

Risk Factors for Suicidality Among Clients With Schizophrenia

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Among clients with schizophrenia, suicidality is associated with extreme personal distress, an increased number of inpatient hospitalizations, increased health care expenditures, and early mortality. This study attempted to identify risk factors for current suicidality in clients diagnosed with schizophrenia (N = 223). Results indicated that severity of depressive symptoms most strongly correlated with degree of suicidality. Younger age and recent traumatic stress each significantly predicted suicidality independent of depressive symptoms. Stepwise regression procedures showed that the combination of depression, younger age, and traumatic stress might provide a general prediction model for suicidality among clients diagnosed with schizophrenia. Counseling implications of these findings are outlined.

Schizophrenia is a common mental disorder with international prevalence rates of approximately 1%. In the United States, prevalence rates range from .6% to 1.9% (World Health Organization, 1995). Symptoms of schizophrenia are usually chronic and pervasive, leading to over \$16 billion in annual health care expenditures (American Psychiatric Association [APA], 1997). Costly hospitalizations and early mortality are also common results of schizophrenic symptoms. One of the most common reasons for premature death among clients with schizophrenia is suicide (Black & Fischer, 1992). Estimates of suicidal ideation (i.e., thoughts of killing oneself) range from 60% to 80%, and approximately 20%–42% of these clients actively attempt suicide (Drake, Gates, Whitaker, & Cotton, 1985). Studies also indicate that approximately 10%–15% of clients with schizophrenia complete suicide (Black, Warrack, & Winokur, 1985; Landmark, Cernovsky, & Mersky, 1987; Miles, 1977; Roy, Mazonson, & Pickar, 1984). For example, Caldwell and Gottesman (1990) found that 50% of clients with schizophrenia attempt suicide, and up to 13% complete the act. Given the significance of this problem, it is important to identify risk factors associated with suicidality among clients with schizophrenia.

Prior research suggests that certain psychotic symptoms may correlate with suicidality. In a retrospective autopsy study, Heila, Isometsa, Henriksson, and Heikkinen (1997) reported that depression and severe psychosis were related to suicides. These findings support prior research indicating that depressive symptoms (e.g., extreme hopelessness) correlate with suicides among clients with schizophrenia (S. Cohen, Lavelle, Rich, & Bromet, 1994; Drake & Cotton, 1986; Milch, 1990; Roy, 1982). Regarding psychotic symptoms, several authors (S. Cohen et al., 1994; Gallagher, Dinan,

Sheehy, & Baker, 1995; K. J. Kaplan & Harrow, 1996, 1999) reported that increased hallucinations and delusions were indicative of suicidal risk. Therefore, severe psychotic symptoms may increase depression, leading to a heightened risk of suicide (Fenton, McGlashan, Victor & Blyler, 1997; K. J. Kaplan & Harrow, 1999).

Rossau and Mortensen (1997) asserted that men are significantly more likely to complete suicide than are women, indicating that demographic characteristics may correlate with suicidal risk. Other investigators have proposed that no clear relationship exists between suicidal behavior and sex (Amador et al., 1996; S. Cohen et al., 1994). As J. Cohen, Test, and Browr (1990) explained, age may be more highly correlated with suicidality than sex. There may be an inverse relationship between age and suicidal risk (Breier & Astrachan, 1984; Langley & Bayatti, 1984). That is, younger clients tend to become more suicidal more often. However, S. Cohen et al. (1994) and Amador et al. (1996) failed to link age with suicidal behavior. Therefore, further research is necessary to explore the relationship between demographic characteristics and suicidality among clients with schizophrenia.

It has also been hypothesized that severe life stressors may elicit suicidality among clients with schizophrenia. However, only one study found to date has attempted to correlate life stressors with suicidality in clients with schizophrenia. In this study, Weiden and Roy (1992) asserted that a combination of psychological stressors and poor overall functioning may lead to suicides. Perhaps severe life stressors combined with poor global functioning and inadequate coping mechanisms result in suicidal behaviors (Weiden & Roy, 1992).

As Heila et al. (1997) explained, many of the studies cited earlier are hampered by methodological limitations. These

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include small sample size, the use of nonstandardized assessment instruments, and retrospective (e.g., autopsy) investigations that did not evaluate current suicidality. In addition, we noted that the assessment of important variables (e.g., medical/physical problems, family relationship problems, and work/school problems) were not included in prior research designs. It is crucial to discriminate immediate risk factors if eventual suicidal behaviors are to be forestalled. If immediate risk factors for suicidality are identified, clinicians may be better equipped to preempt suicidal gestures (Sullivan, Young, & Morgenstern, 1997). This study attempted to expand on prior research by investigating the relationship between current suicidality and demographic characteristics, psychological and emotional symptoms, life stressors, and overall functioning in a large sample of clients with schizophrenia. We hypothesized that a combination of current symptoms, life stressors, and demographic characteristics would predict suicidal risk. Specifically, we hypothesized that as life stressors and symptoms of illness intensified, suicidality would become more severe among clients with schizophrenia who had certain demographic characteristics.

METHOD

Participants

Participants for this study were selected from a crisis stabilization unit (CSU) at a large, 12-county community agency in Florida. The CSU is an emergency mental health facility designed to assess symptoms (including suicidal risk), diagnostic criteria, social problems, global functioning, and treatment needs of clientele presenting with emotional crises. All clientele participate in a comprehensive evaluation conducted by trained mental health personnel. Then, standardized instruments are completed, and a diagnosis (if any) is given. Archival data on all adult clients diagnosed with schizophrenia (any subtype) over a continuous 6-month period were included in this study ($N = 223$). Participants were not discriminated based on income, age (if over 18 years), severity of symptoms, physical disabilities, current or prior treatment history, or living status (i.e., homeless, supported housing, or independent living environments). The only inclusion criterion for this study was a confirmed diagnosis of schizophrenia. Although clients gave written informed consent for participation in clinical evaluations, consent for participation in this study was not obtained because archival data were used from medical records. The identity of participants was protected at all stages of data collection and analysis.

Participants were between the ages of 18 and 79 years ($M = 38.8$, $SD = 10.1$); 135 (61%) were women and 88 (39%) were men. On average they evidenced a long-standing treatment history (M years of treatment = 13.2, $SD = 8.8$). Regarding race, 117 (52%) were Caucasian and 106 (48%) were African American. Participants were generally from a lower socioeconomic class; average monthly income was \$460 ($SD = \302). In general, participants were unem-

ployed. Average days worked during the previous month were 1.9 ($SD = 6.0$). These characteristics are representative of clients with schizophrenia and thus reflect the broader population (APA, 1997).

All clients in this study met the diagnostic criteria for schizophrenia according to the *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition (DSM-IV; APA, 1994). Diagnoses were based on the Structured Clinical Interview for DSM-IV (First, Spitzer, Gibbon, & Williams, 1995). Clients with psychotic disorders other than schizophrenia (e.g., schizoaffective disorder or delusional disorder) were excluded from participation in this study because the symptoms and course of other psychotic disorders differ significantly from those of schizophrenia (APA, 1994).

Instruments

The Global Assessment of Functioning (GAF) Scale (APA, 1994) is a 100-point instrument used to rate clients' current overall functioning based on a standard global mental health-illness continuum. The GAF is a widely used instrument with good validity and reliability that matches clients' self-reported functioning (Jones, Thornicroft, Coffey, & Dunn, 1995; Piersma & Boes, 1995). To obtain interrater reliability estimates for this study, 20% (45) of evaluations were conducted simultaneously by two clinicians. Pearson product-moment correlations of GAF scores showed an interrater agreement of $r = .91$.

The Functional Assessment Rating Scale (FARS; Ward & Dow, 1994) is a 17-item instrument used to assess emotional symptoms and psychosocial impairments in clients with severe mental illnesses, especially those with psychotic disorders. Each item is scored independently after a structured clinical interview. Items are scored according to how severe a certain symptom or area of impairment is for that client. A standardized 9-point rating system is used for all items (1 = *absent*, 3 = *mild*, 5 = *moderate*, 7 = *severe*, 9 = *extreme*). In this study, the FARS was used to assess the following symptoms and psychosocial impairments: severity of suicidality, depression, cognitive impairments, disturbed thought processes, recent traumatic stress, medical/physical problems, work/school problems, self-care deficits, and family relationship problems. Severity of suicidality served as the dependent variable, and all other items were used as independent variables. All variables were specifically operationalized in behavioral terms, and all clinicians were trained to use the FARS before clinical evaluations commenced.

According to Ward and Dow (1994), the FARS has good interrater reliability, good stability reliability, and good construct validity. In a more recent test of the instrument's psychometric properties, Schwartz (1999) reported mean interrater reliability correlations of $r = .88$, mean stability reliability correlations of $r = .86$, mean concurrent reliability correlations of $r = .89$, and good construct validity. To test interrater agreement on FARS items used in this study, 20% (45) of evaluations were conducted simultaneously by two clinicians. Pearson product-moment correlations

revealed the following statistics on interrater agreement: traumatic stress ($r = .95$), depression ($r = .93$), suicidality ($r = .92$), cognitive impairments ($r = .92$), disturbed thought processes ($r = .90$), medical/physical problems ($r = .89$), self-care deficits ($r = .88$), family relationship problems ($r = .80$), and work/school problems ($r = .61$).

FARS Items

Degree of suicidality was the dependent variable in this study. *Suicidality* was defined as the severity of reported and observed dangerousness to self. Severity of suicidality was operationalized as the degree to which the client manifested suicidal ideation, intent to harm oneself, lethality of a current plan (if any), and opportunity or means of completing that plan. Clinicians specifically assessed the frequency and nature of suicidal thoughts, whether and to what degree the client wanted and intended to commit suicide, whether they had a current plan (and if so how organized and lethal the plan was), and how achievable the plan would be given their current psychological symptoms and their physical resources. Only current suicidality was evaluated because past suicidal ideation or gestures could confound results.

The independent variables in this study were separated into symptoms of illness and social problems or impairments. Regarding symptoms of illness, depression was measured according to degree of reported and observed hopelessness, helplessness, depressed mood, and current neurovegetative symptoms (e.g., disturbed sleep or appetite patterns). Cognitive impairments included cognitive disorganization, disorientation, memory problems, poor abstract thought, and poor attention or concentration. These impairments were measured using a mental status examination. Disturbed thought processes referred to psychotic symptoms, such as delusions, hallucinations, paranoia, and grandiosity. Medical/physical problems included any current impairing physical condition, such as injuries or illnesses. Medical/physical problems were rated according to self-report or clinician observation.

In terms of social problems or impairments, traumatic stress was operationalized as upsetting memories, night terrors, hypervigilance, and flashbacks related to a traumatic event (e.g., physical or sexual abuse). Work/school problems were operationalized as the inability to cope with the demands of work/school, poor performance on the job or with school grades, being terminated from work or expelled from school, or inability to maintain consistent employment or registration status. Self-care deficits were defined as a reduced ability to independently perform basic adult daily living skills, such as personal hygiene, cooking, cleaning, or money management. Family relationship problems referred to arguments at home, conflicted relationships with parents or siblings, lack of emotional or social support, or lack of desired contact with family members.

Procedure

On unsolicited presentation at the CSU, the psychosocial history of each participant was documented. This docu-

mentation included demographic information, a medical history, prior treatment history, a social history, and a family history. Clients then participated in two standardized clinical interviews, the Structured Clinical Interview for the Functional Assessment Rating Scale (SCI-FARS; Ward et al., 1995) and the Structured Clinical Interview for *DSM-IV* (First et al., 1995). Total interview duration averaged approximately 90 minutes. After each individual interview, clinicians diagnosed the client (if appropriate) according to *DSM-IV* criteria. All clinical interviews were conducted by master's- or doctoral-level clinicians specializing in the assessment of mental disorders, and all diagnoses were confirmed by a board-certified psychiatrist. Then, each client was rated using the GAF scale (APA, 1994) and the FARS (Ward & Dow, 1994). All raters were blind to the protocol and existence of this study at the time of evaluations. The University of Florida Institutional Review board, the Idaho State University Human Subjects Committee, and the Meridian Behavioral Healthcare Risk Management Department approved the research design and methodology for this study.

RESULTS

First, frequency distributions were obtained for all FARS items and for the GAF. Then, a multiple regression omnibus test was conducted to determine whether the combination of symptoms, social problems, global functioning, and demographic characteristics significantly correlated with ratings of suicidality. Eleven independent variables were included in the omnibus test: 3 symptom variables (severity of depression, cognitive impairments, and disturbed thought processes), 5 social variables (traumatic stress, medical/physical problems, work/school problems, self-care deficits, and poor family relationship), 1 measure of global functioning (the GAF score), and 2 demographic variables (age and gender).

Follow-up multiple regression tests were used to evaluate the predictive significance of each independent variable while controlling for the influence of other independent variables. That is, specific tests were used as follow-up measures to determine which independent variable(s) significantly contributed to the overall prediction model. Finally, a stepwise regression procedure was conducted to statistically determine the most effective overall prediction model regarding suicidality. An alpha level of $p < .01$ was used for all statistical tests. A power analysis revealed that, given a predicted moderate effect size and an alpha level of $p < .01$, a power of at least .80 could be expected using the sample size obtained in this study (J. Cohen, 1992; J. Cohen & Cohen, 1983).

Results indicated that, on average, participants manifested a mild degree of suicidality ($M = 1.8$, $SD = 1.7$), although a full range of suicidality was observed in the sample population ($Range = 1-9$). On average, clients also exhibited severe impairments in overall functioning as measured by the GAF scale ($M = 42.5$, $SD = 15.3$). The most severe symptoms and psychosocial problems in this sample included

disturbed thought processes ($M = 4.7$, $SD = 2.5$), cognitive impairments ($M = 4.4$, $SD = 2.1$), and work/school problems ($M = 4.3$, $SD = 2.7$), respectively. These results are consistent with a population of clients with schizophrenia presenting for psychological evaluation during a period of crisis (APA, 1997). Table 1 displays a frequency distribution for all FARS items assessed in this study.

Results showed that the omnibus regression model was statistically significant ($F = 10.8$, $df = 11, 211$, $p < .0001$). For the omnibus multiple regression model, the proportion of shared variance equaled .44, suggesting that 44% of the variance in ratings of suicidality were accounted for by the 11 independent variables included in the model. Specific follow-up multiple regression tests showed that three variables were significantly and independently associated with ratings of suicidality. These tests indicated that, when the influence of all other variables were controlled, severity of depression ($t = 7.4$, $p = .001$), age ($t = -4.4$, $p < .001$), and traumatic stress ($t = 3.0$, $p = .002$) were significantly related to ratings on suicidality. Table 2 shows results of specific regression tests, including standardized beta weights (parameter estimates) for all variables.

Finally, a stepwise regression procedure was used to obtain the most effective overall prediction model for suicidality. Results suggest that depressive symptoms alone accounted for 28% of the variance in ratings of suicidality. When age was added to the prediction model as a second variable, the two-variable combination accounted for 33% of the variance in ratings of suicidality. After traumatic stress was entered into the prediction equation, the three-variable model accounted for 38% of the variance in ratings of suicidality. The addition of other independent variables added only minimally (and insignificantly) to the prediction model. Therefore, although depressive symptoms were found to most strongly associate with ratings of suicidality, the most significant combination of risk factors was the three-variable model including depressive symptoms, age, and recent traumatic stress.

DISCUSSION

In general, the participants selected for this study manifested characteristics common to clients with schizophrenia (APA, 1997). Participants were middle-aged and, on average, had

TABLE 1
Frequency Distribution for FARS Ratings

FARS Item	M	SD
Disturbed thoughts	4.7	2.5
Work/school problems	4.3	2.7
Poor family relationship	3.1	2.0
Traumatic stress	2.2	1.8
Suicidality	1.8	1.7
Cognitive impairments	4.4	2.1
Self-care deficits	4.0	2.4
Depression	2.6	1.9
Medical/physical problems	1.9	1.5

Note. FARS = Functional Assessment Rating Scale.

TABLE 2

Results of Follow-Up Regression Tests for Predictor Variables

FARS Item	Standardized Beta Weights	t value	p value
Depression	.39	7.40	* $p = .001$
Age	-.04	-4.40	* $p = .001$
Traumatic stress	.17	3.00	* $p = .002$
Gender	.41	2.00	$p = .04$
Disturbed thoughts	.07	1.40	$p = .17$
Medical/physical problems	.08	1.20	$p = .23$
Self-care deficits	.06	1.10	$p = .24$
Work/school problems	-.04	-1.10	$p = .26$
Cognitive impairments	.05	0.84	$p = .40$
GAF Scale score	-.01	-0.81	$p = .41$
Poor family relationship	.01	0.29	$p = .77$

Note. See Table 1 Note. GAF = Global Assessment of Functioning. * $p < .01$.

spent approximately one third of their life in treatment. They were from a low socioeconomic group (based on monthly income) and were generally unemployed. Most participants lived independently, with family members, or in supported housing units in the community. Thus, we believe that empirical results should adequately generalize to a population of clients with schizophrenia who are receiving treatment for their illness.

Our research hypothesis was supported by results obtained from multiple regression analyses, expanding the knowledge base regarding risk factors for suicidality among clients with schizophrenia. First, severity of depression was found to significantly positively correlate with degree of suicidality. As depressive symptoms (e.g., hopelessness, helplessness, neurovegetative symptoms) increased, suicidal ideation and intent also increased. Other investigators (S. Cohen et al., 1994; Drake & Cotton, 1986; Heila et al., 1997; Milch, 1990; Rossau & Mortensen, 1997; Roy, 1982; Taiminen, 1994) have found this correlation as well. Moreover, it is well documented in clinical training manuals that depression is a dysphoric mental state that may induce suicidal ideation or culminate in suicide if not properly treated (H. I. Kaplan & Sadock, 1995). Thus, the combination of severe depression and schizophrenia may constitute a psychiatric emergency (Roy, 1995). For example, King (1994) recently found that over a 7-year period 84% of persons who completed suicide had symptoms of schizophrenia or severe depression, or both, immediately preceding the suicidal act. Therefore, assessing and monitoring depressive symptoms is extremely important for professionals serving clients with schizophrenia. We propose that future research should attempt to ascertain which specific aspects of depression lead to increased suicidality in this client population. If specific aspects of the depressive syndrome can be identified and linked to suicidal potential, then clinicians can be better prepared to intervene with clients manifesting these symptoms.

Two other variables—age and traumatic stress—were each independently correlated with ratings of suicidality in this sample. Age was negatively correlated with degree of suicidality; that is, younger clients tended to evidence more lethality than older clients. This finding has also been previously reported in the literature (APA, 1997; Breier & Astrachan, 1984; J. Cohen et al., 1990; Langley & Bayatti, 1984), lending additional support to the hypothesis that younger clients with schizophrenia should be monitored more conscientiously for suicidality, especially when depressed (Gupta, Black, Arndt, Hubbard, & Andreasen, 1998). However, research has yet to determine why younger clients with schizophrenia tend to manifest increased suicidality. Perhaps they are more profoundly affected by psychosocial stressors due to underdeveloped coping mechanisms. Or possibly they display more severe psychotic symptoms related to the early age of onset of this disorder, resulting in more severe auditory command hallucinations or persecutory delusions. A third hypothesis is that younger clients with schizophrenia may become more depressed and discouraged about their future due to the long-term and pervasive nature of this disorder. As Schwartz and Petersen (1999) explained, increased insight may lead to heightened suicidality particularly among younger clients. Future research should attempt to ascertain the primary factor(s) resulting in increased suicidality in younger clients with schizophrenia. The early age of onset of schizophrenia coupled with an increased risk of suicide among younger clients necessitates heightened preventive interventions focused on this client population.

Recent traumatic stress was shown to positively correlate with suicidality in this sample of clients with schizophrenia. As severity of traumatic stress increased, suicidal ideation and intent also increased. To our knowledge, the impact of recent traumatic stress on suicidality has not been studied previously with this population of clients. The aforementioned finding is intuitively sensible, however, because one's intrapsychic perceptions and coping abilities in relation to extreme stressors certainly affects one's overall outlook of life and death (Roy, 1995). If a client who is schizophrenic confronts a traumatic event, the intensity of that event, as well as the degree to which the client is able to manage the resulting affect, may have a direct impact on danger to self. Degree of suicidality may also be a function of what type of traumatic event occurred, the duration of traumatic stress, and whether or not therapeutic interventions were received. These specific factors were not included in the data collection for this study. Clearly, further investigation concerning the relationship between traumatic stress and suicidality is warranted because appropriate clinical interventions may preempt suicidal behaviors if the critical aspects of the traumatic experience were known. Until additional empirical research is conducted, we suggest that practitioners conscientiously monitor (and possibly increase therapeutic interventions with) clients with schizophrenia reporting recent traumatic stress.

COUNSELING IMPLICATIONS

Many of the findings reported in this study have direct clinical implications. Most important, practitioners should be aware that a combination of severe depressive symptoms and recent traumatic stress among younger clients with schizophrenia may indicate a substantially increased risk of suicidality. Severity of depression and traumatic stress can be directly and reliably assessed by counselors (e.g., Zimmerman, 1994), and we strongly advise that clinicians evaluate these areas regardless of whether or not they are presented by clients as primary treatment concerns. Treatment for depression and traumatic stress are both widely available and therapeutically effective if used in a timely manner. Therefore, if counselors conscientiously monitor symptoms associated with an increased risk of suicidality among clients with schizophrenia, preventive interventions can be used more effectively. In addition, it is important for counselor training to include suicide assessment, in general, as well as the impact on the counselor both emotionally and professionally of a client's suicide (Foster & McAdams, 1999).

Should a mental health professional confront a client with schizophrenia who manifests suicidality, standard crisis management procedures exist that serve as general guidelines for appropriate interventions (see Gilliland & James, 1997). Practitioners should first assess the client's lethality (ideation, intent, plan, and means). Then, symptoms specifically associated with suicidal thoughts (e.g., depression and traumatic stress) should be evaluated. Next, the extent and availability of social support networks (e.g., friends, family members, case managers) should be ascertained. Finally, treatment options should be discussed and clinical interventions should be initiated immediately if necessary. Thus, it is important to investigate biological, psychological, and social aspects of suicidality with clients who have schizophrenia (Harkavy-Friedman & Nelson, 1997). Treatment options may range from more intensive outpatient counseling to the addition of new psychotropic medications to inpatient hospitalization, depending on the client's potential danger to self (APA, 1997). The optimum treatment strategy should use the least restrictive environment necessary to provide increased personal safety and improved psychological functioning.

It should be noted, however, that this study did not investigate past suicidal behaviors or suicides. Thus, results may be generalizable only to those clients reporting current suicidality. In addition to the fact that current suicidality does not always lead to suicidal gestures, there were several other limitations to this study. Even though most independent variables (e.g., medical/physical problems) were not found to associate with suicidality in this study or in prior research, psychosocial variables not included in this investigation may ultimately demonstrate an impact on suicidality. For example, substance abuse has been shown to correlate with increased suicidality in patients with schizophrenia (Heila et al., 1997; Roy, 1995). Finally, the

independent variables that were assessed in this study were global areas of functioning. As stated previously, we did not evaluate which specific subcomponents of each variable (e.g., depression and traumatic stress) accounted for our statistical results. Given the complex nature of suicidality among clients with schizophrenia, we recommend that investigators and clinicians use a biopsychosocial approach when conducting research or implementing interventions. We agree with Harkavy-Friedman and Nelson (1997) that ongoing assessment and clinical interventions must be used with clients with schizophrenia to reduce the likelihood of suicidality. In addition, further empirical research in this complex area is clearly warranted.

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