord 1995;18:79.
4. Schacter S, Goldman R, Gordon A. Effects of fear, food deprivation, and obesity on eating. J Pers Soc Psychol 1968;10:91.
5. Nisbett RE. Hunger, obesity, and the ventromedial hypothalamus. Psychol Rev 1972;79:433.
6. Polivy J, Herman CP. Dieting and binging: a causal analysis. Am Psychol 1985;40:193.
7. Stunkard AJ, Messik S. The Three Factor Eating Questionnaire to measure dietary restraint, disinhibition, and hunger. J Psychosom Res 1985;29:71.
8. Van Strien T, Frijters JER, Bergers GPA, et al. The Dutch Eating Behavior Questionnaire (DEBQ) for assessment of restrained, emotional, and external eating behavior. Int J Eat Disord 1986;5:295.
9. Ganley RM. Emotional eating and how it relates to dietary restraint, disinhibition, and perceived hunger. Int J Eat Disord 1988;7:635.

10. Wilson GT. Assessment of binge eating. In: Fairburn CG, Wilson GT, editors. Binge eating: nature, assessment, and treatment. New York: Guilford Press; 1993, p 227.
11. First MB, Spitzer RL, Gibbon M, et al. Structured Clinical Interview for DSM-IV Axis I Disorders - Patient Version (SCID-I, Version 2.0). New York: New York State Psychiatric Institute; 1996.
12. Fairburn CG, Beglin SJ. Assessment of eating disorders: interview or self-report questionnaire? Int J Eat Disord 1994;16:363.
13. Fairburn CG, Cooper Z. The Eating Disorder Examination. 12th ed. In: Fairburn CG, Wilson GT, editors. Binge eating: nature, assessment, and treatment. New York: Guilford Press; 1993, p 317.
14. Grilo CM, Masheb RM, Wilson GT. A comparison of different methods for assessing the features of eating disorders in patients with binge eating disorder. J Consult Clin Psychol 2001;69:317.
15. Grilo CM, Masheb RM, Wilson GT. Different methods for assessing the features of eating disorders in patients with binge eating disorder. Obes Res 2001;9:418.
16. Allison G, Kalinsky LB, Gorman BS. A comparison of the psychometric properties of the three measures of dietary restraint. Psychol Assess 1992;4:391.
17. Foster GD, Wadden TA, Swain RM, et al. The eating inventory in obese women: clinical correlates and relationship to weight loss. Int J Obes Rel Metab Disord 1998;22:778.
18. Beck AT, Steer RA, Garbin M. Psychometric properties of the Beck Depression Inventory: twenty-five years of evaluation. Clin Psychol Rev 1988;8:77.
19. Tanofsky MB, Wilfley DE, Spurrell EB, et al. Comparison of men and women with binge eating disorder. Int J Eat Disord 1997;21:49.
20. Greeno CG, Wing RR, Shiffman S. Binge antecedents in obese women with and without binge eating disorder. J Consult Clin Psychol 2000;68:95.

Adler's Need to Belong as the Key for Mental Health

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Psychopathology

Abstract

According to Adler's (1932) Individual Psychology the inability to belong or to connect with others results in pathology. In this essay the author presents several case studies that highlight the need to belong as a primary issue in therapy. The case descriptions include therapy with an individual, a couple, a client with addiction issues, a cross-cultural couple, and a mother and daughter-in-law. The case materials presented in this article reveal that individuals with psychological disorders can lessen their psychopathology by learning more effective methods to promote belonging. Adlerian methods and interventions to promote belonging are discussed.

In Adler's (1932, 1991) Individual Psychology every child is born with the need to belong and with the ability to connect with others. Acquiring the methods of connecting involves a learning process. This kind of learning is the key for well-being. It is essential that one belongs and is connected to three significant groups in one's circle of life. I expand Adler's description of the life tasks (Dreikurs, 1950) to refer to these significant groups as being family, friends, and work associates. Feeling *a sense of belonging* to these groups is the primary universal issue of mental health. Individuals with psychological disorders can lessen their psychopathology by learning more effective methods to belong.

This article reflects my many years of counseling and therapy from an Individual Psychology perspective (Shifron, 2006, 2008). My clinical experiences have shown me the universality of *the need to belong,* and I believe this paper offers an exceptional opportunity for clinicians from different theoretical approaches to learn more about Adler's optimistic and brilliant perspective. Adler's Individual Psychology is based on the conceptualization that psychopathology results from the lack of feeling belonging. This is an optimistic view, because the absence of feeling belonging is a curable situation. According to Adler's theory (Ferguson, 2006), every individual makes choices. In this paper I focus on the belief that every individual is capable and creative and that by making different kinds of choices, each person can learn how to feel belonging.

Throughout my work with clients over many years, each individual or couple presented unique problems. However, there was a common theme among a majority of them. The hidden goal for most of them included the

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desire to belong. This hidden goal was identified in many instances when exploring clients' early recollections and dreams. I found the need to belong surfaced among couples, parents, children, and siblings. I found a similar need to belong with friends and in the work setting. I discovered many creative and diversified ways that individuals use to meet this need to belong. In therapy an important process was for clients to learn whether the creative methods they chose were effective or not, and whether they could use their creative abilities to choose more effective methods to feel belonging.

To understand Adler's concept of belonging, I find it helpful to remember the concept of *holism.* In a holistic system, the whole is a dynamic, moving, developing, growing, creative system. It operates through the inner links within all parts of the system. Each part has a specific role or place that enables the other parts to operate and to move. The movement is the consequence of the interrelations and the contributions of each part. In a holistic system the cooperative interactions of the parts constitute the whole. "The organism is more than the sum of its parts and if these parts are taken to pieces the organism is destroyed . . . these parts are in active relations to each other" (Smuts, 1926, p. 101, as cited in Linden, 1995, p. 254).

In Individual Psychology the individual is a whole system, but the individual is also a cooperating and interacting part of larger systems, like the family, the community, and the universe. A sense of belonging is essential in order for one to feel that he or she is an actively contributing part of the larger whole. This feeling, that one belongs and that one has a place in the larger systems, is achieved when one is encouraged and appreciated for one's special talents and creative abilities. An individual who feels belonging feels valued and significant, and the person will contribute his or her best to society. That contribution represents social interest (Ansbacher, 1991), that is, a concern for and commitment to the welfare of the community. Adler characterized

> the socially useful type as prepared for cooperation and contribution in whom we can always find a certain amount of activity which . . . is in agreement with the needs of others. It is useful, normal, rightly embedded in the stream of evolution of mankind. (Mosak, 1991, p. 316)

Adler emphasized *belonging* as the primary factor for the individual's and the community's mental health. Mosak (1991) wrote, "Closeness is a transcendent variable. It encourages people to look outside of and beyond themselves to the need of others in the community and of the community itself. It encourages the feeling of intimacy, empathy, and identification" (p. 315).

Recently, I conducted workshops on Adlerian psychotherapy in Cambridge, England. My hostess, Anthea Millar, described a project by Foresight Science Future with the following information that was published in the

London Times. The project was led by Felicia Huppert (2008), professor of psychology at Cambridge University, and it was intended to improve mental well-being. The project was included in a "well-being" report, compiled by more than 400 scientists, sent to the British government. The research proposed to encourage behavior that will make people feel better about themselves. The researchers concluded that they found five categories that can make profound differences in people's well-being. They named the program "five a day":

1. Connect with people.
2. Be active—do physical activities with others.
3. Take notice—be aware of sensations around you, be in the state of mindfulness.
4. Keep learning—as a way of rebooting the mind to experience joy in the here and now.
5. Give—committing an act of kindness each day is associated with an increase of well-being.

For those following the work of Adler, it is a welcome finding that his holistic psychology that emphasized *belonging* is actualized in reports about well-being to the British government, many decades after Adler first wrote about the importance of social interest and the feeling of belonging.

In this essay, I focus on belonging as the primary variable in clients' mental health. I discuss case studies with the focus on the clients improving the ways they cope with life through increasing their social interest and through gaining feelings of being accepted and belonging. The issues I address are as follows:

Belonging to the family of origin—identifying creative methods used to secure the feeling of belonging.

Belonging in a couple relationship—examining the complexity of cultural differences in basic norms and values as these relate to the feeling of belonging.

Belonging to the world of work—considering the need to maintain a balance between work and family.

Readers familiar with Adlerian psychotherapy know that early recollections provide rich clinical material (Manaster & Mays, 2004; Shifron & Bettner, 2003). I employed this technique extensively to explore the importance of belonging in many of the cases reported. For me, early recollections are a type of metaphor. They reveal lifestyle (Ferguson, 2006) as well as the individual's current emotional situation. The use of early recollections is an accurate and quick method to discover the person's feelings of belonging and the creative methods the person uses in order to feel belonging. All names and other personal data were changed completely for confidentiality.

Case Studies: Individual Therapy

The Creative Contributor. The need to belong is so strong that some individuals excessively seek to please others. These individuals invest much of their energy in pleasing, helping, and rescuing their family members. They often feel that their "membership card" of being a valued and accepted person is valid only through their being available to others at all times until they become exhausted. This may lead to creative solutions for seeking rest. An example is "Pamela," who is in her 20s. She is a student who works in her free time, and she is the youngest of four siblings.

The presented issue, as she stated, was that she suffered from anxiety and "unrealistic fears." Her relationships with men were complicated in that she was attracted to unreliable men who were not interested in her, and she was not attracted to those who showed her care and affection. From an Adlerian perspective this is an excellent method to avoid intimacy.

A thorough analysis of her lifestyle, which included early recollections and dreams, disclosed that in order to feel that she belonged in her family, she had chosen behaviors that made her feel that she was needed at all times by her parents and siblings. In psychotherapy, she gradually understood, through our work with her early recollections and dreams, that in order to gain recognition she often neglected to take care of her own needs in favor of the needs of others. She also became aware of the fact that it was almost impossible for her to ask for help. She perceived her mother as a helpless woman. Pamela was her mother's caretaker, and she strove to excel in being a caretaker.

Pamela learned to understand that her way of fulfilling her need to belong included a consistent set of behaviors revolving around caretaking, pleasing others, and giving, which created in her feelings of anxiety, frustration, disappointment, and anger. This set of behaviors was consistently void of self-care strategies. For example, when I asked her if she ever asked for help when she needed it, she said she never did. She reported that her father was too busy and her mother and siblings lacked the skills to be helpful to her. An example of her private logic on this point was reflected in the following early recollection she reported:

> At age 8 I was in a boat and a young boy fell off the boat. I jumped into the water and saved him. Everyone reacted as if it was the most natural thing to do. I felt that it was expected of me to jump and save the boy because I was an excellent swimmer.

I viewed this early recollection to be a metaphor representing the way she thinks about herself and her primary role in her life.

As we continued in therapy, I avoided dealing with her initially reported concern with her anxiety and chose instead to focus directly on the creative

ways in which she was seeking to fulfill her need to belong. We continued to explore ways that her exaggerated need to "give and please others" were directed toward her need to feel belonging. We were also able to come to a consensus that the anxiety attacks, which were her presenting concern, had a purpose. The purpose was that it was a creative way of giving her a rest from being in the service of others. It was only then that we were able to work together to assist her in finding less stressful and anxiety-driven behaviors to fill the need to belong. At present, Pamela is in the process of establishing new behaviors to practice her "excellence in swimming," which includes *courage, movement,* and *initiation.* Pamela is developing a new relationship with a man who adores her. She is more assertive with her family members as well as at work and with friends, without her former fears that by setting healthy boundaries she will no longer belong. She is free of anxiety attacks. From my clinical perspective I view addiction, anxiety, and depression as an example of goal-oriented behavior. They are creative, purposeful, and chosen behaviors (Shifron 1999). Interpersonal relationships and feelings of belonging are essential for the development of significant intimacy, and they are as essential for adjusting to other life situations, including the world of work.

Despair. Robert, a man in his fifties, holds a very prestigious work position. His performance at work is considered to be excellent, but he lacks skills in interpersonal relations. He became aware of the fact that he might lose his job if he did not change his attitude toward his co-workers.

Robert is the oldest of three siblings. His parents divorced when he was very young. He and his sisters never married. In his early recollections, he described a detached mother who was busy fighting with her husband (Robert's father), two sisters whom he did not like, and a father who was not around when he was needed. Robert was a very good student but was always angry, sensitive, and sad. This picture of his childhood corresponded very vividly to his emotional state at the time he began therapy. He felt lonely and alone, did not trust friends or partners, and did not keep in touch with his immediate family. At the same time, he was extremely invested in his work. He said, "I don't belong to anyone. Work isn't a substitute for family and couple relationships. There is no sense in living like that, I have to change it." Robert's feelings of sadness and despair were extreme because he had no support from anyone, neither his family nor a partner.

Developing trust in the therapeutic process was a challenge. Robert did not trust that anyone had a genuine interest in him. It took a long time before he developed some confidence in the process. Accepting his strengths was an important step for him. He realized how efficient, productive, and intelligent he was in his job. He learned to appreciate the meaningful relationships that he had succeeded in establishing at work. Robert practiced at

work how to express his feelings, and doing so helped to prevent him from exploding. Work became an anchor for his need to belong, and thus he increased his belief that he was capable of developing meaningful relationships in his private life.

Dreikurs (1991) wrote,

> The human community sets three tasks for every individual. They are: work, which means doing useful work; friendship, which embraces social relationships with comrades and relatives; and love, which is the most intimate union with someone of the other sex and represents the strongest emotional relationship which can exist between two human beings. These three tasks embrace the whole of human life with all its desires and activities. All human suffering originates from the difficulties which complicate the tasks. (p. 7)

Relationships are learned in one's own family. Those who completed this learning process successfully will feel that they belong, and they are likely to form meaningful relationships outside their family—at work, with friends, and with an intimate partner.

Robert's despair and suffering originated from the fact that he had no relations with his family, which inhibited him from establishing his own family unit and knowing how to relate to others at work. In a therapeutic process, when there is no opportunity to work with the entire family and when the client refuses to make contact with family members, the learning process will take place in another life task. In Robert's case he was motivated to learn and to practice his interactions with others at the workplace, where he finally felt that he belonged. The workplace became a laboratory for acquiring a sense of belonging. He learned how to relate to others and to form meaningful relationships.

One of the primary factors in work adjustment is the feeling of belonging. Holland (1985) developed a vocational instrument that was based on the idea that individuals adjust much better to work when they are around people like them, when they feel that they belong with the group. Holland's prediction was that individuals who belong would be motivated, satisfied, and able to grow and to develop. The need to feel belonging in the workplace is so strong that some people develop workaholic symptoms (Shifron, in press).

Couples Therapy

Conceptual issues to consider with couples. The need to belong is crucial in romantic relationships. Romantic relationships are complex and can be very disturbing when the very basic need to belong is ignored.

> Certainly, love in all its thousand variations is a feeling of belongingness and hence is characterized by its content as a social feeling. Therefore, that man and that woman will be best prepared for love, marriage and parenthood, which surpasses all others in being fellow men . . . the worse preparation for marriage is when an individual is looking for his own interest. If he has been trained in this way, he will be thinking all the while what pleasure or excitement he can get out of life. He will always be demanding freedom and relief, never considering how he can ease and enrich the life of his partner. (Adler as cited in Ansbacher & Ansbacher, 1956, p. 435)

Each partner wants to feel safe, secure, and cared for in the relationship. Each individual in a couple contributes creatively in order to maintain the relationship. At times, problems arise when the "creative contribution" does not fit the partner's lifestyle, wishes, and expectations. The outcome is frustration, anger, and distance. In such cases, the therapist's roles are:

1. to identify with the couple their genuine goal to maintain their relationship and their desire to belong to each other (If one of them is not invested in the relationship, couple therapy is not going to work.);
2. to show using early recollections or dreams the "creative method" each one employs in order to feel connected and to belong to the other person;
3. to unfold the "blind spots" in the method, that is, the blind spots that create distance instead of the closeness the couple intends;
4. to work with couples creatively to form behaviors that will enable both of them to feel the closeness that they desire (Shifron, 2008) (One can do couples therapy even when only one partner is involved.).

Building the wall. This case is an example of creative methods used by a couple to maintain their relationship. Molly and Charles are in their 30s with two children. Molly is the oldest sibling in her family. Charles is an only child. Both of them work full time. Molly works in a very demanding sophisticated organization. Charles does freelance work.

The presenting issue is a growing distance between them. There was no communication about experiences and feelings, and they had no intimacy. They claimed that they are very effective as parents. Both of them expressed their need to feel closer and that the relationship is very meaningful for them. They feared their own anger at each other and repressed it.

In the first stage of therapy, the work with their early recollections disclosed their strengths, special abilities, uniqueness, and special needs. It was a stage of self-awareness for both of them. They gradually became aware of the specific roles each one of them played in their families of origin and in

their couple relationship. The second stage of therapy focused on the ways each of them worked at finding their comfort in the relationship, that is, a sense of belonging. The use of early recollections enabled them to discover the creative methods both of them used to maintain their relationship and sense of belonging. It became clear that "not rocking the boat" was their creative strategy to maintain the relationship. Charles's method was to withdraw, not to share information about his business, doubts, questions, and difficulties. He was sure that this "method" would save him from her critical reaction, would prevent a potential confrontation, and thus would save the marriage. Molly's method was to spend more and more time at work in order to limit their time together and to avoid potential conflicts. She was confident that her method would maintain their togetherness. Both of them wanted to prevent conflicts at all cost.

The more Charles withdrew, the more Molly was out of the house, and vice versa. The third stage of therapy focused on their understanding this process. When they were presented with the question regarding whether there was a thought about separation, both of them reacted very anxiously that they definitely wanted to maintain their relationship and they wished to get closer.

In one of his early recollections (age 5), Charles described standing behind the window, watching the children playing outside. He wanted to join them but feared their rejection and thus kept staying inside. Almost all of Molly's early recollections were outdoors, enjoying the company of her immediate and extended family. Their recollections/metaphors present very accurately the difference in their lifestyles. In her adult life, Molly worked in an organization in which she felt satisfied because she was respected and appreciated for her contributions. She felt that she belonged to the organization. In his freelance occupation, Charles worked by himself. The early recollections also showed the dynamics of their relationship. He perceived her as having a wonderful time and craved to be included, but his fear of rejection immobilized his initiative and actions. (She was the one who had initiated the therapy, and he had joined her gladly.) Molly was enjoying the outside world she created for herself, but eventually discovered that her method actually widened the gap between them. She also, like Charles, craved the warmth and the feelings of togetherness.

The fourth stage of therapy was devoted to finding new and different ways for them to use their creative abilities and strengths and for them to apply these to their mutual goal to be together. At present they are still practicing how to "break the wall" and join each other: for her to join him at home, for him to join her outside. They are also learning to talk about their anger courageously and gradually to understand that communicating feelings is one important way to "break the wall."

How can I belong with "the big guys"? The problems associated with feeling belonging are a primary issue among most couples who come for therapy. "Am I really significant in her/his life? Does she/he really love me? Why me? Do I fully belong to this couple relationship? Do I fully belong to her/him?"

Carola came to therapy when she was separated for several weeks from her husband. She wanted to know what she did wrong and whether she planned to continue with the relationship. Her husband told her to try and "fix" herself. She is in her 20s, the youngest in her family. She experienced a very close family. She had excellent relationships with her siblings, who paid a lot of attention to her. Carola describes her parents as very supportive and respectful of her choices. She describes her husband as being distant from his parents and siblings and that he is very punitive.

Her early recollections are beautiful metaphors that demonstrate her need to feel that she belongs in that relationship and what the real obstacle is in her relationship with her husband. During the initial stage of therapy, she shared the following recollection (age 5):

> I was in the car with my sister (who is 12 years older). She taught me a few words in a foreign language the others in my family knew, and I felt I was a *big girl.* I felt *included* with the big guys in the family. It was a feeling of elation.

Later in the therapy process, she provided this early recollection (age 4):

> I sprained my ankle and was in pain. In the evening, I was in my room. Everyone else was in the living room. I got up. It was painful to walk but I overcame the pain and found everybody in the living room. I felt *happy I was with everybody* else.

In both memories, Carola described how important it was for her to be included. In the first memory she was responding to her sister's initiation. In the second memory she initiated her action in order to be included.

In the therapy sessions Carola brought many detailed early recollections and metaphors. She realized that often she expected another to initiate her inclusion with the "big guys," but it is clear from her later recollection that she could, even though with difficulty, initiate by her own efforts being included with the "big guys." She became aware of the choices she made and the choices she could make in her current life in order to get what she needed and deserved. At that stage, she was trying to initiate closeness with her husband. She was more active in creating a safe place for herself in their relationship. The awareness of one's own strengths and abilities to make choices helps the person to initiate and to act. Very often, it might help partners to overcome anxiety and frustration in the relationship.

Cross-Cultural Couples and the Need to Belong

Conceptual issues. In a global environment where traveling overseas, studying abroad, and working and living in various countries are becoming a more common way of life, cross-cultural romantic relationships are increasing. When developing a relationship within one's own culture, the task is already complex because it requires an ability to merge two different *family* cultures. In a cross-cultural relationship, merging is much more difficult, for it requires not only understanding distinct family cultures but also a thorough knowledge and understanding of the other's total cultural background. Primary parts of the cultural differences are other norms and creative ways to connect and to belong. Another major issue in the cross-cultural coupling process is that many times one of the partners feels a lack of belonging to the new country and to its culture. Usually, one of the individuals must leave family, friends, language, and native culture. Adjustment to the new environment leads to a continued sense that "I don't belong here! Nobody notices me in a valued way!" It may create a growing tension between couples, and at times it is likely to end in a divorce.

The following case is an example of a cross-cultural couple's problems with regard to feeling belonging. It also illustrates that cross-cultural couple relationships entail a challenging task and that when individuals learn to appreciate their own creative power, to actualize it, and to contribute to the new community, their newfound strengths increase feelings of belonging and decrease tensions in the family. The most significant lesson in the case is that cultural differences need not present a real obstacle to developing feelings of belonging. Rather, cultural differences require more understanding, mutual respect, and much more work.

"I want to be noticed and valued!" This case describes my three years of therapy with a woman in her late 40s who agreed to leave her native land and move to her husband's country with their four children. When she came to therapy, her four children were still at home. She came to therapy reporting that she was feeling a distance between herself and her husband, and she reported feelings of loneliness and depression. The analysis of her lifestyle presented a very talented person in specific areas of the arts. She claimed that if she remained in her own country, she probably would be a famous artist. The focus of therapy was on her ability to actualize herself as an artist in the country in which she has chosen to live and to raise her children.

During the lifestyle assessment I asked her to describe the steps she would have taken to reach or realize her goal in her native land. It was not surprising to me that she was able to describe rather specific steps to reach

her goal. In therapy she was encouraged to proceed with her own strategy. She made contacts with people around her, and she volunteered in several activities in her community. As a result of her volunteer activities, she found sponsors who encouraged her to show her work in exhibitions. Gradually, the relationship with her husband improved. He encouraged her activities and enjoyed her contribution. Although the relationship was not the focus of the therapy, the fact that she had learned to appreciate herself and her work and that she felt respected, accepted, and appreciated by others, including her husband, drew her much closer to him and improved her feelings toward him.

It was a very slow process. In almost every session she brought early recollections, pictures from her childhood home, and art projects and paintings of her recollections. This fascinating process was the onset of the shift of her frustration and anger toward actualizing her real abilities. She started to realize that she might become a real asset to her adopted community and to her country of choice. In the early recollection she brought to our last sessions, she revealed her new outlook:

> She was three, walking in the woods with her nanny, whom she loved very much. She could smell the flowers; listen to the birds, and she sensed her nanny's hand holding hers. She described very vividly all the colors she saw in the woods.

This memory was a metaphor for how she felt at her final session. She was surrounded with people who respected and loved her, the relationship with her husband improved, and she felt valued for her contribution to young children and adults. Today, years later, she is a known artist and feels that she belongs.

Therapy with Family Problems

Hidden depressions. Feelings of inferiority inhibit one's ability to form meaningful relationships as a couple, parent, or family member. The following is an example of an individual's quest to find her place or sense of belonging.

Ada was a woman in her late 40s. She was an attractive, elegant, married mother of four children. Her presenting issue was depression. She stated, "My depression is because my husband is not an understanding man." She perceived her mother as a depressed woman who never took care of the house or herself. "I was ashamed that my mother looked so neglected. I never brought friends home. I didn't want them to see my house. My friends rejected me, they didn't want my company, I felt left out and very sad." Ada

described her husband's family as very close and warm. His parents' home was a very comfortable and attractive one, and he had a close relationship with his mother.

In therapy, she gradually became aware that she never wanted to be part of her family of origin, that she detached herself from her parents and siblings. She described that her siblings "were like her parents." She felt rejected by friends in grade school and high school. She developed the "creative ability" to disassociate from others when she felt unsure of herself and her position. She had no chance to experience fully the feeling of belonging nor the pride and happiness that is part of that feeling. During her married years her solution to her depression was to stay alone in her room and completely detach herself from her husband and children. She thought that she was successfully hiding the depression and protecting her family.

I saw her on and off for several years, and gradually we evolved into a process of family therapy, when I started to see two of her children at the time they experienced severe anxiety attacks. Both children felt that their mother was not really there. Most of the sessions with Ada focused on how she can use her creative abilities to bond and to feel that she belongs to her family.

She was learning how to deal with her depression differently. Instead of choosing to distance herself in order to protect herself and the others in her family, she communicated her feelings and connected with her husband and children. The fact that she could speak with her children about her anxieties helped them to realize that they have something in common with her; it drew them closer together. Dreikurs (1991) stated that "The community feeling is expressed subjectively in the consciousness of having something *in common* with other people, and being one of them . . ." (p. 7). Ada had always thought she was very different and that nobody felt like her. When she realized that she is capable of developing an *understanding* relationship with her husband and children, she felt that she belonged to her family and was significant in the family she had chosen for herself.

"Does my mother care for me? Does my wife care for me?" Doubts during early childhood about feelings of belonging are unfortunately a common part of modern life. Questions such as: "Does my mother really care for me? Do my parents prefer my young brother and not care about me?" become a major part of many people's emotional existence. These questions and doubts then become part of every relationship: in school, at work, in the adult's romantic relationships, and when one becomes a parent. The following case illustrates these questions and doubts.

Kurt is a very intelligent and insightful man in his late 40s. He is a married father of four. The reason he came for therapy is that he felt that his wife did not care for him and he was sure there was another man in her life.

During our work together, he found out that he tried to be a super father and a super husband. He did everything perfectly! He was always very industrious, extremely productive, and effective. He became disappointed that his wife did not appreciate his efforts. Additionally, she did not meet his standards, which were very high.

He realized that as a child he tried to earn love and attention by being very good at everything he did. He never realized that his exaggerated efforts turned people close to him against him. Instead, he believed that he did not try hard enough, and so he tried even harder. That vicious cycle finally created the distance between himself and his wife. The more he wanted to be accepted and appreciated, and to feel he belonged, the more profoundly he felt that he did not belong, and the more lonely and rejected he felt.

He became gradually aware of the vicious cycle he had created. On the one hand, he always tried to solve all problems in his life with no help. "I can't ask for help," he said. On the other hand, he felt lonely and neglected. Kurt learned to ask for help and to admit weaknesses at times, and this change helped him to feel accepted. He learned that asking for help and admitting weaknesses can, in fact, increase feelings of acceptance and the sense of belonging.

Mother and daughter-in-law. In recent years, I have observed a growing tension between young married women and their mothers-in-law. Many serious and humorous books were written about the complex relations between the two most significant women in many a man's life: his mother and his wife. One of the common explanations of the problem has been that the mother does not want to separate or let go of her son. However, in my work I found many more mothers who were worried about their unmarried sons than mothers who were worried about their son getting married.

Indeed, there are difficulties in the development of the relationship between married women and their mothers-in-law, and most of the difficulties relate to the feeling of belonging. The new bride wonders, "Will I be accepted in the new family? I am different. I come from a different background, from another family culture. I have other norms and a different set of priorities." The young woman may experience anxiety surrounding whether or not she will feel that she belongs to the new family. When she is not certain that she is accepted, she might invest her energy in her family of origin. Mothers-in-law often strive to ensure that they continue to belong to their son and his immediate family. They want to belong to his children and wife. The mother-in-law's biggest fear is the idea that she might be excluded. A short example of a mild situation follows. It illustrates the daughter-in-law's question, "To whom do I really belong, to my family or to his family?"

Esther was in her early 30s and had been married for a year. She worked full time in a very demanding organization. She was the youngest in her family, with two older brothers. Esther was in therapy for two years. The

presenting issue was her concern about the relationship with her mother-in-law. Esther knows how significant her mother-in-law is in her husband's life; therefore, she does not understand why her mother-in-law is so sensitive about her relationship with the young couple. The mother-in-law is insulted easily and expects them to visit her more often, complaining that they visit Esther's family too often.

In therapy, after a thorough lifestyle analysis, the issue of belonging was raised. Esther comes from a cultural background that focuses on extended family gatherings. She refused to be excluded from these celebrations, and because leisure time was very scarce, Esther's spending time with her family became an issue with her mother-in-law. In her family of origin, she felt safe, protected, and happy. Gradually her husband enjoyed the warmth of her family and he joined those meetings happily. Esther realized that her mother-in-law was very unhappy and angry. She withdrew and often refused to meet with them.

As her therapist, I read and gave Esther a note as if it were a letter written by her mother-in-law:

> It is important for me to feel that I belong to the family. You are my *only* family: my son, my daughter-in-law, and my grandson. When I realize that you prefer to spend time with your family of origin, to which I feel I don't belong, it makes me sad, anxious, and angry.

Esther became very emotional when I read this note to her. She said she never believed that her mother-in-law was so threatened regarding her place in the family. Esther decided to talk with her mother-in-law openly and to express how much she cares for her and how significant she is in their lives. She was also going to explain to her mother-in-law the importance for Esther that she maintains a close connection with her own family.

Only when Esther understood how important it is for her, herself, to maintain her bond with her family of origin, could she appreciate her mother-in-law's needs. Feelings of warmth and empathy replaced feelings of anger and frustration. Esther had a chance to talk with her mother-in-law. They opened new channels of communication, and this allowed Esther to realize that belonging is not an "either/or" situation. She realized that the beauty of marriage is learning to belong to more than one family.

Addictions and the Need to Belong

My previous writings (Shiffron, 1999) and lectures have explained that most addictions are goal-oriented creative behaviors in which the goal is to escape existential fears of rejection and the feeling of insignificance. The goal is achieved by excessively doing something that might help one to belong.

The anorexic girl wants to be accepted in a group where weight loss is considered "in." The alcoholic becomes the center of fun and joy in a group and is encouraged for it. The compulsive cleaner thinks that he or she contributes to others by serving their needs excessively. The gambler wants to bring much more money to his family. Countless addictions can be described in this way. The common goal is the desperate need to belong. However, it is done in an excessive and destructive way. The outcome is an addiction. In the following summary of a case, the client believes, "I think she likes me better when I'm happy and talkative—the solution is to drink!"

Ted is a very quiet, withdrawn man in his 50s who has been married for four years. He has been constantly criticized by his friends and his spouse for being too quiet and not communicating well. He discovered a very "creative way" to solve his problem. Whenever he drank alcohol, he became friendly and talkative, and he became an asset in every gathering. His metamorphosis was highly rewarded by his spouse. He enjoyed the quick and effective solution to his shyness and introversion, and he consequently formed a drinking habit. He was desperate to be accepted by his wife, friends, and colleagues; however, the more he drank, the less they liked him. The method, which was helpful at the beginning, became the "poison of life." His wife divorced him, and most of his friends rejected his presence.

He went to an alcohol rehabilitation center. In his therapy, he started to deal with his shyness, and he became aware of his need to connect with others and to excel in his profession. In his profession he felt that his contribution was significant. He started to learn new methods to connect and to feel that he was not alone, without the help of alcohol. This learning was a very slow and long process of several years. As he learned to connect with others and to increase his social interest, he felt a greater sense of belonging. "Dynamically, the function of social interest is to direct the striving toward the socially useful side" (Adler as quoted in Ansbacher, 1991, p. 30).

A Client's Journal

The following is a description of a therapeutic process written by a client who kept a journal during the seventeen sessions we had. She was happy to share her journal with me, and she gave me permission to choose some parts of it for this paper. Her personal details were changed for confidentiality. Her theme was: "I have to be 'more wonderful' in order to belong."

Sarah was a very bright, young, divorced woman. She came to therapy to deal with some vocational issues. She worked as a freelancer many hours every day, feeling tense and anxious most of the time. Her work became the controller of her life, and she felt she needed help in finding a balance

among motherhood, love life, and work. The following are parts of her journal as she wrote it:

> After the first session with Rachel, I understand that I follow my father's model of working very hard in order to achieve what I want; what is it that I want? I understand from an early memory I shared with Rachel that I am trying to "mother" everyone, at work, at home, and with my romantic partners. In my memory, my mother is chasing me with a full spoon of soup and I'm running away. I can see how I take the responsibility for everyone at work and I'm always sure that I have the "full spoon" and I need to continuously feed everybody, as I have so much "good food" that I have prepared, so please eat it! I understand that in order to feel significant and needed I combined my father's work ethics with my mother's need to feed. How well I apply it to the world of work as well as to my other relationships!

In the following sessions, she wrote further,

> Rachel asked me whether I want a new relationship in my life. At first, I said that I have no time and no "room" in my life to invest in a new relationship, but then I gradually understood that in my first marriage I did what I do at work. I worked very hard, didn't trust my husband's ability to lead and care for the family's well-being, and therefore assumed responsibility for the family and "fed" my husband with my "full spoon." It destroyed the relationship. Rachel said that I overdid things in order to feel needed all the time, until I was burnt out completely! We gradually moved in the sessions to talk about my wish to find the perfect man, the man who will allow me the freedom to be independent and at the same time will not be dependent on me. When I think about a relationship, I become anxious and fear that I'm losing my freedom. I met many divorced men who were looking for a substitute mother rather than a real friend and partner. I brought an early memory about the simple soup and bread I used to eat at my aunt's house and it felt so wonderful. Rachel asked me if I have the ability to enjoy simple things in life. I thought about it; yes, I do. As a young child, I did enjoy dancing with my uncle. These simple things added so much meaning and fun to my life.
>
> Rachel said that I want to feel accepted as I am, without trying too much. I realize that I'm looking for a man who will accept me as I am, will respect my need for freedom, one who will not expect me to take care of him but rather become "a dancing partner." I feel when I talk with Rachel as if I'm dancing. This is the dance I would like others to join in with me.
>
> In the last sessions, we discussed my relationship with my brother, who is one-and-a-half years younger. I know from my mother's stories that I was a wonderful baby. My brother couldn't accept it. He nagged, hit, and tortured me, but my mother didn't pay attention to my suffering. The only way to attract my mother's attention was through being "more wonderful." It was important to be the adorable child in a warm loving family. However, I have learned that I'm responsible for myself, and I have to develop techniques to avoid my brother's torturing me. I have taught myself creative methods to survive!

I understand from the last session that in order to be noticed and to feel that I belong I have to be even "more wonderful." I know that my work today is highly appreciated and valued. I am aware of the fact that I need to put some boundaries on the time I invest at work because I realized that "I am noticed" even when I don't try too hard. I understand that if I will succeed, to do so I will feel that I am not controlled but rather gain control. I understand that the metaphor about my mother chasing me with the spoon around the table is actually what I have been doing to myself in my life.

I finally agree that I avoid dealing with the issue of a romantic relationship in therapy and in life. I know that I perceive the risk of rejection as a real catastrophe in my life, and therefore I avoid the commitment to a relationship with a man whom I respect.

I understand that I'm afraid of a relationship with a man who will control my life as my brother used to do, and I became aware of the fact that in my first marriage I looked for a man that I was able to control. I made a choice to avoid living with a man who might control me. It was a bad solution. I didn't feel that I emotionally belonged to the relationship.

I discussed with Rachel my totality. When I do something, there are no boundaries. I invest so much energy in my being total. I shared a memory about my mother and her total devotion to our dog. Yes, I'm the same. I'm invested totally in everything that I assume as my responsibility. What is it that I'm so afraid of? I know totality is aimed to achieve something. What is it? Rachel asked what is it that I am running away from? Is my totality aimed to avoid something?

In session fourteen I spoke again about my fears of a relationship with a man. I shared an early memory. I was six when my parents argued. My father threatened my mother, and she was very upset but stood up to him. I know that it is a metaphor that describes my fear about a relationship. Even a nice, loving, adorable man like my father could be mean and make me very upset. I'm afraid of the fact that I might feel disappointed once more. It became easier to avoid a relationship and to fantasize about the ideal man.

Rachel told me that I have a very good intuition. I'm a quick observer of other people, and I'm creative in dealing with extremely complex situations. It is possible for me to use these creative abilities in order to feel confident in my choices and to have the courage to reduce some of my extreme behaviors that enabled me to run away from choosing. I shared a few more early memories about my first boyfriend when we were teenagers. I remember that I was too controlling, which was the reason why I lost him. Am I today afraid that I'll be over controlling? I know that if I'll be less demanding of myself and more accepting of me as I am, I'll be able to accept a man in my life. I'm on my journey to find my ways and abilities to be moderate.

In my last concluding session, I described that for a long time I felt as if I were sitting on a torch and therefore needed to keep running until I exhausted myself. Now I feel that I operate from a quiet, relaxed me. I fully understand that in order to feel that I belong to my family I needed to feel at all times highly appreciated, accepted, and wonderful! I know I did it in all of my life

> circles, with friends, in my marriage, and at work. I noticed that I could sense my belonging only through extreme acting. I feel that in therapy I was like an onion that is gradually peeled. I feel that I now reached the center, and I don't need to continue with my search for being "more wonderful."
>
> I decided that this is a good place to end the therapy and to enjoy my new inner peace and to make sure that my children are noticed by me without their putting too much effort in attracting my attention . . .

When I, as therapist, read Sarah's journal it was an exciting, eye-opening experience for me. It helped me enter Sarah's head and to appreciate the tremendous effort one expends in order to belong. Sarah understood that she used her childhood techniques to belong and to be loved in her adult life. Her techniques were to work and to give. I hope the readers will join me in thanking Sarah for her permission for us to "enter her head."

Conclusion

> The development of the child is increasingly permeated by the relationships of society to him. In time, the first signs of the innate social interest appear, the organically determined impulses of affection blossom forth, and lead the child to seek the proximity of adults. One can always observe that the child directs impulses of affection toward others and not toward himself, as Freud believes . . . the feeling of belongingness, the social interest, takes roots in the psyche of the child and leaves the individual only under the severest pathological changes in his mental life. (Adler as quoted in Ansbacher & Ansbacher, 1956, p. 138)

Each child, according to Adler, uses creative power to overcome feelings of inferiority in the family. Each child is a creative individual who strives to belong and to be significant through special contributions to the family. Lack of encouragement often leads to isolation, anxiety, depression, or addiction (Lew & Bettner, 1995).

Adler's (1935) optimistic psychology is encouraging to therapists because it focuses on the individual's basic need to belong—a situation that can be corrected and cured in the therapy process with the use of early recollections. Using early recollections is a quick and accurate method to disclose the creative abilities that enable a person to actualize the primary goal of life, to belong. Encouragement of the individual's creative abilities to contribute serves to trigger one's sense of social interest, and it creates feelings of belonging and a sense of emotional health.

While the need to belong is basic for every human being, each individual finds different and unique ways to satisfy this need. The therapist's role is to unfold the individual's creative special methods and to encourage the person to use these constructively.

References

Adler, A. (1932). *What life should mean to you.* London: Allen & Unwin.

Adler, A. (1935). The fundamental views of Individual Psychology. *International Journal of Individual Psychology, 1,* 5–9.

Adler, A. (1991). The progress of mankind. *Individual Psychology: The Journal of Adlerian Theory, Research and Practice, 47,* 17–21. (Original work published in 1937)

Ansbacher, H. L. (1991). The concept of Social Interest. *Individual Psychology: The Journal of Adlerian Theory, Research and Practice, 47,* 28–46.

Ansbacher, H. L., & Ansbacher, R. (1956). *The Individual Psychology of Alfred Adler.* London: Harper.

Dreikurs, R. (1950). *The fundamentals of Adlerian Psychology.* Chicago: Adler School of Professional Psychology.

Dreikurs, R. (1991). An introduction to Individual Psychology. *Individual Psychology: The Journal of Adlerian Theory, Research and Practice, 47,* 4–9.

Ferguson, E. D. (2006). *Adlerian theory: An introduction.* Chicago: Adler School.

Holland, J. L. (1985). *Making vocational decisions* (2nd ed.). Englewood Cliffs, NJ: Prentice-Hall.

Huppert, F. A. (2008, October 22). Five a day—A well-being report to the government. *London Times.*

Lew, A., & Bettner, B. L. (1995). *Responsibility in the Classroom.* Media, PA: Connexions Press.

Linden, G. W. (1995). Holism: Classical, cautious, chaotic, and cosmic. *Individual Psychology: The Journal of Adlerian Theory, Research and Practice, 51,* 253–265.

Manaster, G. J., & Mays, M. (2004). Early recollections: A conversation. *The Journal of Individual Psychology, 60,* 107–114.

Mosak, H. H. (1991). "I don't have social interest": Social interest as construct. *Individual Psychology: The Journal of Adlerian Theory, Research and Practice, 47,* 309–321.

Shifron, R. (1999). Addictive behaviours: An Adlerian perspective. In P. Prina, A. Millar, C. Shelley, & K. John (Eds.), *UK Adlerian Year Book* (pp. 114–127). London: Adlerian Society for Individual Psychology.

Shifron, R. (2006). Unemployment and reemployment: An Adlerian perspective. In P. Prina, A. Millar, C. Shelley, & K. John (Eds.), *UK Adlerian Year Book* (pp. 110–121). London: Adlerian Society for Individual Psychology.

Shifron R. (2008). Coping with change: An Adlerian model. In P. Prina, A. Millar, C. Shelley, & K. John (Eds.), *UK Adlerian Year Book* (pp. 70–77). London: Adlerian Society for Individual Psychology.

Shifron, R. (in press). Addictions—workaholism. In P. Prina, A. Millar, C. Shelley, & K. John (Eds.), *UK Adlerian Year Book.* London: Adlerian Society for Individual Psychology.

Shifron, R., & Bettner, B. L. (2003). Using early memories to emphasize the strengths of teenagers. *The Journal of Individual Psychology, 59,* 334–344.

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PSYchopathology

Emotional Eating and Eating Disorder Psychopathology

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The study examined to what extent emotional eating, restrained eating, and bulimic tendencies are found together in naturally occurring groups, and whether these groups differ in terms of the psychological characteristics relevant to eating disorders. One hundred twenty-seven normal-weight women filled in The Dutch Eating Behavior Questionnaire, The Eating Attitudes Test, The Eating Disorder Inventory, and five measures of psychological well-being. Cluster analysis revealed three dieter subgroups (Normal Dieters, Emotional Dieters, and Bulimic Dieters) and one nondieter group. The results showed that only some restrained eaters were emotional eaters and that only some emotional eaters had bulimic tendencies. In addition, emotional and bulimic dieters differed from nondieters more strikingly in terms of eating disorder psychopathology and low psychological well-being than normal dieters did. The results suggest that emotional eating is not responsible for overeating only but may, in concert with chronic dieting, also relate to the general psychopathology found to underlie eating disorders.

Emotional eating refers to the tendency to eat in response to negative emotions. While a normal reaction to emotions like anxiety, anger, or depression is loss of appetite, emotional eaters eat more when they are upset (e.g., Bruch, 1973; Polivy, Herman, & McFarlane, 1994; van Strien, 1996; van Strien, Schippers, & Cox, 1995).

Traditionally, emotional eating has been linked to overeating, and the majority of research has shown that emotional eating is indeed positively associated with various forms of excessive eating, for example obesity and bulimic tendencies (e.g., Eldredge & Agras, 1996; Grissett & Fitzgibbon, 1996; Lowe & Fisher, 1985; van Strien, 1996; Waller & Osman, 1998). Nonetheless, Herman and Polivy and their colleagues have suggested that emotional eat-

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ing is more closely related to dieting (often related to overeating) than to overeating per se (e.g., Herman & Mack, 1975; Herman, Polivy, Pliner, Threlkeld, & Munic, 1978; Polivy, Herman, & Warsh, 1978). In line with this suggestion, their studies have shown, for example, that in contrast to nondieters, experimentally induced anxiety causes restrained eaters to eat more, even if the food is bad-tasting (e.g., cookies containing a lot of baking powder but no sugar, Polivy et al., 1994).

However, correlational studies have not confirmed the relationship between emotional and restrained eating. Although a moderate association between these two patterns of eating has been found in one study (van Strien, Frijters, Bergers, & Defares, 1986), the correlations have usually been quite low (van Strien, 1996; van Strien, Frijters, Roosen, Knuiman-Hijl, & Defares, 1985; Waller & Osman, 1998). Accordingly, it has been suggested (e.g., Waller & Osman) that emotional eating may not play any important role in dietary restraint.

One possible explanation for these inconsistent findings, and the one that is addressed in this study, is that emotional eating may characterize only some dieter subtypes. The possibility that emotional eating is strongly related to restrained eating among some individuals and unrelated to it among others is hard to detect in variable-centered designs, for example correlational studies. Therefore, in the present study, we utilize a person-oriented approach, namely cluster-analysis (e.g., Hair, Anderson, Tatham, & Black, 1995; Mischel & Shoda, 1995). With a cluster-analysis we can identify to what extent emotional, restrained, and bulimic eating styles combine together in naturally occurring groups, and we can determine the relative proportions of these emerging groups in a sample. This analysis enables us to analyze whether emotional eating is typical to all dieters or to some dieters only, and whether emotional eating occurs only with individuals with overeating tendencies. In this study, overeating tendencies are operationalized as bulimic attitudes among normal-weight individuals.

The second aim was to clarify the relationship between emotional eating and the psychopathological features that underlie eating disorders (e.g., a pervasive interpersonal distrust, extreme perfectionism, and a paralyzing sense of ineffectiveness, e.g., Bruch, 1973; Garner, Olmstead, & Polivy, 1983). Although this topic has not received much research attention, some studies have shown that emotional eating is, albeit moderately, positively associated to eating disorder psychopathology (van Strien, 1996; Waller & Matoba, 1999; Waller & Osman, 1998) and low psychological well-being, for example feelings of inadequacy and low self-esteem (van Strien et al., 1995). Because these studies have typically focused on some kind of excessive eating, these associations have been attributed to the psychological etiology of obesity or bulimia. However, if restrained eaters also eat in response to negative emotions (e.g., Herman & Mack, 1975; Polivy et al., 1994), the question arises whether only those restrained-emotional eaters who synchronously engage in excessive eating show signs of eating disorder psychopathology, or whether

the combination of emotional and restrained eating per se, irrespective of overeating inclinations, is associated with the pathology. Therefore, after identifying how emotional eating combines with restrained eating and bulimic features among clusters of participants, the difference between the psychological characteristics among these clusters will be analyzed.

METHOD

Participants

One hundred twenty-nine female students from the University of Helsinki participated in the study. One participant was excluded due to missing information, and one because of obesity (BMI > 30), leaving a total of 127 participants. The subjects' ages varied between 20 and 58 (M = 27.4, SD = 7.45), and they represented various fields of study from the faculties of humanities, social sciences, and pedagogical sciences. The mean body mass index of the subjects was 22.04 (SD = 2.85).

Procedure

The participants were recruited on three occasions of faculty examinations with the permission of the Faculty of Humanities. The students in the examinations were informed about the study on the blackboard, and volunteer female students were asked to contact the researcher after the examination. Participants filled in the questionnaires after they were finished with their exams and returned them before leaving the premises. After returning the questionnaires the participants were given feedback in the form of a short paper explaining the rationale of the study and some facts about the current increase in eating disorders among women.

Measures

Emotional and restrained eating were measured with The Dutch Eating Behavior Questionnaire (van Strien et al., 1986). The two subscales includes a total of 23 five-point items (1 = seldom, 5 = very often), and scores for the two eating styles were obtained by averaging the item endorsements on each subscale.

Bulimic tendencies were measured by the Bulimia subscale of the Eating Attitudes Test (EAT-26; Garner & Garfinkel, 1979; Garner, Olmsted, Bohr, & Garfinkel, 1982). The subjects were asked to indicate their agreement or disagreement with the six items using a six-point scale (1 = never, 6 = always). The responses were scored according to the procedure described by Garner and Garfinkel (1979).

The psychological features viewed as important in eating disorders were measured using the Eating Disorder Inventory (EDI; Garner, Olmsted, &

Polivy, 1983) which includes eight subscales (Drive for Thinness, Bulimia, Body Dissatisfaction, Feelings of Ineffectiveness, Perfectionism, Interpersonal Distrust, Interoceptive Awareness, and Maturity Fears). The subjects indicated their responses on a six-point scale (1 = never, 6 = always). Although EDI scores are often transformed into a four-point scale, untransformed scores were used here because they have been shown to be more valid in nonclinical populations (Schoemaker, van Strien, & van der Staak, 1994).

Psychological well-being was measured by the following variables. Depression was assessed by the shortened form of the Center of Epidemiological Studies Depression Scale (CESD-10; Andresen & Malmgren, 1994), a self-report measure containing 10 items concerning the subjects' moods and depressive symptoms during the previous week (0 = none of the time, 3 = most of the time). Self-esteem was measured by using the 10-item Rosenberg's Self-esteem questionnaire (Rosenberg, 1979) and by the Appearance Self-Esteem Scale, a six-item self-report measure developed by Pliner, Chaiken, and Flett (1990). Feelings of inadequacy were assessed by The Feelings of Social Inadequacy Scale (Janis & Field, 1959) and body-image vulnerability was measured by the Appearance Schema Inventory (Cash & Labarge, 1996). Responses on the self-esteem, inadequacy, and body-image vulnerability measures were indicated on a five-point scale.

RESULTS

To analyze what kind of eating pattern subtypes could be found in the present data, a hierarchical cluster analysis on three variables, namely, restrained eating, emotional eating, and bulimic tendencies, was conducted with squared Euclidian distance and the Ward minimum variance clustering algorithm. Because differences in the rating scales and standard deviations may distort the clusters, the three variables were transformed to z-scores as suggested by Hair et al. (1995). The interpretability and simplicity of the clusters, as well as the shape of the vertical icicle diagrams, suggested the four-cluster solution as the best fitting solution.

The extent to which these four clusters of participants endorsed emotional, bulimic and restrained eating can be seen in Table 1. Based on these results, the members of these clusters were labeled as nondieters (N = 34), normal dieters (N = 43), emotional dieters (N = 45), and bulimic dieters (N = 5). Nondieters endorsed restrained eating significantly less than normal dieters, $t(123) = 10.23$, $p < .001$, emotional dieters, $t(123) = 8.98$, $p < .001$, or bulimic dieters, $t(123) = 7.62$, $p < .001$.

To describe the psychological characteristics of the members of these clusters, an Analysis of Variance (ANOVA) was conducted with the cluster as a between-subjects variable and the variables related to eating disorder psychopathology and well-being as dependent variables. The omnibus ANOVA

showed that all differences were significant ($p < .05$). The means are set forth in Table 1.

In all subsequent specific comparisons, the error rate was controlled by Scheffe's method. First, emotional dieters were contrasted to nondieters, and then to normal dieters. The results indicated that emotional dieters scored higher than nondieters on maturity fears ($p < .05$), body dissatisfaction ($p < .001$), perfectionism ($p < .005$), ineffectiveness ($p < .02$), drive for thinness ($p < .001$), and interpersonal distrust ($p < .05$). Moreover, emotional dieters had higher body-image vulnerability ($p < .001$), more feelings of inadequacy ($p < .03$), lower global self-esteem ($p < 02$), and lower appearance self-esteem ($p < 001$) than the nondieters. Emotional dieters' depression was marginally higher than that of nondieters' ($p < .09$). In comparison to normal dieters, emotional dieters scored higher on ineffectiveness ($p < .01$), depression ($p < .05$), and feelings of inadequacy ($p < .05$).

Second, normal dieters were contrasted to nondieters. Normal dieters had higher body-dissatisfaction ($p < .001$) and drive for thinness ($p < .001$) and lower appearance self-esteem ($p < .03$) than non-dieters. Other differences in the means were not significant.

Finally, bulimic dieters were contrasted to nondieters, normal dieters, and emotional dieters. The comparisons showed that bulimic dieters scored higher than nondieters on interoceptive awareness ($p < .001$), body dissatisfaction ($p < .001$), bulimia ($p < .001$), perfectionism ($p < .02$), feelings of

TABLE 1. Means and Deviations (in Parentheses) in Eating Patterns, Eating Disorder Psychopathology, and Psychological Well-Being among the Four Groups

	Nondieters		Normal dieters		Emotional dieters		Bulimic dieters	
Eating pattern								
Restrained eating	1.58	(.40)	3.01	(.64)	2.90	(.75)	2.65	(.92)
Emotional eating	1.65	(.61)	1.66	(.46)	3.19	(.63)	4.01	(.75)
Bulimic tendencies	0.00	(.00)	0.02	(.15)	0.15	(.55)	4.60	(1.94)
EDI								
Drive for thinness	11.47	(3.88)	19.98	(5.18)	20.39	(5.79)	18.80	(4.44)
Body dissatisfaction	22.03	(9.45)	31.21	(9.33)	34.65	(10.18)	48.20	(5.07)
Bulimia	10.09	(2.75)	11.98	(3.53)	13.87	(5.45)	38.40	(12.36)
Interoceptive awareness	15.76	(4.59)	16.74	(4.01)	18.28	(5.37)	27.80	(3.77)
Feelings of ineffectiveness	18.41	(5.19)	18.58	(4.94)	22.85	(6.57)	26.00	(7.42)
Maturity fears	17.29	(3.82)	17.81	(4.87)	20.39	(5.79)	18.80	(4.44)
Perfectionism	14.15	(4.41)	16.02	(5.50)	18.96	(6.74)	23.40	(6.67)
Interpersonal distrust	13.68	(3.71)	16.70	(5.44)	17.17	(6.19)	16.00	(7.52)
Well-being								
Depression	8.09	(3.64)	8.00	(3.27)	10.48	(5.06)	14.20	(3.96)
Feelings of inadequacy	2.18	(.51)	2.23	(.51)	2.57	(.59)	2.77	(.40)
Body-image vulnerability	2.01	(.70)	2.28	(.69)	2.67	(.78)	4.08	(.33)
Self-esteem	4.34	(.45)	4.21	(.52)	3.94	(.56)	3.42	(.61)
Appearance self-esteem	3.79	(.57)	3.36	(.60)	3.17	(.63)	2.30	(.52)

ineffectiveness ($p < .05$), drive for thinness ($p < .001$), depression ($p < .03$), and body-image vulnerability ($p < .001$), and lower on global self-esteem ($p < .01$) and appearance self-esteem ($p < .001$). In comparison to normal dieters, bulimic dieters scored higher on interoceptive awareness ($p < .001$), body dissatisfaction ($p < .01$), bulimia ($p < .001$), depression ($p < .02$), and body-image vulnerability ($p < .001$), and lower on global self-esteem ($p < .02$) and appearance self-esteem ($p < .01$). Finally, in comparison to emotional dieters, bulimic dieters scored higher on interoceptive awareness ($p < .001$), body dissatisfaction ($p < .04$), bulimia ($p < .001$), and body-image vulnerability ($p < .001$), and lower on appearance self-esteem ($p < .03$)

DISCUSSION

The results portrayed four groups of women who differed in the way restrained eating, emotional eating, and bulimic tendencies were associated in their eating patterns. First, there was a group of nondieters who scored low on each of the three eating style measures. The remaining three groups comprised various types of dieters. The smallest dieter group, bulimic dieters, showed the strongest emotional eating and bulimic tendencies. Emotional dieters, in turn, were women who were both restrained and emotional eaters but had no bulimic symptoms. The third dieter group was labeled as normal dieters because this group endorsed restrained eating but showed neither emotional eating tendencies nor bulimic symptoms.

These results are in line with the findings that emotional eating is more typical of restrained eaters than of nondieters (Herman et al., 1978; Polivy et al., 1994, 1978), and that emotional eating cooccurs with bulimic behaviors (Eldredge & Agras, 1996; Grissett & Fitzgibbon, 1996; Lowe & Fisher, 1985; van Strien, 1996; Waller & Osman, 1998). However, our results qualify these arguments by showing that only some restrained eaters are emotional eaters and that only some emotional eaters have bulimic tendencies. As a whole, the results highlight the diversity of chronic dieters. This heterogeneity may partly explain why previous findings about the relationship between emotional and restrained eating have been inconsistent (e.g., Polivy et al., 1994; 1978; van Strien, 1996; van Strien et al., 1986). In one sample, the proportion of emotional eaters may be higher, resulting in higher variance in emotional eating, whereas in other samples, their proportion may be smaller, which may deflate the correlations.

Naturally occurring dieter subgroups easily remain unnoticed when correlational analyses or experimental groups are used, but they can efficiently be identified with the cluster analysis method. However, compared with other multivariate methods, cluster analysis is more sensitive to sample biases. Therefore, the validity of the present cluster solution should be verified in

future studies. Nevertheless, the fact that our results for the normal dieters were fully comparable with the following findings reported by Garner and his colleagues gives indirect support for the validity of the solution.

According to Garner et al. (1983; see also Garner, Olmsted, Polivy, & Garfinkel, 1984; Olmsted & Garner, 1986), the three EDI subscales, Drive for Thinness, Bulimia, and Body Dissatisfaction, assess eating attitudes that typically exist among normal dieters. The other EDI subscales, in turn, measure the fundamental aspects of the psychopathology of eating disorders. Similarly, in this study, normal dieters scored higher than nondieters only on two EDI scales, Drive for Thinness and Body Dissatisfaction.

In contrast, the other two dieter groups, bulimic dieters and emotional dieters, suffered from low psychological well-being and displayed more psychopathological features related to eating disorders. The results indicating the cooccurrence of bulimic tendencies and eating-related psychopathology are in line with previous work (see Szmukler, Dare, & Treasure, 1995 for a review). However, the findings for the emotional dieters were new. Although they showed no bulimic tendencies, emotional dieters displayed more signs of eating disorder psychopathology, lower global and appearance self-esteem, and higher body-image vulnerability and feelings of inadequacy than nondieters did. Moreover, emotional dieters suffered more from feelings of ineffectiveness, depression, and feelings of inadequacy than normal dieters did. As such, the findings do not support the suggestions that the role of emotional eating in dietary restraint is insignificant (e.g., Waller & Osman, 1998), but rather indicate that emotional eating may differentiate those restrained eaters who have a higher risk for eating disordered behavior from other restrained eaters.

The question remains, however, why emotional eating differentiates low-risk individuals from high-risk individuals. One explanation offered for emotional eating is that it results from intense dieting: Dieting may act as a stressor and generate emotional responsiveness and hyperemotionality (Herman & Polivy, 1975; Herman et al., 1978). Because emotional eating was not typical of all dieters but only of a subpopulation, it might be assumed that this tendency precedes (rather than results) from dieting (for the same argument for bingeing, see van Strien, 1996). Another reason offered for emotional eating is that eating may serve as a distraction from one's worries: Emotional eaters eat more especially under psychological distress (as opposed to physical stress, Polivy et al., 1994). Given that individuals who are at risk to develop eating disorders suffer from depression and severe self-esteem and body-image defects, it may be that they also are more susceptible to various self-image threats, and hence, more inclined to emotional eating. If this is the case, emotional eating might be a consequence of the general psychological vulnerability related to the eating disorder psychopathology.

REFERENCES

Andresen, E. M., & Malmgren, J. A. (1994). Screening for depression in well older adults: Evaluation of a short form of the CES-D. *American Journal of Preventive Medicine, 10,* 77–84.

Bruch, H. (1973). *Eating disorders. Obesity, anorexia nervosa and the person within.* New York: Basic.

Cash, T. F., & Labarge, A. S. (1996). Development of the Appearance Schemas Inventory: A new cognitive body-image assessment. *Cognitive Therapy and Research, 20,* 37-50.

Eldredge, K. L., & Agras, W. S. (1996). Weight and shape overconcern and emotional eating in binge eating disorder. *International Journal of Eating Disorders, 19,* 73-82.

Garner, D. M., & Garfinkel, P. E. (1979). The eating attitudes test: An index of symptoms of anorexia nervosa. *Psychological Medicine, 9,* 273-279.

Garner, D., Olmsted, M. P., Bohr, Y., & Garfinkel, P. E. (1982). The Eating Attitude Test: Psychometric features and clinical correlates. *Psychological medicine, 12,* 871-878.

Garner, D. M., Olmstead, M. P., & Polivy, J. (1983). Development and validation of a multidimensional eating disorder inventory for anorexia and bulimia. *International Journal of Eating Disorders, 2,* 15–34.

Garner, D. M., Olmsted, M. P., Polivy, J., & Garfinkel, P. E. (1984). Comparison between weight preoccupied women and anorexia nervosa. *Psychosomatic Medicine, 46,* 255–266.

Grissett, N. I., & Fitzgibbon, M. L. (1996). The clinical significance of binge eating in an obese population: Support for BED and questions regarding its criteria. *Addictive Behaviors, 21,* 57–66.

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. (1995). *Multivariate data analysis.* Englewood Cliffs, NJ: Prentice-Hall.

Herman, C. P., & Mack, D. (1975). Restrained and unrestrained eating. *Journal of Personality, 43,* 647–660.

Herman, C. P., & Polivy, J. (1975). Anxiety, restraint, and eating behavior. *Journal of Abnormal Psychology, 84,* 666–672.

Herman, C. P., Polivy, J., Pliner, P., Threlkeld, J., & Munic, D. (1978). Distractibility in dieters and nondieters: An alternative view of "externality." *Journal of Personality and Social Psychology, 36,* 536–548.

Janis, I. L., & Field, P. B. (1959). A behavioral assessment of persuasibility: Consistency of individual differences. In C. I. Hovland & I. L. Janis (Eds.), *Personality and persuasibility* (pp. 29–54), New Haven, CT: Yale University Press.

Lowe, M. R., & Fisher, E. B. (1985). Emotional reactivity, emotional eating and obesity: A naturalistic study. *Journal of Behavioral Medicine, 6,* 135–149.

Mischel, W., & Shoda, Y. (1995). A cognitive-affective system theory: Reconceptualizing situations, dispositions, dynamics, and invariance in personality structure. *Psychological Review, 102,* 246–268.

Olmsted, P., & Garner, D. M. (1986). The significance of self-induced vomiting as a weight control method among non-clinical samples. *International Journal of Eating Disorders, 5,* 683–700.

Pliner, P., Chaiken, S., & Flett, G. L. (1990). Gender differences in concern with body

weight and physical appearance over the life span. *Personality and Social Psychology Bulletin, 16,* 263–273.

Polivy, J., Herman, P., & McFarlane, T. (1994). Effects of anxiety on eating: Does palatability moderate distress-induced overeating in dieters? *Journal of Abnormal Psychology, 103,* 505–510.

Polivy, J., Herman, P., & Warsh, S. (1978). Internal and external components of emotionality in restrained and unrestrained eaters. *Journal of Abnormal Psychology, 87,* 497–504.

Rosenberg, L. (1979). *Conceiving the self.* New York: Basic.

Schoemaker, C. G., van Strien, T., & van der Staak, C. (1994). Validation of the EDI in a non-clinical population using transformed and untransformed responses. *International Journal of Eating Disorders, 15,* 387–393.

Szmukler, G.-I., Dare, C., & Treasure, J. (Eds.). (1995). *Handbook of eating disorders: Theory, treatment and research.* Chichester, England: Wiley.

van Strien, T. (1996). On the relationship between dieting and "obese" and bulimic eating patterns. *International Journal of Eating Disorders, 19,* 83–92.

van Strien, T., Frijters, J. E., Bergers, G. P., & Defares, P. B. (1986). The Dutch Eating Behavior Questionnaire for assessment of restrained, emotional and external eating behaviour. *International Journal of Eating Disorders, 5,* 295–315.

van Strien, T., Frijters, J. E. R., Roosen, R. G. F., Knuiman-Hijl, W. J., & Defares, P. B. (1985). Eating behavior, personality traits and body mass in women. *Addictive Behaviors, 10,* 333-343.

van Strien, T., Schippers, G. M., & Cox, W. M. (1995). On the relationship between emotional and external eating behavior. *Addictive Behaviors, 20,* 585–594.

Waller, G., & Matoba, M. (1999). Emotional eating and eating psychopathology in nonclinical groups: A cross-cultural comparison of women in Japan and the United Kingdom. *International Journal of Eating Disorders, 26,* 333–340.

Waller, G., & Osman, S. (1998). Emotional eating and eating psychopathology among non-eating-disordered women. *International Journal of Eating Disorders, 23,* 419–424.

Comparison of Men and Women with Binge Eating Disorder

PSYCHOPATHOLOGY

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(Accepted 6 December 1995)

Objective: *This study examined gender differences in individuals with binge eating disorder (BED) on eating-related psychopathology and general psychological functioning.* **Method:** *Subjects were age-matched men (n = 21) and women (n = 21) with BED who were administered the Eating Disorders Examination (EDE), the Structured Clinical Interview for DSM-III-R (SCID) and SCID II, and who completed the Emotional Eating Scale (EES) and other questionnaires regarding psychological functioning.* **Results:** *Men and women did not differ on measures of eating disturbance, shape and weight concerns, interpersonal problems, or self-esteem, but more men than women met criteria for at least one Axis I diagnosis and had a lifetime diagnosis of substance dependence. Women were more likely to report eating in response to negative emotions, particularly anxiety, anger and frustration, and depression.* **Discussion:** *Results from our study suggest that while men and women presenting for treatment for BED are very similar, males may have more Axis I psychiatric disturbance and less emotional eating than their female counterparts. These findings are discussed in terms of the role of gender in BED and possible treatment implications are explored.* © *1997 by John Wiley & Sons, Inc.*

Binge eating disorder (BED) affects approximately 30% of obese individuals presenting for weight loss treatment (Spitzer et al., 1991; Spitzer, Devlin, et al., 1992). Compared to

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the nonbinging obese, BED patients show higher rates of associated eating psychopathology as well as a greater incidence of comorbid psychiatric disturbance such as anxiety disorders, depression, substance abuse, and personality disturbance (Marcus, 1993; Wilson, Nonas, & Rosenblum, 1993; Yanovski, Nelson, Dubbert, & Spitzer, 1993).

One difference between BED and the other classic eating disorders (anorexia nervosa [AN] and bulimia nervosa [BN] is that a greater percentage of the BED population is composed of men. Ninety percent or more of the patients presenting for treatment for AN and BN are women (e.g., Andersen, 1990), but as many as three females to every two males may have BED (e.g., Wilson et al., 1993). Little research has investigated the effects of gender in BED.

While a few studies have compared males and females with AN and BN, they have primarily found that males are more similar to than different from females on variables of demography, comorbid psychopathology, family history, treatment response, physiological complications, and history of childhood sexual abuse (Pope, Hudson, & Jonas, 1986; Crisp & Burns, 1990; Powers & Spratt, 1994).

Although there is a marked absence of men included in research on BED, two studies offer evidence that gender is a relevant variable. Cohen, Friedman, Brownell, St. Jeor, and Brunner (1994) investigated gender differences in a subclinical community sample of binge eaters and found that men reported higher levels of psychological distress than women as measured by the SCL-90 Symptom Checklist and the Center for Epidemiologic Studies Depression Scale. Their study was limited in that all measurements of binge eating and psychological disturbance were assessed using self-report instruments which may not have captured an accurate picture of subjects' eating problems or objectively assessed clinically significant levels of psychological disturbance. Yanovski et al. (1993) used the BED Clinical Interview and the Structured Clinical Interview for the DSM-III-R (SCID) to diagnose BED and psychiatric disturbance in 128 male and female obese binge eaters and nonbinging obese individuals. However, a comparison of male and female BED patients was not reported.

We investigated men and women with BED on variables that have been previously found to characterize central features of women with BED using interview assessments of binge eating and psychopathology. The goal of this investigation was to determine if men with BED are similar to or different from women with BED on measures of eating-related psychopathology and psychiatric symptomatology.

METHOD

Subjects

Subjects were men (n = 21), 19 Caucasian, 1 African-American, and 1 Latino) and women (n = 21), 19 Caucasian, 1 African-American, and 1 Latina) who met DSM-IV criteria as outlined in the 4th ed. of the *Diagnostic and statistical manual of mental disorders* (American Psychiatric Association, 1994) for BED and were matched by age ranging from 30 to 59 years (M = 41.48, SD = 8.06) and had body mass indices (BMIs) ranging from 27.81 to 47.74 (M = 38.15, SD = 4.59). Subjects who were suicidal or had thought disorders were excluded.

Procedure

Subjects completed questionnaires and were administered the Eating Disorders Examination (EDE). Those who met BED criteria via the EDE assessment were then adminis-

tered the SCID to assess for current and lifetime comorbid psychiatric disturbance and the SCID II to assess personality disturbance.

Measures

EDE is a valid and reliable investigator-based diagnostic tool for assessing eating-related psychopathology and diagnosing eating disorders (Fairburn & Cooper, 1993). For the present study, we adapted the EDE to assess BED criteria for DSM-IV (APA, 1994). The EDE assesses eating behavior and psychopathology of eating disorders. It also measures the frequency of pathological eating behavior and the degree of eating-related psychopathology, which includes preoccupation with and cognitive distortions about eating, shape, weight, and the degree of dietary restraint.

The SCID is a widely used instrument for diagnosing psychiatric disorders, past and present. The SCID interview assesses current and lifetime history of Axis I psychiatric disorders and the SCID II interview assesses Axis II personality diagnoses (Spitzer, Williams, Gibbon, & First, 1992; Williams, et al., 1992).

The Inventory of Interpersonal Problems (IIP) is an inventory consisting of 127 interpersonal problems designed to assess problems in interpersonal functioning. The measure has been shown to discriminate psychiatric samples from normal controls and has high test-retest reliability (Horowitz, Rosenberg, Baer, Ureno, & Villasenor, 1988).

The Rosenberg Self-esteem Scale is a widely used 10 item self-report measure assessing global self-esteem (Rosenberg, 1979).

The Emotional Eating Scale (EES) is a 25-item self-report measure used to assess the urge to cope with negative affect by eating. The EES overall has good internal consistency (Cronbach's alpha = .81), as did each subscale: Anger/Frustration, Anxiety, and Depression (coefficient alphas, respectively, 0.78, 0.78, and 0.72). The scale also has good discriminant validity; the EES is not significantly related to psychopathology, as measured by the Beck Depression Inventory or the SCL-90-R, or self-esteem, as measured by the Rosenberg Self-esteem Scale (Arnow, Kenardy, & Agras, 1995).

RESULTS

Independent sample *t* tests compared males and females on BMI, years of education, and total annual household income. No significant results were found (see Table 1).

Independent sample *t* tests indicated that there were no significant differences between the men and women on EDE scores (see Table 1). Additionally, no significant gender differences were found for self-esteem or number of interpersonal problems (see Table 1).

Independent sample *t* tests revealed significant differences between males and females on the EES global score, the EES Anxiety subscale score, the EES Anger/Frustration subscale score, and the EES Depression subscale score (see Table 1).

In analyzing results from the SCID, chi-square tests revealed that males had significantly more lifetime Axis I psychiatric disorders than females ($\chi^2 = 6.04$, $p < .05$). When grouping the Axis I disorders into mood disorders, substance abuse/dependence, and anxiety disorders, chi-square tests revealed that the males had a significantly greater number of diagnoses of lifetime substance-related disorders ($\chi^2 = 4.84$, $p < .05$) than the females, but no differences were found on mood or anxiety disorders. When separated by individual Axis I and Axis II disorders, the men were significantly more likely to have a

Table 1. Comparison of sample demographics, eating disorder psychopathology, self-esteem, interpersonal problems, and emotional eating for men and women

	Males (n = 21)		Females (n = 21)			
	M	*SD*	*M*	*SD*	*df*	*t*
Age	41.6	8.1	41.3	8.2	40.0	.114
Body mass index	38.7	3.5	37.6	5.5	33.9	.806
Years of education	15.7	2.5	15.1	2.3	40.0	.771
Income	45.4k	2.16k	46.3k	2.34k	25.0	−.067
OBEs - episodes	20.1	13.5	19.2	10.3	40.0	.232
OBEs - days	15.4	06.7	15.8	07.4	40.0	− 196
Restraint subscale	02.0	01.2	01.7	1.0	40.0	1.133
Shape concern subscale	03.6	01.0	04.4	01.0	40.0	−1.127
Weight concern subscale	03.1	01.1	03.4	01.1	40.0	−.823
Eating concern subscale	01.8	01.1	02.2	01.0	40.0	−1.014
Global score	2.6	0.9	02.8	0.7	40.0	−.589
Rosenberg	29.3	5.3	27.1	5.4	40.0	1.36
Inventory of Interpersonal Problems	1.2	69	1.2	.56	40.0	−.15
EES Global[a]	2.0	.4	2.6	.4	29	−4.064**
EES Anxiety[a]	1.8	.5	2.3	.7	29	−2.242*
EES Anger/Frustration[a]	2.0	.7	2.7	.6	29	−2.836**
EES Depression[a]	2.2	.9	3.0	.5	29	−3.025**

[a]For the Emotional Eating Scale (EES), the sample size is smaller (males, n = 13; females, n = 18).
*$p < .05$.
**$p < .01$.

lifetime cocaine use diagnosis than the women ($\chi^2 = 4.42$, $p < .05$). Otherwise, there were no significant findings among the individual disorders (Table 2).

DISCUSSION

The aim of this investigation was to examine the role of gender in patients who suffer from BED. There were no significant differences between the men and women on demo-

Table 2. Comparison of the frequency of psychiatric disorders in men and women with binge eating disorder

	Males (n = 21) Yes		Females (n = 21) Yes		
Meets criteria	%	(F)	%	(F)	χ^2[a]
Axis I					
Current	48	(10)	28	(06)	1.62
Lifetime	90	(19)	58	(12)	6.04**
Axis II	38	(08)	20	(04)	1.87
Mood					
Current	20	(04)	20	(04)	0.00
Lifetime	52	(11)	42	(09)	0.38
Substance					
Current	14	(03)	04	(01)	1.11
Lifetime	58	(12)	24	(05)	4.84*
Anxiety					
Current	28	(06)	10	(02)	2.47
Lifetime	42	(09)	24	(05)	1.71

[a]df = 1.
*$p < .05$.
**$p < .01$.

graphic variables, number of interpersonal problems, self-esteem, or eating-disordered behavior and eating-related psychopathology. This may be because gender differences regarding weight and food issues are eliminated when severity of eating pathology reaches a clinically significant level.

Men in our sample with BED struggled with greater psychiatric symptomatology than women. Therefore, while eating-related pathology is similar in men and women at clinically diagnosable levels, men present for treatment with a greater history of comorbid Axis I psychopathology. We speculate that men may shoulder the burden of presenting for treatment with a problem that has traditionally been viewed as a "female disorder" (Striegel-Moore, Silberstein, & Rodin, 1986). This additional stigma may cause men who suffer from BED to experience more psychological distress than women. Alternatively, a greater level of distress in men may be necessary before a decision to seek treatment is made. The finding that men reported a greater history of substance dependence was not surprising given that many substance-related disorders are more commonly diagnosed in males than females (APA, 1994). Nonetheless, our data suggest the importance of assessing substance use in men with BED.

Findings from the EES suggest that there are significant differences in the degree to which emotions lead to an urge to eat in men and women with BED. Although women were more likely than men to acknowledge emotional eating, it is possible that men are also likely to eat as a result of negative emotions. However, men may be less likely to either make the connection between eating and emotions, or to report that they are eating as a result of emotional experiences. Lending support to this hypothesis, research on gender and emotions in children has found that while girls are often encouraged to express and identify their emotions through words and facial expressions, boys are frequently socialized to suppress verbalization of their feelings and, instead, express themselves through physiological or behavioral means (Brody & Hall, 1993).

This investigation offers preliminary findings regarding men suffering with BED, but only subjects from a clinical sample were studied. Research is needed to determine if the results are applicable to individuals who suffer from BED in the community. Future studies including nonclinical samples comparing men and women with BED would offer a broader understanding of men who struggle with binge eating problems. Finally, research is also needed to examine the effects of gender and response to treatment.

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REFERENCES

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders*, (4th ed.). Washington, DC: Author.

Andersen, A. E. (Ed.). (1990). *Males with eating disorders*. New York: Brunner/Mazel.

Arnow, B., Kenardy, J., & Agras, W. S. (1995). The Emotional Eating Scale: The development of a measure to assess coping with negative affect by eating. *International Journal of Eating Disorders, 18*, 79–90.

Brody, L. R., & Hall, J. A. (1993). Gender and emotion. In Lewis, M., & Haviland, J. M. (Eds.), *The handbook of emotions* (pp. 447–460). New York: Guilford Press.

Cohen, L. R., Friedman, M. A., Brownell, K. D., St. Jeor, S. T., & Brunner, R. L. (1994, April). *Gender differences in the psychological correlates of binge eating in a non-clinical population*. Poster session presented at the annual meeting of the Society of Behavioral Medicine, Boston.

Crisp, A. H., & Burns, T. (1990). Primary anorexia nervosa in the male and female: A comparison of clinical

features and prognosis. In Andersen, A. E. (Ed.). *Males with Eating Disorders* (pp. 77–99). New York, NY: Brunner/Mazel.

Fairburn, C. G. & Cooper, Z. (1993). The Eating Disorder Examination (12th ed.). In C. G. Fairburn & G. T. Wilson (Eds.). *Binge eating: Nature, assessment, and treatment* (pp. 317–360). New York: Guilford Press.

Horowitz, L., Rosenberg, S., Baer, B., Ureno, G., & Villasenor, V. (1988). Inventory of interpersonal problems: Psychometric properties and clinical applications. *Journal of Consulting and Clinical Psychology, 56*, 885–892.

Marcus, M. D. (1993). Binge eating in obesity. In C. G. Fairburn & G. T. Wilson (Eds.). *Binge eating: Nature, assessment, and treatment* (pp. 77–96). New York: Guilford Press.

Pope, Jr, H. R., Hudson, J. I., & Jonas, J. M. (1986). Bulimia in men: A series of fifteen cases. *The Journal of Nervous and Mental Disease, 174*, 117–119.

Powers, P. S., & Spratt, E. G. (1994). Males and females with eating disorders. *Eating Disorders, 2*, 197–211.

Rosenberg, M. (1979). *Conceiving the self*. New York: Basic Books.

Spitzer, R., Devlin, M., Walsh, B. T., Hasin, D., Wing, R., Marsh, M., Stunkard, A., Wadden, T., Yanovski, S., Agras, S., Mitchell, J., & Nonas, C. (1991). Binge eating disorder: To be or not to be in DSM-IV. *International Journal of Eating Disorders, 10*, 627–629.

Spitzer, R., Devlin, M., Walsh, B. T., Hasin, D., Wing, R., Marsh, M., Stunkard, A., Wadden, T., Yanovski, S., Agras, S., Mitchell, J., & Nonas, C. (1992). Binge eating disorder: A multisite field trial of the diagnostic criteria. *International Journal of Eating Disorders, 11*, 191–203.

Spitzer, R. L., Williams, J. B., Gibbon, M., & First, M. B. (1992). The structured clinical interview for DSM-III-R. *Archives of General Psychiatry, 49*, 624–629.

Striegel-Moore, R., Silberstein, L., & Rodin, J. (1986). Toward an understanding for risk factors for bulimia. *American Psychologist, 41*, 246–263.

Williams, J. B., Gibbon, M., First, M. B., Spitzer, R. L., Davies, M., Borus, J., Howes, M., Kane, J., Pope, H., Rounsaville, B., & Wittchen, H. (1992). The structured clinical interview for DSM-III-R (SCID): II. Multisite test-retest reliability. *Archives of General Psychiatry, 49*, 630–636.

Wilson, T., Nonas, C., & Rosenblum, G. (1993). Assessment of binge eating in obese patients. *International Journal of Eating Disorders, 13*, 25–34.

Yanovski, S. Z., Nelson, J. E., Dubbert, B. K., & Spitzer, R. L. (1993). Association of binge eating disorder and psychiatric comorbidity in obese subjects. *American Journal of Psychiatry, 150*, 1472–1479.

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Women With Bulimic Eating Disorders: When Do They Receive Treatment for an Eating Problem?

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Variables associated with the use of health services were examined in a prospective, community-based study of women with bulimic-type eating disorders who did (n = 33) or did not (n = 58) receive treatment for an eating problem during a 12-month follow-up period. Participants who received treatment for an eating problem differed from those who did not in several respects, including higher body weight, higher levels of eating disorder psychopathology, general psychological distress, and impairment in role functioning, deficits in specific aspects of coping style, greater awareness of an eating problem, and greater likelihood of prior treatment for a problem with weight. However, the variables most strongly associated with treatment seeking were greater perceived impairment in role functioning specifically associated with an eating problem and greater perceived inability to suppress emotional difficulties. These were the only variables that were significantly associated with treatment seeking in multivariable analysis. The findings suggest that individuals' recognition of the adverse effects of eating-disordered behavior on quality of life may need to be addressed in prevention and early intervention programs for eating disorders.

Keywords: eating disorders, bulimia nervosa, binge eating disorder, health service utilization, prevention

Evidence suggests that the majority of individuals with bulimic eating disorders—namely, bulimia nervosa (BN), binge eating disorder (BED), and variants of these disorders not meeting formal diagnostic criteria—do not receive treatment for an eating problem (Mond, Hay, Rodgers, & Owen, 2007a). In a community-based study of outcome in BN, Fairburn, Cooper, Doll, Norman, and O'Connor (2000) found that 26% of young adult women with a diagnosis of BN had ever received treatment for an eating problem. In the New England Women's Health Project (Striegel-Moore et al., 2001), 40.3% of women with BN had ever received treatment for an eating problem, notwithstanding the fact that most of these individuals had first met criteria for BN some 10 years earlier. In the same study, 17.3% of participants with BED had ever received treatment for an eating problem. In the National Comorbidity Survey Replication Study (Hudson, Hiripi, Pope, & Kessler, 2007), 43.2% of individuals with a lifetime diagnosis of BN and 43.6% of individuals with a lifetime diagnosis of BED had ever received treatment for an eating problem. Similar figures were observed in research conducted by Mond, Hay, et al. (2007a) in a general population sample of women in Australia.

Individuals with BN and related disorders do, however, often receive treatment for a comorbid mental health problem, such as depression, for a problem or perceived problem with weight, or for physical health complications associated with disordered eating, such as gastrointestinal complaints and/or symptoms of dehydration (cf. Mond, Hay, et al., 2007a). Nonspecific treatments of this kind are unlikely to be of sustained benefit in reducing individuals' levels of eating disorder psychopathology but nevertheless place a considerable burden on health services, particularly in the primary care sector (Hudson et al., 2007; Mond, Hay, et al., 2007a;

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Striegel-Moore et al., 2005). It is therefore important to identify the correlates of treatment seeking among individuals with bulimic eating disorders and to use this information to develop initiatives that facilitate early and appropriate help seeking. Whereas specific psychotherapy for BN and related disorders is not always effective, there is no question that outcome is improved through early intervention (Mitchell, Agras, & Wonderlich, 2007). Further, among obese individuals who binge eat, stabilization of eating behavior may be associated with improved quality of life irrespective of weight loss, and specific psychotherapy is the most effective means by which to stabilize eating behavior (Devlin & Fischer, 2005; Wilson, Grilo, & Vitousek, 2007).

Previously, we found that a brief intervention designed to improve eating disorders *mental health literacy* among women with bulimic-type eating disorders had a number of positive effects on participants' attitudes and beliefs but did not have an impact on treatment-seeking behavior (Hay, Mond, Darby, Rodgers, & Owen, 2007). In particular, and notwithstanding a focus in the information presented on the nature of eating disorder psychopathology and the role of specific psychotherapy in treatment, few individuals in either the intervention or control groups received treatment for an eating problem during the 12-month follow-up period. This finding, in turn, raised the question of what other factors (i.e., factors other than the intervention) might have distinguished between participants who received treatment and those who did not.

Currently, little is known about the factors that predict treatment seeking and type of treatment sought among community cases of individuals with eating disorders (Garvin & Striegel-Moore, 2001). Modules for the assessment of eating disorders were not included in the two large-scale epidemiological studies in which detailed information concerning health service utilization was obtained, namely, the United States National Comorbidity Study (S. J. Katz et al., 1997) and the Australian National Survey of Mental Health and Well-Being (Andrews, Henderson, & Hall, 2001). In these and other studies, impairment in psychosocial functioning was found to be the best predictor of whether professional treatment was received among individuals with affective, anxiety, and substance use disorders, although it was apparent that many individuals who experienced even severe disablement did not receive mental health care (Andrews, Slade, & Issakidis, 2002).

In theory, a number of different types of factors might affect whether treatment is received for a mental disorder, as well as the type of treatment received (Anderson & Newman, 1973). These include variables related to the disorder itself, such as its severity and chronicity and the extent of associated disability; sociodemographic variables, such as age and gender; socioeconomic/environmental variables, such as access to and affordability of treatment; and variables particular to the individual, such as the ability to recognize symptoms of a disorder, beliefs concerning the effectiveness of treatment, and perceived stigma associated with disclosure of symptoms. Variables involving individuals' beliefs and knowledge about mental disorders and their treatment have been referred to as *mental health literacy variables,* following the work of Jorm and colleagues (Jorm, 2000; Jorm, Angermeyer, & Katschnig, 2000; Jorm, Korten, Jacomb, et al., 1997). Personality traits that may be associated with both psychopathology and treatment-seeking behavior (e.g., Lilenfeld, Wonderlich, Riso, Crosby, & Mitchell, 2006) would also be included among individual-level variables.

It is reasonable to assume that among individuals with eating disorders, the likelihood of treatment being received is related to the severity of the eating disorder and comorbid psychopathology, the associated functional impairment, and, in turn, the perceived need for treatment. Consistent with this hypothesis, Keel et al. (2002) found, in a clinical sample of individuals with eating disorders receiving specialist treatment, that higher levels of eating disorder psychopathology and functional impairment, as well as the presence of comorbid personality disorders, were the best predictors of the type of treatment subsequently received. However, these were primarily cases of anorexia nervosa and the purging subtype of BN with high rates of health service utilization. It is therefore unclear whether these findings might generalize to community samples, in which cases of BN-type eating disorder that do not meet formal diagnostic criteria predominate and specialist treatment is uncommon (cf. Mond, Rodgers, et al., 2004).

A community-based study of barriers to treatment among women with eating disorders in the United States found that financial difficulties and lack of adequate health insurance were the most frequently cited reasons for not seeking treatment (Cachelin, Rebeck, Veisel, & Striegel-Moore, 2001). However, the authors were led to question the validity of their findings, because there were no differences between individuals who had sought treatment and those who had not with respect to socioeconomic status or insurance coverage. Interpretation of the findings of this study is further complicated by the recruitment of a sample of ethnically diverse—that is, Hispanic and Mexican American—women (Becker, Franko, Speck, & Herzog, 2003). In a qualitative study of help seeking among women with current or past bulimic eating disorders, also recruited directly from the community, Hepworth and Paxton (2007) found that increased symptom severity, general psychological distress, interference with life roles, and health problems were the most salient prompts to help seeking, whereas fear of stigma, poor mental health literacy, fear of change, and cost were most often cited as barriers to help seeking.

In research conducted by Mond, Hay, et al. (2007a), impairment in psychosocial functioning was the best predictor of treatment seeking among community cases of women with bulimic eating disorders, although only half of those participants who reported marked impairment associated with an eating problem had ever received treatment for such a problem from a health professional, and fewer than 1 in 5 had received such treatment from a mental health professional. A strength of this study was that the role of variables potentially associated with treatment seeking was examined directly, thereby avoiding a reliance on participants' self-reported reasons for seeking or not seeking treatment. A limitation of the study, however, was the use of a cross-sectional design, in which associations between the prior use of health services and current levels of eating disorder psychopathology, functional impairment, and other variables were examined.

The Current Study

The goal of the current study was to add to the understanding of health service utilization for eating disorders by conducting a prospective analysis of variables associated with treatment seeking among women with bulimic eating disorders, who were recruited

from the same community sample used in our previous research (Mond, Hay, et al., 2007a). Specifically, we sought to identify the determinants of receiving treatment for an eating problem. The study design permitted inclusion of a range of predictor variables, including sociodemographic characteristics, coping (defense) style, generic and disease-specific measures of health-related quality of life (impairment in role functioning), and several mental health literacy variables. In view of the paucity of existing evidence, our only a priori hypothesis was that the degree of impairment in psychosocial functioning at baseline would be a strong predictor of whether treatment was received during the (12-month) follow-up period.

Method

Study Design and Participants

The research was conducted as part of the Health and Well-Being of Female ACT Residents Study, a two-phase epidemiological study of disability, health-service utilization, and mental health literacy associated with community cases of the more commonly occurring (BN-type) eating disorders (Mond, Hay, et al., 2007a; Mond, Hay, Rodgers, & Owen, 2008). The study was carried out in the Australian Capital Territory (ACT) region of Australia (population 314,000 in 2002), a highly urbanized region that includes the city of Canberra. All aspects of the study design were approved by the ACT Human Research Ethics Committee.

Recruitment of participants at the first phase of the study has been detailed previously (see Mond, Hay, Rodgers, & Owen, 2006a; Mond, Hay, Rodgers, Owen, Crosby, & Mitchell, 2006). In brief, self-report questionnaires were completed by 5,255 female residents of the ACT region, ages 18 to 42 years. The questionnaire included measures of eating disorder psychopathology (Fairburn & Beglin, 1994), health-related quality of life (Ware, Kosinski, & Keller, 1996), general psychological distress (Kessler et al., 2002), height and weight, and sociodemographic information. Body mass index (BMI; kg/m^2) was calculated from self-reported height and weight (Mond, Hay, Rodgers, Owen, & Beumont, 2004d). The sample comprised approximately 10% of the total population of women ages 18 to 42 in the region and was representative of this population on a range of sociodemographic variables (Mond, Hay, Rodgers, & Owen, 2006a; Mond, Hay, Rodgers, Owen, & Beumont, 2004c; Mond, Hay, Rodgers, Owen, Crosby, & Mitchell, 2006).

Respondents who met screening criteria for a clinically significant eating disorder (Mond, Hay, et al., 2004d) were approached to participate in the second phase of the study, which involved a face-to-face interview that included diagnostic items of the Eating Disorder Examination (EDE; Fairburn & Cooper, 1993), along with questions that we developed to address health service utilization, mental health literacy, and impairment in role functioning specific to eating-disordered behavior (Mond, Hay, et al., 2007a; Mond, Hay, Rodgers, & Owen, 2008). A self-report measure of defense style (Andrews, Singh, & Bond, 1993) was also administered at interview. Interviews were completed with 324 individuals, which represented a response rate of 76.6% at the second phase. Individuals interviewed were more likely to be married than those not interviewed (38.2% vs. 29.8%; $\chi^2 = 9.58$, $p < .05$). There were no other differences between these subgroups. The interval between questionnaire and interview assessment ranged from 4 days to 104 days, with a median of 28 days.

Interviewers received weekly training in the administration of the interview from J. M. Mond over a period of several months. During these sessions, tapes of interviews from previous research (Hay, Marley, & Lemar, 1998; Mond, Hay, et al., 2004d) were reviewed, and practice interviews were conducted. Each interviewer also conducted pilot interviews and received detailed feedback on each. This process of individual and group feedback continued during the assessment phase of the study. All interviews were audiotaped, except where the participant requested that taping not be conducted, and all tapes were reviewed by J. M. Mond. Where necessary, tapes were forwarded to P. J. Hay, and a consensus was reached on ratings of specific items. Interviewers, all female, had completed a minimum of 4 years of tertiary education, and all had relevant clinical experience.

Women identified as having a probable eating disorder on the basis of a preliminary inspection of the interview data were approached to participate in a follow-up study, one part of which involved a randomized controlled trial of a targeted intervention package. Participants assigned to the intervention condition received a package about mental health literacy for eating disorders, which included information about the nature and treatment of eating disorders, how to get help, and a list of local service providers, whereas individuals assigned to the control condition received only the list of service providers (Hay et al., 2007). Of the 185 individuals included in the randomized controlled trial, 144 were subsequently confirmed as having an eating disorder. Participants in the present study were 95 individuals (66.0% of those approached) who met the study criteria for a clinically significant eating disorder, on the basis of the EDE assessment, and who completed both baseline and follow-up (12-month) assessments. There were no significant differences between individuals who completed the follow-up ($n = 95$) and those who did not ($n = 49$) on any of the study variables (all $ps > .05$).

The mean (*SD*) age of participants at baseline was 28.8 (6.6) years. Their mean (*SD*) BMI was 27.1 (7.0) kg/m^2. Approximately half (54.2%) of the participants were employed full time. An additional 14.8% were employed part time, whereas 12.9% of participants nominated caring for children as their main activity, and 13.5% of participants nominated full-time study as their main activity. Approximately half (53.5%) of participants were married (38.2%) or living as married (15.3%), 43.3% were single, and 3.2% were separated or divorced; 40% had one or more children. Reflecting the demographic profile of the ACT population (Mond, Hay, Rodgers, & Owen, 2006a; Mond, Hay, Rodgers, Owen, Crosby, & Mitchell, 2006), the vast majority of participants were born in Australia (90.5%) and had English as a first language (94.9%). Most (89.1%) had completed 12 or more years of formal education, 29.1% had completed an undergraduate degree or diploma, and 8.2% had completed a postgraduate qualification.

Eating disorder diagnoses were assigned according to the operational criteria for the *Diagnostic and Statistical Manual for Mental Disorders* (4th ed.; American Psychiatric Association, 1994) outlined in the EDE manual (Fairburn & Cooper, 1993). Hence, for the diagnoses of BN and BED, 12 or more episodes of binge eating over the past 3 months were required. In addition, cessation of menstruation was not required for the diagnosis of anorexia nervosa (Mitchell, Cook-Myers, & Wonderlich, 2005). Participants

who reported extreme weight or shape concerns and any regular eating-disorder behavior and who did not meet criteria for anorexia nervosa, BN, or BED were assigned the diagnosis of eating disorder not otherwise specified (Hay, Fairburn, & Doll, 1996). Baseline diagnoses were as follows: for BN, $n = 18$ (for the nonpurging subtype, $n = 13$; for the purging subtype, $n = 5$); for BED, $n = 15$; and for eating disorder not otherwise specified, $n = 62$. The latter subgroup was comprised primarily of individuals of normal or above average weight who reported extreme weight or shape concerns, regular extreme weight-control behaviors and/or subjective bulimic episodes, but not objective bulimic (binge eating) episodes (Hay et al., 1996, 1998). Consistent with findings from other epidemiological studies (Hudson et al., 2007; Wells et al., 2006; cf. Mond, Hay, et al., 2004c), no participants met criteria for anorexia nervosa at the time of the study.

Study (Baseline) Measures

Eating-disorder psychopathology. The occurrence and frequency of objective bulimic episodes, subjective bulimic episodes, extreme dietary restriction, and excessive exercise were assessed with the relevant items of the EDE interview (Fairburn & Cooper, 1993). The occurrence and frequency of purging behaviors, namely, self-induced vomiting and/or misuse of laxatives or diuretics, was assessed by relevant questions of the Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994), a self-report measure derived from the EDE. This was because our research and that of others has indicated that self-report assessment of purging behaviors may be more accurate than interview assessment (Keel et al., 2005; Mond, Hay, Rodgers, & Owen, 2007b). The EDE-Q global score, which is derived from the 22 items of the EDE-Q assessing attitudinal aspects of eating-disorder psychopathology, was used to measure participants' overall symptom levels. Scores range from 0 to 6, with higher scores indicating greater symptom frequency and/or severity (cf. Mond, Hay, Rodgers, Owen, Crosby, & Mitchell, 2006). High levels of agreement between EDE-Q and EDE assessment of the items comprising the global score have been observed in both community and clinical samples (cf. Mond, Hay, et al., 2004d, Mond, Hay, Rodgers, & Owen, 2007b). Cronbach alpha in the present study was .77.

Impairment in role functioning. Impairment in role functioning associated with any physical or mental health problem was assessed with the Medical Outcomes Study–Short Form disability scale (SF-12; Ware et al., 1996). This scale is a 12-item self-report generic measure of health-related quality of life derived from the 36-item form (Ware, Kosinki, & Keller, 1994). Items in the SF-12 are summarized into two weighted scales (the Physical Component Summary scale and the Mental Component Summary scale) designed to assess impairment in everyday functioning associated with physical and mental health problems. Each scale is scored to have a mean of 50 and standard deviation of 10 (in the U.S. population), with lower scores indicating higher levels of impairment. The SF-12 has robust psychometric properties (Ware et al., 1996), and its validity in the Australian population has been demonstrated (Sanderson & Andrews, 2002b). A score of 40 or less on the Mental Component Summary scale is considered indicative of moderate impairment, whereas a score of 30 or less indicates severe impairment (Sanderson & Andrews, 2002a). Cronbach's alpha in the present study was .82. An additional (generic) measure of functional impairment was obtained as the number of days in the past 4 weeks on which participants' were unable to complete work, study, or household responsibilities because of any (physical or emotional) health problem (Mond & Hay, 2007).

Impairment in role functioning associated with an eating problem. In the absence of any validated measure of health-related quality of life specific to eating disorders at the time of the study (cf. Mond, Hay, Rodgers, Owen, & Beumont, 2005), we developed questions concerning impairment in role functioning associated with an eating problem and added them to the baseline EDE interview. Specifically, a series of questions assessed the extent to which functioning in each of four domains—main activity, home life, social life, and overall quality/enjoyment of life—was currently or had ever been adversely affected by any problem relating to eating attitudes or behaviors. Participants who reported that functioning in at least one of the domains mentioned earlier was currently affected *very much* or *extremely* by such a problem were considered to have impairment related to an eating problem. This measure was found to have good convergent and discriminant validity in our previous research (Mond, Hay, et al., 2007a).

General psychological distress. General psychological distress was assessed with the Kessler Psychological Distress Scale (K-10), a 10-item self-report measure initially designed to screen for cases of anxiety and affective disorders in general population samples (Kessler et al., 2002). In Australia, it is also used as an outcome measure among individuals treated within mental health services (Andrews & Slade, 2001). The frequency of each of 10 symptoms is measured on a scale from 1 to 5, such that total scores range from 10 to 50, with lower scores indicating higher symptom levels. A total score of 30 or below indicates a high probability of clinically significant symptoms of anxiety and/or depression (Andrews & Slade, 2001). The K-10 has demonstrated reliability and validity (Andrews & Slade, 2001; Kessler et al., 2002), and it has been used in several of our studies (Mond et al., 2005; Mond, Hay, et al., 2004c; Mond, Rodgers, et al., 2004). Cronbach's alpha in present study was .91.

Mental health literacy. The assessment of mental health literacy has been described in a number of previous publications (cf. Mond et al., 2008). In brief, a vignette describing a fictional person suffering from BN (purging type) is presented, followed by a series of questions concerning the nature and treatment of the problem described. For the present study, four variables that were considered most likely to be associated with treatment-seeking behavior were included, namely (a) recognition of BN as an eating problem, as opposed to a problem of low self-esteem or negative affect more generally (Mond, Hay, Rodgers, Owen, & Beumont, 2004a); (b) self-recognition of a current eating problem (Mond, Hay, Rodgers, & Owen, 2006b); (c) perceived stigma associated with disclosure of an eating problem (Cachelin et al., 2001; Hay, de Angelis, Millar, & Mond, 2007; Hepworth & Paxton, 2007); and (d) perceived desirability of eating-disorder features (Mond, Hay, Rodgers, Owen, & Beumont, 2004b). Dichotomous outcomes were created to indicate the presence or absence of each of these variables.

Although the questions in the various sections of the mental health literacy survey (e.g., beliefs about treatment, beliefs about causes, beliefs about prognosis, etc.) were not designed to constitute scales in the psychometric sense of this term, some evidence

supports the validity of these questions. Thus, findings reported by Jorm, Korten, Rodgers, et al. (1997) demonstrating consistency of belief systems across different mental disorders might be considered to support the construct validity of the mental health literacy paradigm, whereas differences in responses to specific questions as a function of age, education, recognition of the problem, and actual symptom levels might be considered to support the discriminant validity of the paradigm (Jorm, Angermeyer, & Katschnig, 2000; Mond, Hay, et al., 2004a, 2004b; Mond, Marks, et al., 2007). There is also some evidence that individuals' responses to specific questions are stable over a 6-month period (Jorm et al., 2003).

Defense style. The Defence Style Questionnaire (DSQ; Andrews et al., 1993) is a 40-item self-report measure of individuals' perceived defense mechanisms or coping styles. In the *Diagnostic and Statistical Manual for Mental Disorders* (4th ed.; American Psychiatric Association, 1994), defense mechanisms are defined as "automatic psychological processes that protect the individual against anxiety and from the awareness of internal or external dangers or stressors" (p. 751). Participants indicate their level of agreement, on a 9-point Likert-type scale, with each of 40 statements (2 statements assessing each of 20 different mechanisms). Scores on each mechanism are then calculated as the average of scores on the two items concerned. Alternatively, scores on each of three habitual defense styles—mature, neurotic, and immature—may be obtained as the average of scores on the mechanisms comprising each, as follows: A mature defense style comprises sublimation, humor, anticipation, and suppression; a neurotic defense style comprises undoing, pseudoaltruism, idealization, reaction formation; and an immature defense style comprises projection, passive aggression, acting out, isolation, devaluation, autistic fantasy, denial, displacement, dissociation, splitting, somatization, and rationalization (Andrews et al., 1993). The DSQ was included in the Health and Well-Being Study because findings from a number of earlier studies suggested that it might be of interest (cf. Bond, 2004). In the present study, and in the absence of any a priori hypotheses, mechanisms were considered in preference to styles because of the more detailed information provided. The reliability and validity of the DSQ have been demonstrated in a range of study populations (Andrews et al., 1993; Bond, 2004). Cronbach's alpha in the present study was .78.

Assessment of health service utilization. For the present study, health service utilization was defined as treatment from a health professional for an eating problem during the follow-up period. Health professionals included general practitioners, dieticians, social workers, counselors, psychologists, and psychiatrists but not providers of complementary or alternative medicine. Similar questions addressed treatment prior to baseline (baseline assessment) and treatment during the follow-up period (follow-up assessment; Mond, Hay, et al., 2007a). Participants were first asked about treatment received specifically for a problem with eating, such as "eating too much in one go," "feeling out of control with your eating," or "being preoccupied with what or when you should eat." Where such treatment was received, the person or persons from whom treatment had been received were noted. Similar questions followed in which participants were asked about advice or treatment received for "other emotional problems, such as being anxious or depressed," and problems with weight, such as "wanting to lose weight." In this way, it was possible to take prior treatment seeking for all three types of problem into account when evaluating predictors of treatment for an eating problem during the follow-up period.

Statistical Analysis

We used *t* or Mann–Whitney *U* tests to assess differences between participants who received treatment for an eating problem during the follow-up period and those who did not on continuous predictor variables, whereas we use chi-square tests for categorical variables. Preliminary analysis confirmed that there was no association between randomized controlled trial assignment and treatment for an eating problem during follow-up ($\chi^2 = 0.80, p = .37$), reflecting the fact that the intervention had not been successful in influencing treatment-seeking behavior. Bivariate associations between predictor variables were calculated with the Pearson correlation coefficient. For correlations between dichotomous and continuous variables, the point-biserial coefficient is given. Multivariable logistic regression was used to identify baseline characteristics associated with treatment during the follow-up period. A forward variable selection procedure was used because the number of predictor variables was large in relation to sample size (M. H. Katz, 2006). In the regression model, we included all independent variables that differed between treatment-receiving and non-treatment-receiving subgroups at a p value of less than or equal to .05 in bivariate analysis, using the methods suggested by Tabachnick and Fidell (2006) to test for multivariable multicollinearity. To minimize the influence of missing data on specific variables, the analysis was rerun with only those variables that entered the model included. Results are presented as odds ratios (ORs) and 95% confidence intervals (CIs). All analysis was conducted with SPSS Version 14.0. Power analysis was not conducted because the study was designed to generate, rather than to test, hypotheses.

Results

Data concerning use of health services during the follow-up period were missing for 4 participants. Of the 91 participants for whom complete data were available, 33 (36.3%) received treatment for an eating problem during the follow-up period. Of these, 12 (13.2% of all participants) received such treatment from a mental health professional, namely, a psychologist or psychiatrist.

In Table 1 it can be seen that participants who received treatment for an eating problem during the follow-up period differed from those who did not in a number of ways, including higher BMI; higher levels of eating-disorder psychopathology, general psychological distress, and out-of-role days; greater perceived impairment in role functioning associated with an eating problem; lower scores on the Suppression subscale of the DSQ (indicating greater perceived inability to suppress emotional difficulties); higher scores on the Projection subscale of the DSQ (indicating greater perceived mistreatment by others); greater likelihood of recognizing an eating problem; and greater likelihood of prior treatment for a problem with weight. It also is apparent that lower scores on the Suppression subscale of the DSQ and greater perceived impairment in role functioning associated with an eating problem were the variables most strongly associated with treatment seeking. Correlations between predictor variables are given in Table 2.

Results of the regression analysis are given in Table 3. It can be seen that greater perceived impairment in role functioning associated with an eating problem (OR = 4.87; 95% CI: 1.74, 13.61; $p < .01$) and lower scores on the Suppression subscale of the DSQ (OR =

Table 1
Characteristics of Women With Eating Disorders Receiving (N = 33) and Not Receiving (N = 58) Treatment for an Eating Problem Over a 12-Month Period

Characteristic	No treatment	Treatment	p^a	ES[b]
Demographic characteristics				
Mean (*SD*) age	28.3 (6.1)	28.4 (7.5)	.965	.015
Mean (*SD*) body mass index	**25.5 (6.1)**	**28.9 (7.8)**	**.027**	**.486**
% married	44.8	27.3	.098	.378
% with children (one or more)	44.8	27.3	.098	.378
% employed full-time	51.7	48.5	.766	.060
% with a bachelor's degree or higher	39.7	25.0	.161	.322
% country of birth/first language[c]	84.5	97.0	.067	.447
% with private health insurance	53.6	53.1	.968	.020
Prior treatment (treatment prior to the baseline assessment)				
% prior treatment for an eating problem	37.9	45.5	.493	.163
% prior treatment for a weight problem	**63.8**	**84.4**	**.039**	**.464**
% prior treatment for a general mental health problem	67.2	78.8	.241	.272
Eating-disorder psychopathology				
% binge eating (objective bulimic) episodes (at least weekly)	37.9	30.3	.464	.169
% subjective bulimic episodes (at least weekly)	39.7	48.5	.413	.182
% purging (self-induced vomiting or laxative misuse; any occurrence)	20.7	36.4	.103	.335
% extreme dietary restriction (≥3 times per week)	13.8	18.2	.577	.109
% excessive exercise (≥3 times per week)	13.8	15.2	.859	.028
% diet pills (any occurrence)	8.6	12.1	.591	.098
Mean (*SD*) EDE-Q global score	**3.7 (0.8)**	**4.1 (0.8)**	**.034**	**.500**
Functional impairment				
Mean (*SD*) SF-12 Physical Component Summary scale	49.7 (10.4)	47.7 (9.8)	.377	.198
Mean (*SD*) SF-12 Mental Component Summary scale	40.0 (12.0)	35.9 (11.3)	.120	.352
Median (IQR) days out of role	**0 (0, 4.5)**	**3 (0, 5)**	**.050**	**.002**
% impairment associated with an eating problem	**19.0**	**60.6**	**<.001**	**.891**
Median (IQR) K-10	**41 (34, 45)**	**37 (30, 42)**	**.024**	**.002**
Mental health literacy variables				
% (self-) recognition of a current eating problem	**43.1**	**66.7**	**.031**	**.488**
% recognition of bulimia nervosa as an eating problem	44.2	42.9	.91	.021
% perceived stigma associated with disclosure of an eating problem	54.4	48.5	.59	.100
% eating-disordered behavior perceived as desirable	29.3	24.2	.60	.113
Defense style[d]				
Mean (*SD*) Defence Style Questionnaire Suppression subscale	**5.2 (2.0)**	**3.9 (2.0)**	**.002**	**.650**
Mean (*SD*) Defence Style Questionnaire Projection subscale	**3.4 (1.8)**	**4.5 (2.3)**	**.020**	**.533**

Note. EDE-Q = Eating Disorder Examination Questionnaire; SF-12 = Medical Outcomes Study–Short Form disability scale; IQR = interquartile range; K-10 = Kessler Psychological Distress scale.
[a] Significance of the difference between groups according to a *t* test, Mann–Whitney *U* test, or chi-square test. Differences significant at the .05 level are shown in bold. [b] Effect size (ES): Cohen's *d* (continuous variables) or *h* (dichotomous variables; Cohen, 1988). [c] Not born in Australia and/or English not first language (0); born in Australia and English first language (1). [d] None of the remaining (18) subscales of the Defence Style Questionnaire were significant at the .05 level.

0.71; 95% CI: 0.55, 0.93; $p < .05$) were the only significant predictors of treatment seeking. The final model classified the treatment status of 78.0% of participants correctly.

As an additional check of the stability of the model, the analysis was repeated with a manually driven backward variable selection procedure, in which the analysis was rerun with each deletion of a variable (M. H. Katz, 2006). The findings were unchanged.

Discussion

We examined factors associated with treatment for an eating problem among women with bulimic eating disorders recruited from a community sample and followed over a 12-month period. In bivariate analysis, participants who received treatment for an eating problem during the follow-up period differed from those who did not in several respects, including higher BMI, higher levels of eating-disorder psychopathology, higher levels of general psychological distress, greater impairment in role functioning, deficits in specific aspects of coping style, greater likelihood of (self-) recognition of an eating problem, and greater likelihood of prior treatment for a problem or perceived problem with weight. However, the variables most strongly associated with treatment seeking during the follow-up period were perceived impairment in role functioning specifically associated with an eating problem and greater perceived inability to suppress emotional difficulties, and these were the only variables that were significantly associated with treatment seeking in multivariable analysis.

Recruitment of participants directly from the community, the use of a prospective study design, and assessment of a wide range of variables potentially associated with treatment-seeking behavior are notable strengths of the present study. Although findings from

Table 2
Bivariate Correlations (Pearson or Point-Biserial Correlation Coefficient) Between Predictor Variables

Variable	BMI	Prior treatment for weight	EDE-Q global score	Days out of role	Impairment due to eating	General psychological distress	(Self-) recognition of eating problem	DSQ Suppression subscale	DSQ Projection subscale
BMI	—								
Prior treatment for weight	.48	—							
EDE-Q global score	.26	.16	—						
Days out of role	.10	.08	.19	—					
Impairment due to eating	.37	.27	.36	.36	—				
General psychological distress	−.12	−.05	−.38	−.48	−.39	—			
(Self-) recognition of problem	.20	.24	.35	.14	.31	−.18	—		
DSQ Suppression subscale	−.21	−.28	.13	−.12	−.16	.00	−.05	—	
DSQ Projection subscale	.31	.17	.20	.10	.28	−.25	.24	.04	—

Note. For a sample size of $n = 95$, a correlation of .20 is significant at the .05 level, and a correlation of .26 is significant at the .01 level for a two-tailed test. BMI = body mass index; EDE-Q = Eating Disorder Examination Questionnaire; DSQ = Defence Style Questionnaire.

a number of recent studies have confirmed that the vast majority of individuals with bulimic-type eating disorders do not receive treatment for an eating problem, this is, to our knowledge, the first community-based study to examine factors associated with treatment seeking with a prospective study design. This was possible because the research was conducted as part of a two-phase epidemiological study in a high-risk population.

The main limitation of the study is that sample size was small in relation to the number of predictor variables. Hence, the findings should be viewed as preliminary and subject to confirmation in suitably planned future research. Findings from the multivariable analysis in particular should be interpreted with caution. However, the fact that the same results were achieved with different selection methods and the fact that the same variables emerged as the best predictors of treatment seeking in both bivariate and multivariable analysis lend credence to the findings. A second limitation of the present study is that we did not assess some potentially important variables, such as access to and affordability of treatment and aspects of personality other than defense style. It may be noted, however, that access to and/or cost of treatment are unlikely to have been factors in treatment uptake in the present study, because a government-funded outpatient treatment facility operated in the ACT region for the duration of the study (Mond, Hay, et al., 2007a). In addition, there was no association between treatment seeking and possession of private health insurance, which in Australia is a proxy for income.

In interpreting the findings of the present study, one should also consider that the ACT is a highly urbanized region and that stronger effects of sociodemographic variables, such as country of birth and first language, may have been observed in a more heterogeneous and/or ethnically diverse population (Becker et al., 2003). Finally, participants in the present study were adult women with bulimic-type eating disorders. A different pattern of associations would likely be observed in a younger sample or in a sample comprised primarily of individuals with disorders more closely resembling anorexia nervosa.

Table 3
Variables Associated With Treatment for an Eating Problem

Variable	Relative risk	95% CI	*p*
Impairment associated with eating	4.87	1.74–13.61	.003
DSQ Suppression subscale	0.71	0.55–0.93	.011
DSQ Projection subscale	1.25	0.97–1.61	.090

Note. Categorical covariates and treatment received were both coded 0 (*no*) or 1 (*yes*). CI = confidence interval; DSQ = Defence Style Questionnaire.

As expected, the likelihood of treatment being received was related to the severity of eating-disorder and comorbid psychopathology, levels of general psychological distress, and impairment in role functioning (Mond, Hay, et al., 2007a). It is notable, however, that the best predictor of treatment seeking, in both bivariate and multivariable analysis, was the occurrence of functional impairment associated with an eating problem. This latter finding suggests that the nature of the problem to which impairment is attributed may play an important role in the nature of the treatment received. Given the high levels of comorbidity between eating disorders and anxiety and affective disorders, the question of the extent to which individuals with eating disorders attribute impairment in psychosocial functioning to disordered eating, as opposed to comorbid mental health problems, is of interest (Mond & Hay, 2007; Mond, Rodgers, et al., 2004). Where eating-disordered behavior and overweight coexist, the attribution of poor quality of life to overweight rather than to disordered eating may raise similar issues (Brody, Masheb, & Grilo, 2005; Mond, Hay, et al., 2007a). From a clinical perspective, the use of disease-specific quality-of-life measures in conjunction with generic measures may be a useful means by which to assess the extent to which individuals with eating disorders attribute impairment in psychosocial functioning to disordered eating, as opposed to comorbid mental health problems and/or overweight (Mond et al., 2005; Mond & Hay, 2007). From a public health perspective, the findings suggest that individuals' recognition of the adverse effects of eating-disordered behavior on quality of life may need to be addressed in prevention and early intervention initiatives for eating disorders (Mond, Rodgers, et al., 2004).

The only other variable that was associated with treatment seeking in both bivariate and multivariable analysis was a specific aspect of coping style, namely, scores on the Suppression subscale of the DSQ. Participants who received treatment for an eating

problem had lower scores on this scale than those who did not. In the terminology of the DSQ, suppression is one of a number of defense mechanisms comprising a mature defense style. It encompasses the ability to "keep problems out of ones mind until there is time to deal with them" and "keep a lid on feelings if letting them out would interfere with what I am doing" (Andrews et al., 1993, p. 249). Thus, participants who received treatment for an eating problem perceived themselves to be less able to prevent emotional problems from interfering with their functioning. This finding might be seen as further evidence that individuals with eating disorders are most likely to seek treatment for an eating problem when they perceive an adverse effect of their eating behaviors on quality of life. Future research might consider, first, whether scores on this measure similarly predict treatment-seeking behavior among individuals with other mental health problems and, second, whether the present findings might be placed in a theoretical framework. For example, considerable attention has been given to the role of affect regulation in the onset and maintenance of bulimic behaviors (Chen & Le Grange, 2007; Heatherton & Beumesiter, 1991; Stice & Agras, 1999) but not, to our knowledge, to its role in the use of health services.

Of the four mental health literacy variables that we hypothesized might be associated with treatment seeking, only participants' recognition of their own eating-disordered behavior differed by treatment status. Previously, in a larger sample of women with bulimic-type eating disorders, we found that close to half (48.1%) of participants did not believe that they currently had an eating problem (Mond, Hay, Rodgers, & Owen, 2006b). Recognition was, in turn, related to the severity of eating-disorder and comorbid psychopathology as well as the occurrence of specific eating-disorder behaviors, most notably, self-induced vomiting. The finding, in the present study, that recognition of an eating problem was not independently associated with treatment seeking, in contrast to perceived impairment in role functioning associated with an eating problem, suggests that individuals' recognition of the effect of their disordered eating on quality of life may be a better predictor of treatment seeking than recognition of an eating problem per se.

It is possible that other aspects of mental health literacy may be associated with treatment seeking only in certain subgroups of individuals. For example, the effects of some variables may be most evident among individuals with eating disorders who experience marked impairment in role functioning but nevertheless do not seek treatment. In any case, it needs to be remembered that even when treatment is received for an eating problem, it is likely to be received from a primary care practitioner in most cases (Mond, Hay, et al., 2007a). In the present study, only one third of participants who received treatment for an eating problem during the follow-up period—approximately 10% of all participants—received this treatment from a mental health specialist. Poor mental health literacy almost certainly contributes to the low uptake of specialist treatment among individuals with mental disorders (Andrews, Sanderson, Slade, & Issakidis, 2000; Jorm et al., 2000).

Finally, it is notable that participants who had previously received treatment for a weight problem (and/or who had higher BMI) were more likely to receive treatment for an eating problem during the follow-up period than those who had not, given that individuals with bulimic eating disorders often seek treatment for a problem, or perceived problem, with weight rather than for a problem with eating per se (Mond, Hay, et al., 2007a). One possible explanation for this finding is that individuals with eating disorders who have previously received treatment in relation to a weight problem, but not for an eating problem, may be more likely to recognize that a greater focus on eating-disordered behavior is warranted. Therefore, they may be more motivated to seek treatment of this kind. Participants who had previously received treatment for an eating problem, on the other hand, may have been discouraged from seeking further treatment of this kind, given that they remained highly symptomatic.

Conclusions

In summary, we found, in a prospective, community-based study of women with bulimic-type eating disorders, that impairment in role functioning associated with an eating problem and the perceived inability to suppress emotional difficulties were the best predictors of whether treatment was received for an eating problem. Given that most individuals with BN and related disorders do not receive appropriate treatment, it may be important to address individuals' recognition of the adverse effects of eating-disorder psychopathology on quality of life in prevention and early intervention initiatives for eating disorders.

References

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

Anderson, R., & Newman, J. (1973). Societal and individual determinants of medical care utilization in the United States. *Milbank Memorial Fund Quarterly, 51,* 91–124.

Andrews, G., Henderson, S., & Hall, W. (2001). Prevalence, comorbidity, disability and service utilization. Overview of the Australian National Mental Health Survey. *British Journal of Psychiatry, 178,* 145–153.

Andrews, G., Sanderson, K., Slade, T., & Issakidis, C. (2000). Why does the burden of disease persist? Relating the burden of anxiety and depression to effectiveness of treatment. *Bulletin of the World Health Organization, 78,* 446–454.

Andrews, G., Singh, M., & Bond, M. (1993). The Defense Style Questionnaire. *Journal of Nervous & Mental Disease, 181,* 246–256.

Andrews, G., & Slade, T. (2001). Interpreting scores on the Kessler Psychological Distress Scale (K10). *Australian and New Zealand Journal of Public Health, 25,* 494–497.

Andrews, G., Slade, T., & Issakidis, C. (2002). Deconstructing current comorbidity: Data from the Australian National Survey of Mental Health and Well-Being. *British Journal of Psychiatry, 181,* 306–314.

Becker, A. E., Franko, D. L., Speck, A., & Herzog, D. B. (2003). Ethnicity and differential access to care for eating disorder symptoms. *International Journal of Eating Disorders, 33,* 205–212.

Bond, M. (2004). Empirical studies of defense style: Relationships with psychopathology and change. *Harvard Review of Psychiatry, 12,* 263–278.

Brody, M. L., Masheb, R. M., & Grilo, C. M. (2005). Treatment preferences of patients with binge eating disorder. *International Journal of Eating Disorders, 37,* 352–356.

Cachelin, F. M., Rebeck, R., Veisel, C., & Striegel-Moore, R. H. (2001). Barriers to treatment for eating disorders among ethnically diverse women. *International Journal of Eating Disorders, 30,* 269–278.

Chen, E. Y., & Le Grange, D. (2007). Subtyping adolescents with bulimia nervosa. *Behaviour Research and Therapy, 45,* 2813–2820.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Devlin, M. J., & Fischer, S. E. (2005). Treatment of binge eating disorder.

In S. Wonderlich, J. Mitchell, M. de Zwann, & H. Steiger (Eds.), *Eating disorders review: Part 1* (pp. 27–41). Oxford, England: Radcliffe.

Fairburn, C. G., & Beglin, S. J. (1994). Assessment of eating disorders: Interview or self-report questionnaire? *International Journal of Eating Disorders, 16,* 363–370.

Fairburn, C. G., & Cooper, Z. (1993). The Eating Disorders Examination (12th ed.). In C. G. Fairburn & G. T. Wilson (Eds.), *Binge eating: Nature, assessment and treatment* (pp. 317–360). New York: Guilford Press.

Fairburn, C. G., Cooper, Z., Doll, H. A., Norman, P., & O'Connor, M. (2000). The natural course of bulimia nervosa and binge eating disorder in young women. *Archives of General Psychiatry, 57,* 659–665.

Garvin, V., & Striegel-Moore, R. H. (2001). Health services research for eating disorders in the United States: A status report and a call to action. In R. H. Striegel-Moore & L. Smolak (Eds.), *Eating disorders: Innovative directions in research and practice* (pp. 135–152). Washington DC: American Psychological Association.

Hay, P. J., de Angelis, C., Millar, H., & Mond, J. M. (2006). Eating disorder mental health literacy of general practitioners. *Primary and Community Care Psychiatry, 10,* 103–108.

Hay, P. J., Fairburn, C. G., & Doll, H. (1996). The classification of bulimic eating disorders: A community-based cluster-analytic study. *Psychological Medicine, 26,* 801–812.

Hay, P. J., Marley, J., & Lemar, S. (1998). Covert eating disorders: The prevalence, characteristics and help-seeking of those with bulimic eating disorders in general practice. *Primary Care Psychiatry, 4,* 95–99.

Hay, P. J., Mond, J. M., Darby, A., Rodgers, B., & Owen, C. (2007). What are the effects of providing evidence-based information on eating disorders and their treatments? A randomized controlled trial in a symptomatic community sample. *Early Intervention in Psychiatry, 1,* 316–324.

Heatherton, T. F., & Baumeister, R. F. (1991). Binge eating as escape from self-awareness. *Psychological Bulletin, 110,* 86–108.

Hepworth, N., & Paxton, S. J. (2007). Pathways to help-seeking in bulimia nervosa and binge eating problems: A concept mapping approach. *International Journal of Eating Disorders, 40,* 493–504.

Hudson, J. I., Hiripi, E., Pope, H. G., & Kessler, R. C. (2007). The prevalence and correlates of eating disorders in the National Comorbidity Survey replication. *Biological Psychiatry, 61,* 348–358.

Jorm, A. F. (2000). Mental health literacy: Public knowledge and beliefs about mental disorders. *British Journal of Psychiatry, 177,* 396–401.

Jorm, A. F., Angermeyer, M., & Katschnig, H. (2000). Public knowledge of and attitudes to mental disorders: A limiting factor in the optimal use of treatment services. In G. Andrews & S. Henderson (Eds.), *Unmet need in psychiatry* (pp. 399–413). Cambridge, England: Cambridge University Press.

Jorm, A. F., Griffiths, K. M., Christensen, H., Korten, A. E., Parslow, R. A., & Rodgers, B. (2003). Providing information about the effectiveness of treatment options to depressed people in the community: A randomized controlled trial of effects on mental health literacy, help-seeking and symptoms. *Psychological Medicine, 33,* 1071–1079.

Jorm, A. F., Korten, A. E., Jacomb, P. A., Christensen, H., Rodgers, B., & Pollitt, P. (1997). Mental health literacy: A survey of the public's ability to recognise mental disorders and their beliefs about the effectiveness of treatment. *Medical Journal of Australia, 166,* 182–186.

Jorm, A. F., Korten, A. E., Rodgers, B., Pollitt, P., Jacomb, P. A., Christensen, H., et al. (1997). Belief systems of the general public concerning the appropriate treatments for mental disorders. *Social Psychiatry and Psychiatric Epidemiology, 32,* 468–473.

Katz, M. H. (2006). *Multivariable analysis: A practical guide for clinicians* (2nd ed.). New York: Cambridge University Press.

Katz, S. J., Kessler, R. C., Frank, R. G., Leaf, P., Lin, E., & Edlund, M. (1997). The use of outpatient mental health services in the United States and Ontario: The impact of mental morbidity and perceived need for care. *American Journal of Public Health, 87,* 1136–1143.

Keel, P. K., Dorer, D. J., Eddy, K. T., Delinsky, S. S., Franko, D. L., Blais, M. A., et al. (2002). Predictors of treatment utilization among women with anorexia and bulimia nervosa. *American Journal of Psychiatry, 159,* 140–142.

Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S. L. T., et al. (2002). Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine, 32,* 959–976.

Lilenfeld, L. R., Wonderlich, S. A., Riso, L. P., Crosby, R., & Mitchell, J. (2006). Eating disorders and personality: A methodological and empirical review. *Clinical Psychology Review, 26,* 299–320.

Mitchell, J. E., Agras, S., & Wonderlich, S. (2007). Treatment of bulimia nervosa: Where are we and where are we going? *International Journal of Eating Disorders, 40,* 95–101.

Mitchell, J. E., Cook-Myers, T., & Wonderlich, S. (2005). Diagnostic criteria for anorexia nervosa: Looking ahead to *DSM–V. International Journal of Eating Disorders, 37,* S95–S97.

Mond, J. M., & Hay, P. J. (2007). Functional impairment associated with eating disorder behaviours in a community sample of women and men. *International Journal of Eating Disorders, 40,* 391–398.

Mond, J. M., Hay, P. J., Rodgers, B., & Owen, C. (2006a). Eating Disorder Examination Questionnaire (EDE-Q): Norms for young adult women. *Behaviour Research and Therapy, 44,* 53–62.

Mond, J. M., Hay, P. J., Rodgers, B., & Owen, C. (2006b). Self-recognition of disordered eating among women with bulimic-type eating disorders: A community-based study. *International Journal of Eating Disorders, 39,* 747–753.

Mond, J. M., Hay, P. J., Rodgers, B., & Owen, C. (2007a). Health service utilization for eating disorders: Findings from a community-based study. *International Journal of Eating Disorders, 40,* 399–409.

Mond, J. M., Hay, P. J., Rodgers, B., & Owen, C. (2007b). Self-report versus interview assessment of purging in a community sample of women. *European Eating Disorders Review, 15,* 403–409.

Mond, J. M., Hay, P. J., Rodgers, B., & Owen, C. (2008). Eating disorders "mental health literacy": What do women with bulimic eating disorders think and know about bulimia nervosa and its treatment? *Journal of Mental Health, 17,* 565–575.

Mond, J. M., Hay, P. J., Rodgers, B., Owen, C., & Beumont, P. J. V. (2004a). Beliefs of the public concerning the helpfulness of interventions for bulimia nervosa. *International Journal of Eating Disorders, 36,* 62–68.

Mond, J. M., Hay, P. J., Rodgers, B., Owen, C., & Beumont, P. J. V. (2004b). Beliefs of women concerning the severity and prevalence of bulimia nervosa. *Social Psychiatry & Psychiatric Epidemiology, 39,* 299–304.

Mond, J. M., Hay, P. J., Rodgers, B., Owen, C., & Beumont, P. J. V. (2004c). Non-response bias in a general population survey of eating-disordered behavior. *International Journal of Eating Disorders, 36,* 89–98.

Mond, J. M., Hay, P. J., Rodgers, B., Owen, C., & Beumont, P. J. V. (2004d). Validity of the Eating Disorder Examination Questionnaire (EDE-Q) in screening for eating disorders in community samples. *Behaviour Research and Therapy, 42,* 551–567.

Mond, J. M., Hay, P. J., Rodgers, B., Owen, C., & Beumont, P. J. V. (2005). Assessing quality of life in eating disorder patients. *Quality of Life Research, 14,* 171–178.

Mond, J. M., Hay, P. J., Rodgers, B., Owen, C., Crosby, R., & Mitchell, J. E. (2006). Use of extreme weight control behaviors with and without binge eating in a community sample of women: Implications for the classification of bulimic-type eating disorders. *International Journal of Eating Disorders, 39,* 294–302.

Mond, J. M., Marks, P., Hay, P. J., Rodgers, B., Kelly, C., Owen, C., et al. (2007). Mental health literacy and eating-disordered behavior: Beliefs of adolescent girls concerning the treatment of and treatment-seeking for bulimia nervosa. *Journal of Youth and Adolescence, 36,* 753–762.

Mond, J. M., Rodgers, B., Hay, P. J., Korten, A., Owen, C., & Beumont, P. J. V. (2004). Disability associated with community cases of commonly occurring eating disorders. *Australian and New Zealand Journal of Public Health, 28,* 246–251.

Sanderson, K., & Andrews, G. (2002a). Prevalence and severity of mental health-related disability and relationship to diagnosis. *Psychiatric Services, 53,* 80–86.

Sanderson, K., & Andrews, G. (2002b). The SF-12 in the Australian population: Cross-validation of item selection. *Australian and New Zealand Journal of Public Health, 26,* 343–345.

Stice, E., & Agras, W. S. (1999). Subtyping bulimic women along dietary restraint and negative affect dimensions. *Journal of Consulting and Clinical Psychology, 67,* 460–469.

Striegel-Moore, R. H., Cachelin, F. M., Dohm, F. A., Pike, K. M., Wilfley, D. E., & Fairburn, C. G. (2001). Comparison of binge eating disorder and bulimia nervosa in a community sample. *International Journal of Eating Disorders, 29,* 157–165.

Striegel-Moore, R. H., Dohm, F. A., Kraemer, H. C., Schreiber, G. B., Crawford, P. B., & Daniels, S. R. (2005). Health services use in women with a history of bulimia nervosa or binge eating disorder. *International Journal of Eating Disorders, 37,* 11–18.

Tabachnick, B. G., & Fidell, L. S. (2006). *Using multivariate statistics* (5th ed.). Boston: Pearson Education.

Ware, J. E., Kosinski, M., & Keller, S. D. (1994). *SF-36 physical and mental health summary scales: A user's manual.* Boston: Health Institute, New England Medical Center.

Ware, J. E., Kosinski, M., & Keller, S. D. (1996). A 12-item short-form health survey: Construction of scales and preliminary tests of reliability and validity. *Medical Care, 34,* 220–233.

Wells, J. E., Oakley Browne, M. A., Scott, K. M., McGee, M. A., Baxter, J., & Kokaua, J. (2006). Prevalence, interference with life and severity of 12 month *DSM–IV* disorders in Te Rau Hinengaro: The New Zealand Mental Health Survey. *Australian and New Zealand Journal of Psychiatry, 40,* 845–854.

Wilson, G. T., Grilo, C. M., & Vitousek, K. M. (2007). Psychological treatment of eating disorders. *American Psychologist, 62,* 199–216.

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