
Early Intervention in Mental Health for Adolescents and Young Adults: A Systematic Review

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OBJECTIVE. The purpose of this systematic review was to describe the evidence for the effectiveness of early intervention to improve and maintain performance in occupations for youths with or at risk for serious mental illness (SMI).

METHOD. Titles and abstracts of 670 articles were reviewed, 234 were retrieved for full review, and 30 met inclusion criteria.

RESULTS. Moderate to strong evidence supports cognitive remediation (CR) and mixed evidence supports cognitive-behavioral therapy (CBT) as an adjunct modality to improve general functioning. Moderate to strong evidence supports use of supported employment and supported education (SE/E) to improve social and occupational outcomes in employment and academics. Strong evidence supports family psychoeducation (FPE) to prevent relapse and rehospitalization and improve problem-solving skills and general functioning.

CONCLUSION. Occupational therapy practitioners should integrate CR, SE/E, and FPE into early intervention with youth with or at risk for SMI. In addition, CBT is an effective modality for use with this population.

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The transition from adolescence to young adulthood (12–35 yr old) is a period of increased risk for onset of serious mental illness (SMI; McGorry, 2011). Early detection and rapid intervention may reduce the impact of mental illness and may even delay or prevent transition to SMI. Early intervention may also reduce the risk of death by suicide or a lifetime of disability characterized by unemployment, incomplete education, social isolation, and significant symptoms that interfere with daily living (Gonzalez et al., 2015; McGorry, 2011).

SMI, such as schizophrenia, bipolar disorder, and major depression, costs the U.S. government substantial amounts of money for Medicaid subsidies and other benefits (Gonzalez et al., 2015). Early intervention services (EIS), especially for people experiencing the early signs or first episode of psychosis, have been shown to be effective in reducing the impact of SMI through early detection, targeted interventions, and easy access to care (Bird et al., 2010; Gonzalez et al., 2015).

We were unable to find a systematic review that specifically focused on the role of occupational therapy in EIS for people with SMI or specifically on interventions to improve occupational performance in this population. This review aimed to identify the evidence related to specific interventions within the scope of occupational therapy practice for people in the early stages of onset of SMI. This review focuses on the question, What is the evidence for the effectiveness of early intervention to improve and maintain performance in occupations for people with serious mental illness? This research question was developed collaboratively by the review authors, an advisory group of experts in

the field, staff of the American Occupational Therapy Association (AOTA), and the methodology consultant to the AOTA Evidence-Based Practice (EBP) Project.

Method

We used the PRISMA methodology (Moher et al., 2009) in conducting this review. The search terms were developed not only to capture pertinent articles but also to make sure that the terms relevant to the specific thesaurus of each database were included. Table 1 lists the search terms included in this systematic review.

A medical research librarian with experience in completing systematic review searches conducted the search and confirmed and improved the search strategies. Databases and sites searched included MEDLINE, PsycINFO, CINAHL, and OTseeker. In addition, consolidated information sources, such as the Cochrane Database of Systematic Reviews, were included in the search; these databases are peer-reviewed summaries of journal articles and provide a system for clinicians and scientists to conduct systematic reviews of selected clinical questions and topics. Moreover, reference lists from articles included in related systematic reviews were examined for potential articles, and selected journals were hand searched to ensure that all appropriate articles were included.

Two of the authors (Roush and Downing) conducted the remainder of the review, beginning by independently reviewing citations and abstracts of the articles identified by the medical research librarian to determine whether to obtain the full-text article for further consideration. The two authors discussed discrepancies until they reached agreement. The same process was used to evaluate the full text of potential articles. They then recorded a summary of each article in an evidence table, rated each article for risk of bias, and determined themes presented by the articles. AOTA staff and the EBP Project consultant reviewed the evidence table to ensure quality control. Supplemental Table 1 (available online at <http://otjournal.net>; navigate to this article, and click on “Supplemental”) is the evidence table for the systematic review.

Inclusion criteria specific to this review were as follows: participants age 12–35 at entry; ≤2 yr of active symptoms

at entry; diagnosis of psychosis, depression, or anxiety disorder; and focus on functional outcomes rather than symptoms. Personality disorder diagnoses were excluded. General inclusion criteria of the larger systematic review that included this question were as follows: peer-reviewed scientific literature published in English, intervention approaches within the scope of practice of occupational therapy for the target diagnoses, and publication between 1995 and 2016. The review excluded data from presentations, conference proceedings, non-peer-reviewed research literature, dissertations, and theses.

Studies included in the review provide Level I, II, and III evidence. Ratings of the strength of the evidence are based on the guidelines of the U.S. Preventive Services Task Force (2017), defined as follows:

- *Strong evidence* includes consistent results from well-conducted studies, usually at least 2 randomized controlled trials (RCTs).
- *Moderate evidence* indicates 1 RCT or 2 or more studies with lower levels of evidence. Some inconsistency of findings across individual well-conducted studies could preclude a classification of strong evidence and result instead in a designation of moderate evidence.
- *Mixed evidence* indicates that the findings were inconsistent across studies in a given category.
- *Insufficient evidence* indicates that the number and quality of studies are too limited to make any clear classification (AOTA, 2016, p. 4).

Results

Of the 25,775 citations and articles found by the research librarian, 512 were reviewed by the authors for relevance to this study question. An additional 158 articles were identified by hand search. A total of 234 full-text articles were assessed, and 30 met the inclusion criteria (see Figure 1): 22 articles provided Level I evidence, 6 provided Level II evidence, and 2 provided Level III evidence. Critical appraisal of the evidence revealed four primary categories of intervention: cognitive remediation (CR), cognitive-behavioral therapy (CBT), supported education and supported employment (SE/E), and family psychoeducation (FPE).

Risk of Bias

The risk of bias in the 28 individual studies was assessed using the methods described by Higgins and colleagues (2011). Fifteen studies were identified as using random assignment and had blinding of patient-reported outcomes, 10 studies included allocation concealment, only

Table 1. Key Search Terms for the Systematic Review of Early Intervention in Mental Health for Adolescents and Young Adults

Category	Key Search Terms
Early intervention	early intervention, early identification, family education, family support, first episode psychosis, peer group, prevention, self-regulation, early psychosis

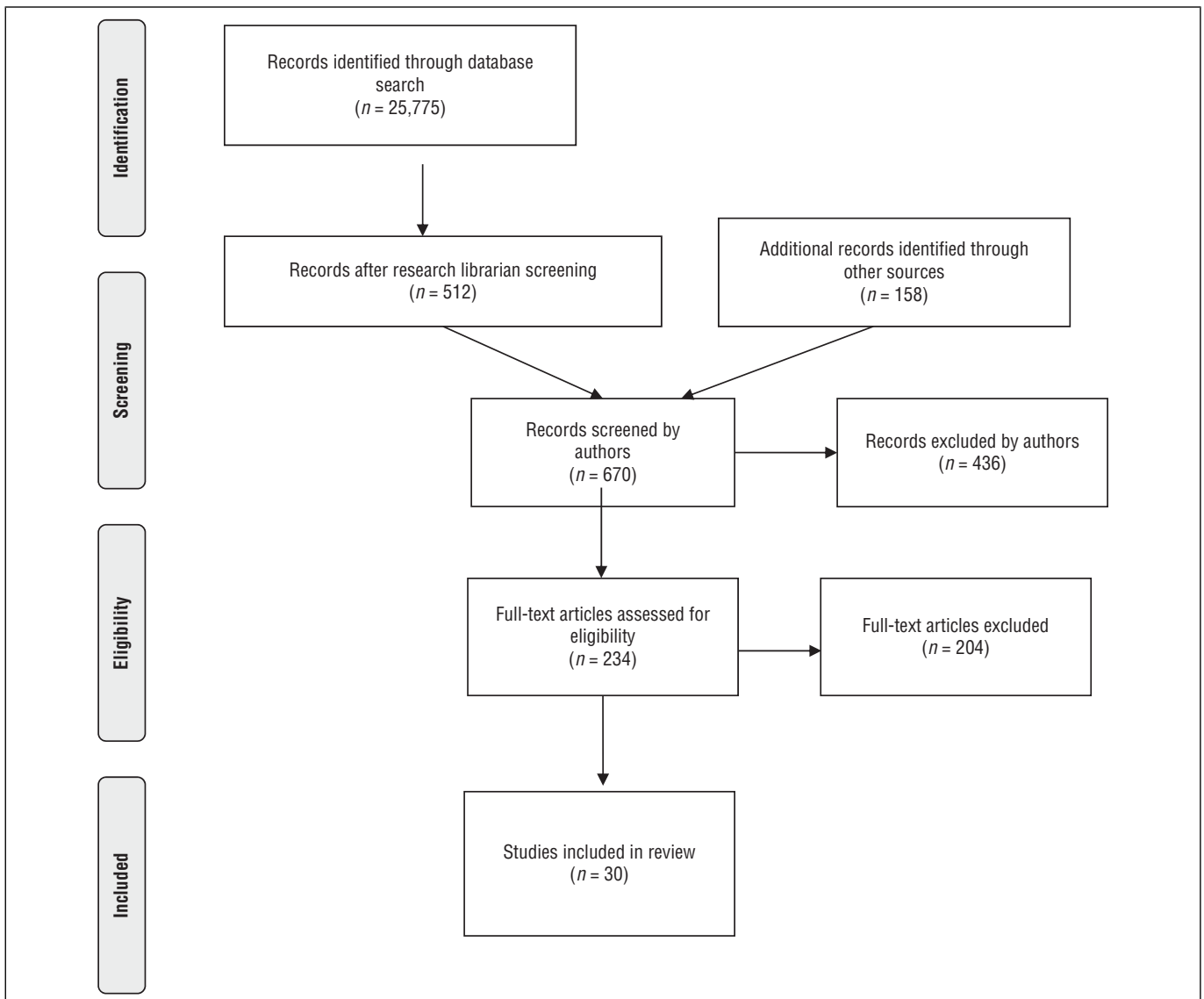


Figure 1. Flow diagram for studies included in the systematic review.

Figure format from “Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement,” by D. Moher, A. Liberati, J. Tetzlaff, and D. G. Altman; PRISMA Group, 2009, *PLoS Medicine*, 6(6), e1000097. <https://doi.org/10.1371/journal.pmed.1000097>

1 study had blinding of participants and personnel, 14 studies had high or unclear risk of attrition bias, and 26 studies had low risk of reporting bias. The method for assessing the risk of bias in the 2 systematic reviews included was based on the measurement tool developed by Shea et al. (2007); 1 review had good rigor and the other had higher risk of potential bias in 6 of the 11 areas assessed. Supplemental Tables 2 and 3 (available online) provide the risk-of-bias assessment for all studies included in this review.

Cognitive Remediation

Six Level I RCTs and 1 Level II pre–post study provide moderate evidence for using CR in early intervention for psychosis to improve cognition, self-esteem, and social and occupational functioning. All 6 RCTs reported im-

provements in specific targeted cognitive areas and social and occupational functioning using computer-based cognitive training activities (Holzer et al., 2014; Lee et al., 2013; Loewy et al., 2016; Mendella et al., 2015; Østergaard Christensen et al., 2014) or paper-and-pencil activities (Puig et al., 2014). Østergaard Christensen et al. (2014) found that CR significantly improved participants’ verbal learning immediately after CR and at 12 mo and working memory at 12 mo. Improvements in verbal learning and working memory are supportive of occupational functioning.

The Level II study demonstrated improvements in participants’ cognition and overall functioning using computerized cognitive training software for those with clinical high risk for psychosis (CHR; Rauchensteiner et al., 2011). However, Puig et al. (2014) found that

functional gains were not maintained at 3 mo, resulting in mixed evidence for duration of effect.

Cognitive–Behavioral Therapy

Nine Level I studies, 8 RCTs and 1 systematic review, addressed CBT's effectiveness in treating cognitive dysfunction and symptoms to improve overall functioning. The studies focused on youth with CHR, first-episode psychosis (FEP), or depression.

Participants With CHR or FEP. Moderate evidence for the effectiveness of CBT in improving functioning was found in 6 studies. Hutton and Taylor's (2014) meta-analysis of 6 RCTs comparing CBT for nonmedicated youth with CHR with treatment as usual found strong evidence that CBT lowered the risk of conversion to psychosis up to 24 mo and reduced symptoms at 1-yr follow-up. Conversion to psychosis leads to decreased occupational functioning (Bird et al., 2010; Gonzalez et al., 2015). Gleeson et al. (2013) found substantially lower relapse rates and significant delay in time to relapse for a CBT intervention group compared with a control group, but these results were not sustained at 12-mo follow-up. As with conversion to psychosis, relapse leads to decreases in occupational functioning.

Jackson et al. (2008) found significantly more functional improvement in a CBT intervention group at the midway point compared with a control group, but neither group maintained improvements over time. Yung et al. (2011) studied the effects of CBT with or without medication (two intervention cohorts) with supportive therapy and control groups receiving only follow-up assessment. The CBT without medication, supportive therapy, and control groups all had significant gains in functioning, whereas the CBT plus medication group did not. Three studies (Addington et al., 2011; Bechdolf et al., 2007; Jackson et al., 2008) found no significant differences between CBT and control groups.

Depression. Three studies evaluating CBT's effectiveness for youth with depression demonstrated mixed results, especially for sustained improvements. Brent et al. (2015) tested a time-limited cognitive restructuring intervention with 6-mo booster sessions for youth with subsyndromal depressive symptoms. Functional outcomes were reported only at the 6-yr mark and showed no differences between groups. Clarke et al. (2001) demonstrated positive outcomes in functioning for an intervention group receiving group prevention education and treatment sessions for parents. At 2-yr follow-up, treatment effects had not been sustained. Stice and colleagues (2008) tested three different interventions against a control group and found that CBT significantly re-

duced depressive symptoms compared with the other two intervention groups and the control group. Depressive symptoms have a negative impact on occupational functioning.

Supported Employment and Supported Education

Moderate evidence was found in 6 studies examining SE/E for adolescents and young adults with CHR or FEP. Three Level I studies (2 RCTs, 1 systematic review) examined the effectiveness of Individual Placement and Support (IPS) for youth with FEP. Both RCTs demonstrated strong evidence that when IPS was offered in addition to treatment as usual, participants had significantly better competitive employment and education outcomes than control participants (Baksheev et al., 2012; Killackey et al., 2008). The systematic review examined 28 studies with or without vocational assistance in early intervention programs and found strong evidence that supported employment services increased employment rates (Bond et al., 2015). However, extreme variability of measures used in the studies without vocational assistance made it difficult to draw conclusions on employment and educational outcomes.

Moderate evidence was demonstrated in 2 Level II studies examining vocational assistance. Dudley et al. (2014) used a naturalistic comparison design of two matched groups and found that when IPS was offered by a vocational specialist in an early intervention program, employment for participants increased during the assistance phase but declined during the 6-mo follow-up phase. In a naturalistic cohort study, comprehensive vocational assistance services led by occupational therapists resulted in significant improvements in vocational status outcomes compared with a control condition (Major et al., 2010). One Level III pre–post design study using IPS plus education in an early intervention program demonstrated insufficient evidence that vocational assistance was beneficial. Employment rates improved during the first 6 mo of a 2-yr period of support but were not sustained through the remaining 18 mo, and attrition was high (Rinaldi et al., 2010).

Family Psychoeducation

Seven studies addressing FPE provide moderate evidence for the effectiveness of these interventions in reducing symptoms and improving functioning. Three Level II studies and 1 Level III study provide moderate evidence supporting improved functioning and reduced symptoms after intervention compared with control groups. Granö et al. (2016) matched two groups and found that FPE was effective in improving functioning compared with treatment as usual (20% vs. 6%). In a multisite study by

Harder et al. (2014), standard treatment plus a manualized FPE program over 3 yr versus standard treatment only resulted in significant improvement in social functioning in the intervention group. However, results were not sustained at 5-yr follow-up. A risk-based allocation study demonstrated that structured FPE in a group format, along with other program interventions, was effective in improving functioning (McFarlane et al., 2015). A Level III study found that family-oriented meetings held in natural surroundings of youth with CHR were effective in increasing overall functioning in school and work and quality of life (Granö et al., 2009).

Four Level I studies examining FPE for youth with CHR or FEP provide strong evidence that FPE improves functioning. Calvo et al. (2014) found that group FPE for youth with FEP and their families reduced relapse rates, improved negative symptoms, and renewed interest in recreation at 6-mo follow-up compared with a control condition. Both intervention and control groups showed improved functioning. At 2-yr follow-up of the same groups, effects of the intervention were sustained, and the FPE group had fewer emergency room visits than the control group (13% vs. 50%; Calvo et al., 2015).

In an RCT examining the effects of a 6-mo FPE program on communication and problem solving for youth with CHR or FEP, Miklowitz et al. (2014) found that the intervention group showed improvements in social and role functioning. Finally, O'Brien et al. (2014) studied FPE and its effects on family communication and problem-solving skills. The FPE group received structured, individual family sessions for 6 mo, and the control group received early intervention without FPE. Results indicated improved family communication during family problem-solving interactions, leading to improved occupational functioning, compared with the control group.

Discussion

The results of this review provide occupational therapy practitioners with emerging evidence to guide practice in early intervention for adolescents and young adults with SMI. Four interventions were identified—(1) CR, (2) CBT, (3) SE/E, and (4) FPE—that address improvement and maintenance of occupational performance in adolescents and young adults at high risk for schizophrenia or after a first episode of psychosis.

It is well documented that cognitive changes occur in the early stages of psychosis and in other SMIs such as depression (B. Y. H. Lam et al., 2014; R. W. Lam et al.,

2014). This review found moderate evidence for the use of CR interventions to improve cognition and general functioning across occupations in the early stages of mental illness. CBT has a growing body of evidence supporting its effectiveness for youth with depression, CHR, or FEP in preventing the progression of SMI, reducing symptoms, and promoting occupational functioning.

It is also well documented that people with SMI have low employment rates and earn less than their peers without mental illness. The more serious their mental illness, the less likely they are to work, which decreases their opportunities for developing social relationships and building occupational skills (Luciano & Meara, 2014). Recent research has demonstrated strong evidence that vocational support during the CHR and FEP phases of a psychotic illness can promote positive social and occupational outcomes in competitive employment and academics (Baksheev et al., 2012; Bond et al., 2015; Killackey et al., 2008).

Occupational therapy practitioners have the necessary skills and training to provide vocational support to youth with CHR and FEP, particularly when following the evidence-based IPS model (Major et al., 2010; Porteous & Waghorn, 2007). This review found moderate evidence for the effectiveness of supported employment in improving the employment rates of those with CHR and FEP. The evidence for engagement in supported education was mixed.

FPE in various formats has been extensively researched for decades with a variety of diagnostic populations, but most often with people with schizophrenia and other psychotic disorders. Strong evidence indicates that FPE is effective in preventing relapse and rehospitalization and improves problem-solving skills and functional outcomes for people with serious, persistent mental illness (Lucksted et al., 2012). Strong evidence also exists that FPE for youth with CHR and FEP and their families can have positive results, such as symptom reduction, relapse prevention, and improved social and occupational functioning.

Implications for Occupational Therapy Practice and Research

Occupational therapy practitioners, with their roots in mental health and human development, can uniquely add to early intervention teams with their strong focus on function through occupational engagement (AOTA, 2014). This systematic review has the following implications for occupational therapy practice and research:

- CR strategies should be implemented in occupational therapy practice to enhance cognition, overall functioning, and socialization for adolescents and young adults at risk for developing depression or psychosis, as well as those in the early stages of SMI. Research indicates that these strategies promote quicker recovery, prevent progression of the illness and further cognitive decline, and help clients maintain engagement in work, school, and social relationships.
- At this time, it is unclear whether the positive effects of CBT are sustained over time, indicating the need for further research in this area and the potential need for booster sessions. Because CBT targets a person's thoughts, using it as an adjunct to engagement in meaningful occupations could promote quicker recovery and prevent progression of the illness while helping clients maintain engagement in work, school, daily living activities, and social relationships. Therefore, CBT should be considered in occupational therapy practice as an adjunct modality, and further research on the long-term impact of CBT is needed.
- Occupational therapy practitioners are well suited to facilitate FPE because of their unique training in promoting social and occupational functioning and engagement in meaningful activities (AOTA, 2014). Practitioners should seek out opportunities to cofacilitate FPE groups, which requires many skills they possess.
- Occupational therapy practitioners should use vocational interventions, such as IPS, in their practice when working with adolescents and young adults in the early stages of SMI.
- With the growing focus on the effectiveness of EIS for adolescents and young adults at risk for developing SMI, occupational therapy practitioners should conduct research that adds to the growing body of evidence and specifically targets the effectiveness of occupational therapy interventions.

Limitations

Systematic reviews are limited by the quality of the individual studies reviewed. The studies in this review had limitations in randomization, allocation concealment, and blinding of participants and researchers and risk of attrition bias. Many studies had multiple interventions, so identifying the direct effect of one particular intervention was often difficult. Although functional status was referenced in all of the included studies, the methods of measuring functional status varied greatly, making it difficult to generalize results. Lastly, the vast majority of

the studies were not conducted by occupational therapy practitioners, and the specific role of occupational therapy in providing the interventions was not the focus of the studies.

Conclusion

Research demonstrates that specific interventions with clients in the earliest stages of SMI can offset cognitive impairments and improve functioning and social relationships. Occupational therapy practitioners have the specialized training and skills necessary to provide occupation-based individual and group interventions. Evidence-based practices, such as CR, CBT, FPE, and SE/E, are approaches occupational therapy practitioners should consider to make vital contributions to early intervention teams. However, more occupational therapy-focused research is needed to conclusively demonstrate the role of occupational therapy in early intervention for clients with SMI. ▲

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Supplemental Table 1. Evidence Table for the Systematic Review on Early Intervention in Mental Health for Adolescents and Young Adults

Author/Year	Level of Evidence/Study Design/ Participants/Inclusion Criteria	Intervention and Control	Outcome Measures	Results
Holzer et al. (2014) https://doi.org/10.1017/S1352465813000313	Level I RCT <i>N</i> = 28 (age range = 13–18, gender not reported). Intervention group, <i>n</i> = 15 (11 FEP, 4 CHR; <i>M</i> age = 15.4). Control group, <i>n</i> = 13 (8 FEP, 5 CHR; <i>M</i> age = 15.7). <i>Inclusion criteria:</i> FEP or CHR	Cognitive Remediation <i>Intervention</i> 8-wk specialized CAGR program consisting of 8 modules designed to develop and remediate cognitive abilities, motor skills, self-control, and self-esteem with consistent staff support offered; 16 45-min individual sessions <i>Control</i> Commercial nonviolent action computer games; 2 half-hour sessions over 8 wk	<ul style="list-style-type: none"> • DSM-IV • SIPS • RBANS • PANSS • SOFAS • Health of Our Nation Outcome Scale for Children and Adolescents 	The intervention group showed significant improvement in visuospatial abilities compared with the control group. Both groups showed improvements in attention, memory, general psychopathology, and social and occupational functioning. Interpretation of results is limited by the small sample size.
Lee et al. (2013) https://doi.org/10.1017/S0033291712002127	Level I RCT <i>N</i> = 55 (<i>M</i> age = 22.8). Intervention group, <i>n</i> = 28 (42.9% men). Control group, <i>n</i> = 27 (59.3% men). <i>Inclusion criteria:</i> Lifetime history of a single episode of major depressive disorder or psychotic disorder; clinically stable; fluent in English; no current substance dependence, developmental disorder, neurological condition, history of traumatic brain injury, current use of 1st-generation antipsychotic medication, or IQ <80	<i>Intervention</i> CR consisting of psychoeducation regarding cognitive deficits and relevant compensatory strategies, therapist-led drill-and-practice group activities, and computer-assisted cognitive training <i>Control</i> TAU	<ul style="list-style-type: none"> • WTAR • HDRS-17 • BPRS-E • Trails A • Category Fluency • Longest Digit-Span Forward • Longest Digit-Span Backward • Cambridge Neuropsychological Test Automated Battery • Rapid Visual Processing Hits • Logical Memory I • RAVLT Total • Logical Memory II Percentage Retention • RALVT Retention • Rey-Osterrieth Complex Figure 3-Minute Recall • Trails B • Intra-Extra Dimensional Set Shift Errors • Letter Fluency Test • SFS 	The intervention group improved significantly compared with the control group in immediate learning, memory, and psychosocial functioning.
Loewy et al. (2016) https://doi.org/10.1093/schbul/sbw009	Level I RCT <i>N</i> = 83. Intervention group, <i>n</i> = 50 (<i>M</i> age = 17.8, 52% men). Control group, <i>n</i> = 33 (<i>M</i> age = 18.7, 49% men).	<i>Intervention</i> Targeted auditory training program consisting of computerized exercises designed to improve speed and accuracy of auditory information processing while engaging auditory and verbal working memory; 1 hr/day, 5 days/wk over 8 wk <i>Control</i> Computer games	<ul style="list-style-type: none"> • SOPS • GF-R • GF-S • MATRICS 	The intervention group showed significant improvement in verbal memory performance compared with the control group. Small nonsignificant positive effect sizes were reported in global cognition and problem solving.

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Supplemental Table 1. Evidence Table for the Systematic Review on Early Intervention in Mental Health for Adolescents and Young Adults (cont.)

Author/Year	Level of Evidence/Study Design/ Participants/Inclusion Criteria	Intervention and Control	Outcome Measures	Results
	<p><i>Inclusion criteria:</i> 1 of 3 syndromes on the SIPS—attenuated positive symptom syndrome, brief intermittent psychosis prodromal syndrome, or genetic risk and deterioration prodromal syndrome; good general physical health; aged 12–30; fluent and proficient in English; IQ ≥ 70; no neurological disorder; no substance dependence in past year or current use that would interfere with training</p>			
Mendela et al. (2015) https://doi.org/10.1016/j.schres.2015.01.016	Level I RCT pilot $N = 27$ (M age = 25, 74.1% men). Intervention group, $n = 16$. Control group, $n = 11$.	<p><i>Intervention</i> Compensatory cognitive training</p> <p><i>Control</i> TAU</p>	<ul style="list-style-type: none"> • MCCB • WTAR • UPSA-B • PANSS • Calgary Depression Scale for Schizophrenia 	<p>The intervention group experienced improvements in global cognition and social cognition.</p> <p>No significant effects were found for functional capacity or symptoms.</p>
Østergaard Christensen et al. (2014) https://doi.org/10.1111/acps.12287	Level I RCT $N = 117$ (M age = 25). Intervention group, $n = 60$ (58.3% men). Control group, $n = 57$ (49.1% men).	<p><i>Intervention</i> EI service + 16-wk CR program (NEUROCOM) consisting of computerized exercises and engagement in practical, everyday tasks based in errorless learning and scaffolding principles</p> <p><i>Control</i> EI service</p>	<ul style="list-style-type: none"> • UPSA-B • MCCB • Trails B • Hopkins Verbal Learning Test–Revised • PANSS • RSES 	<p>No significant effect of CR on functional capacity was found (UPSA-B).</p> <p>The intervention group showed significant improvements with medium effect sizes in verbal learning at postintervention and 12-month follow-up and in working memory at 12-mo follow-up.</p>
Puig et al. (2014) https://doi.org/10.1016/j.jaac.2014.05.012	Level I RCT (single blind, parallel group) $N = 50$ (M age = 17, 52% men). Intervention group, $n = 25$. Control group, $n = 25$. <i>Inclusion criteria:</i> Aged 12–18, DSM–IV–TR schizophrenia or schizoaffective disorder, onset at age 17 or earlier	<p><i>Intervention</i> 20 wk of CR therapy (paper-and-pencil task using errorless learning) + TAU</p> <p><i>Control</i> TAU</p>	<ul style="list-style-type: none"> • Subtests of Wechsler Memory Scales, 3rd ed. • Subtests of RAVLT • Subtests of Wechsler Intelligence Scale for Children, 4th ed. • Subtests of Wechsler Adult Intelligence Scale, 3rd ed. • Trails A • Subtests of Controlled Oral Word Association Tests • Trails B 	<p>CR therapy had a greater beneficial effect on verbal memory, working memory, and executive functions at the end of intervention.</p> <p>The intervention group made greater improvements in daily living skills and global functioning at the end of intervention, but functional gains were not maintained 3 mo after intervention ended.</p> <p>Parent burden decreased in the CR group.</p>

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Supplemental Table 1. Evidence Table for the Systematic Review on Early Intervention in Mental Health for Adolescents and Young Adults (cont.)

Author/Year	Level of Evidence/Study Design/ Participants/Inclusion Criteria	Intervention and Control	Outcome Measures	Results
Rauchensteiner et al. (2011) https://doi.org/10.1016/j.psychres.2009.09.003	Level II Pre-post $N = 26$. Intervention group, $n = 10$ (M age = 27, gender not reported). Control group, $n = 16$ (M age = 30, gender not reported). <i>Inclusion criteria:</i> ≥ 2 basic symptoms from the cognitive disturbances category in the prediction list of the Revised BSABS for ≥ 1 yr with score of 3 within past 3 mo, or ≥ 1 attenuated positive symptoms on the SOPS, or brief limited intermittent psychotic symptoms with PANSS score of ≥ 4 with duration < 1 wk within past 3 mo	<i>Intervention</i> COGPACK Version 6.06, a computerized cognitive training program for participants at risk for schizophrenia; 10 sessions over 4 wk <i>Control</i> Same intervention for participants diagnosed with schizophrenia	<ul style="list-style-type: none"> • PANSS • CDS • Life Skills Profile • Vineland Adaptive Behavior Scales • C-GAS • RSES • Caregiver Burden Inventory 	No significant differences were found in C-GAS scores or self-esteem. The intervention group increased performance on the VLMT after distraction and 20 min and no. of correct hits on the Shapes subtest of the CPT-IP, whereas the control group did not. Findings indicate that people at risk for schizophrenia can improve long-term memory functions, attention, and concentration after cognitive training with COGPACK.
Addington et al. (2011) https://doi.org/10.1016/j.schres.2010.10.015	Level I Single-blind RCT $N = 51$ (M age = 21 [range = 14–30], 70.6% men). Intervention group, $n = 27$. Control group, $n = 24$. <i>Inclusion criteria:</i> Youth with CHR meeting criteria for prodromal states using the SIPS	<i>Intervention</i> Manualized problem-focused time-limited CBT, ≤ 20 sessions within 6 mo <i>Control</i> Supportive therapy	<ul style="list-style-type: none"> • SIPS • SCID • SAS • CDS • Social Interaction Anxiety Scale • SFS 	No significant differences between groups were found after treatment, suggesting that there may be no difference between treatments, that the sample size was too low for an effect, or that too much time was spent on engagement with participants in the intervention group. Implementers may not have followed the CBT model well, providing more emphasis on engagement and less on core CBT strategies. The intervention group had no conversions to psychosis and had a faster reduction in

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Supplemental Table 1. Evidence Table for the Systematic Review on Early Intervention in Mental Health for Adolescents and Young Adults (cont.)

Author/Year	Level of Evidence/Study Design/ Participants/Inclusion Criteria	Intervention and Control	Outcome Measures	Results
Bechdolf et al. (2007) https://doi.org/10.1111/j.1751-7893.2007.00013.x	Level I RCT <i>N</i> = 113 (<i>M</i> age = 25 [range = 19–30.5]; gender not reported). <i>Inclusion criteria:</i> Help-seeking youth with CHR	<i>Intervention</i> Specially designed CBT offered in individual and group structured formats focused on thoughts, perceptions, illness symptoms, and problems with family and occupational functioning <i>Control</i> Standard care consisting of individual counseling focused on basic assessment, psychoeducation, and support in unstructured sessions with warm, genuine, empathic delivery	• SAS–II	positive symptoms compared with the control group. 67 study participants completed baseline and posttreatment SAS–II assessments. Both groups showed improvements in SAS–II scores, but no significant differences between groups were found at posttreatment.
Brent et al. (2015) https://doi.org/10.1001/jamapsychiatry.2015.1559	Level I RCT <i>N</i> = 316 initially, 278 at 75-mo follow-up (<i>M</i> age = 14.85, 40.6% men). Intervention group, <i>n</i> = 139 at 6 yr. Control group, <i>n</i> = 139 at 6 yr. <i>Inclusion criteria:</i> Aged 13–17, ≥1 parent with current or prior depressive episodes	<i>Intervention</i> Cognitive-behavioral prevention, a modified version of the Coping with Depression for Adolescents program emphasizing cognitive restructuring and problem solving, plus usual care; 8 weekly 90-min sessions followed by 6 monthly booster sessions <i>Control</i> Usual care alone	• C–GAS • SQ	SQ assessed only at 75 mo favored intervention participants whose parent was not depressed at time of intervention. No benefit was found for those whose parent was depressed at intervention time. No group difference in mean C–GAS scores was found at 75 mo.
Clarke et al. (2001) https://doi.org/10.1001/archpsyc.58.12.1127	Level I RCT <i>N</i> = 94 (age range = 13–18). Intervention group, <i>n</i> = 45 (<i>M</i> age = 14.4, 46.7% men). Control group, <i>n</i> = 49 (<i>M</i> age = 14.7, 34.7% men). <i>Inclusion criteria:</i> Subsyndromal symptoms of depression (not diagnosable), parent in treatment for major depression or dysthymia or received treatment within past 12 mo and still taking medication	<i>Intervention</i> Cognitive therapy prevention program, 15 small-group 1-hr sessions plus standard care in an HMO, plus 3 parent education sessions to inform parents about topics discussed and skills taught to the youth <i>Control</i> Standard care in an HMO	• Achenbach Child Behavior Checklist • K–SADS • CES–D • HDRS • GAF	The intervention group demonstrated fewer reported depressed days, reduced depressive symptoms, and reduced suicidal ideation at 12 mo. Clinically significant preventive effects of treatment were found in regard to functioning (GAF), but at 2 yr, preventive effects of treatment seemed to fade, suggesting that periodic booster sessions may extend preventive effects.

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Supplemental Table 1. Evidence Table for the Systematic Review on Early Intervention in Mental Health for Adolescents and Young Adults (cont.)

Author/Year	Level of Evidence/Study Design/ Participants/Inclusion Criteria	Intervention and Control	Outcome Measures	Results
Gleeson et al. (2013) https://doi.org/10.1093/schbul/sbr165	Level I RCT <i>N</i> = 81 (age range = 15–25, 63.0% men). Intervention group, <i>n</i> = 41 (65.9% men). Control group, <i>n</i> = 40 (60.0% men). <i>Inclusion criteria:</i> FEP diagnosis, <6 mo on antipsychotic medication, mild or remitted positive symptoms	<i>Intervention</i> Individual and family cognitive-behavioral RPT plus TAU with psychoeducational components about relapse risk offered over 7 mo <i>Control</i> Specialized EI services for FEP including case management and medication monitoring with a psychiatrist	<ul style="list-style-type: none"> • SCID • Montgomery Asberg Depression Rating Scale • SANS • BPRS • Scale for the Unawareness of Mental Disorder • Medication Adherence Rating Scale • WTAR • Premorbid Adjustment Scale • SOFAS • QLS: Australian version 	At 12 mo, relapse rates in the RPT group were significantly lower than in the EI group, and time to relapse was significantly delayed. However, these differences were not sustained at 18, 24, and 30 mo, indicating the need for further research about longer treatment interventions. In fact, SOFAS scores in the control group continued to improve up to 30 mo, but in the intervention group, SOFAS scores improved until 24 mo, then declined to baseline level by 30 mo.
Hutton & Taylor (2014) https://doi.org/10.1017/S0033291713000354	Level I Systematic review and meta-analysis <i>N</i> = 6 RCTs. <i>N</i> = 800 participants. <i>Inclusion criteria:</i> RCTs with low risk of bias of CBT-informed care for nonmedicated youth with CHR	<i>Intervention</i> Time-limited, manualized CBT designed to prevent psychosis in nonmedicated individuals with CHR <i>Control</i> TAU or nonspecific supportive therapy	<ul style="list-style-type: none"> • GAF • SOFAS • SAS-II • QOL 	CBT interventions reduced risk of conversion to psychosis at 6, 12, 18, and 24 mo and reduced symptoms at 1 yr. These studies highlight the positive effects of 1 psychosocial intervention without medication.
Jackson et al. (2008) https://doi.org/10.1017/S00332917070020	Level I RCT <i>N</i> = 62 (age range = 15–25). Intervention group, <i>n</i> = 31 (<i>M</i> age = 22.1, 61.3% men). Control group, <i>n</i> = 31 (<i>M</i> age = 22.5, 83.9% men). <i>Inclusion criteria:</i> Youth with FEP	<i>Intervention</i> Time-limited, manualized CBT program called Active Cognitive Therapy for Early Psychosis <i>Control</i> Befriending, a manualized treatment offering opportunities for neutral conversation or activities with a primary therapist to maintain engagement	<ul style="list-style-type: none"> • SCID • BPRS: Psychotic subscale • SANS • SOFAS 	Improvements in functioning and symptom reduction were found in both groups, but the intervention group showed significantly higher midtreatment functioning. Over time, gains were lost in both groups. Neither group showed a reduction in positive or negative symptoms.
Stice et al. (2008) https://doi.org/10.1037/a0012645	Level I RCT <i>N</i> = 341 (<i>M</i> age = 15.6, 44% men). Intervention Group 1, <i>n</i> = 89.	<i>Intervention</i> Group 1: Group CBT Group 2: Supportive expressive therapy Group 3: Bibliotherapy	<ul style="list-style-type: none"> • 16 items adapted from the K-SADS • BDI • 17 items adapted from the Social Adjustment Scale–Self Report for Youth • Substance use • Eating Disorder Diagnostic Interview 	Intervention Group 1 had significant reductions in depressive symptoms compared with the control group at 6 wk and 6 mo. Intervention Group 1 had significant reductions in depressive symptoms compared with Intervention Groups 2 and 3 at 6 wk but

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Supplemental Table 1. Evidence Table for the Systematic Review on Early Intervention in Mental Health for Adolescents and Young Adults (cont.)

Author/Year	Level of Evidence/Study Design/ Participants/Inclusion Criteria	Intervention and Control	Outcome Measures	Results
	Intervention Group 2, <i>n</i> = 88. Intervention Group 3, <i>n</i> = 80. Control group, <i>n</i> = 84. <i>Inclusion criteria:</i> Students scored ≥ 20 on the CES-D scale and returned the consent form	<i>Control</i> Assessment only		not at 6 mo. Groups 2 and 3 had significantly stronger reductions in depressive symptoms compared with the control group. No significant differences in rates of major depression onset were found across the 3 intervention groups. CBT produced stronger effects (small to moderate) for social adjustment and substance use at 6 mo than all 3 other conditions.
Yung et al. (2011) https://doi.org/10.4088/JCP.08m049790ra	Level I RCT <i>N</i> = 115 (age and gender not reported). Intervention Group 1, <i>n</i> = 43. Intervention Group 2, <i>n</i> = 44. Control Group 1, <i>n</i> = 28. Control Group 2, <i>n</i> = 78. <i>Inclusion criteria:</i> Aged 14–30, area resident, attenuated psychotic symptoms within previous 12 mo or brief limited intermittent psychotic symptoms with previous 12 mo or schizotypal personality disorder or family history of psychotic disorder in 1st-degree relative plus persistent low functioning for ≥ 1 mo within previous 12 mo	<i>Intervention</i> <i>Group 1:</i> Cognitive therapy + risperidone <i>Group 2:</i> Cognitive therapy + placebo <i>Control</i> <i>Group 1:</i> Supportive therapy + placebo <i>Group 2:</i> Agreed to follow-up assessment but not randomization	• Comprehensive Assessment of At-Risk Mental States • BPRS • SANS • HDRS • GAF • QLS	No difference was found across groups in transition to psychotic disorder. All 4 groups improved significantly in BPRS total, BPRS Psychotic subscale, and HDRS scores. All groups except Intervention Group 1 significantly increased in functioning. Both control groups improved significantly in negative symptoms. Control Group 1 showed reduced affective flattening. Only Control Group 2 experienced significant increases in QLS scores.
Supported Employment and Supported Education				
Baksheev et al. (2012) https://doi.org/10.1037/h009457	Level I RCT <i>N</i> = 41 (<i>M</i> age = 21 [range = 15–24], 80.5% men). <i>Inclusion criteria:</i> Youth with early FEP	<i>Intervention</i> IPS + TAU to investigate demographic and clinical predictors of vocational recovery, defined as having gained competitive employment or entered a course of education <i>Control</i> TAU consisting of individual case management and medical review, referral to external vocational agencies, and involvement with the agency's group program	• BPRS • SANS • CESD-R • SCID • QLS • SOFAS	Demographic and clinical factors did not significantly predict vocational recovery in the final multivariate analysis. Vocational recovery was predicted solely by participant group; intervention participants were >16× more likely to secure a competitive employment position or participate in an educational activity during the follow-up period compared with control participants.

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Supplemental Table 1. Evidence Table for the Systematic Review on Early Intervention in Mental Health for Adolescents and Young Adults (cont.)

Author/Year	Level of Evidence/Study Design/ Participants/Inclusion Criteria	Intervention and Control	Outcome Measures	Results
Bond et al. (2015) https://doi.org/10.1017/S2045796014000419	Level I Systematic review <i>N</i> = 28 studies (12 EI studies without identified vocational component, <i>N</i> = 3,091 participants; 5 EI + nonstandardized vocational assistance, <i>N</i> = 396; 11 EI + supported employment, <i>N</i> = 1,370). <i>Inclusion criteria:</i> Longitudinal studies of EI programs with ≥10 participants reporting vocational or educational outcomes (defined broadly to include a range of indicators and scales); uncontrolled, quasi-experimental, or experimental study design	<i>Intervention</i> EI programs with supported employment services (e.g., IPS), unspecified vocational services, or no vocational services	<ul style="list-style-type: none"> • Competitive employment at baseline and follow-up (primary) • Any vocational outcomes (including occupational functioning scales) • Combined employment and educational outcomes in a single measure • Rates of enrollment in education 	Supported employment services increased employment rates of participants in EI programs but not engagement in educational activities. No conclusions could be drawn about the effectiveness of unspecified vocational services because of the heterogeneity and descriptive nature of the studies in this area. No conclusions could be drawn about the effect on employment or education outcomes of EI programs without vocational services because of extreme variability in measures of employment and education outcomes.
Dudley et al. (2014) https://doi.org/10.1111/eip.12043	Level II Naturalistic comparison of 2 matched groups <i>N</i> = 161 (age range = 14–35). Intervention group, <i>n</i> = 81 (<i>M</i> age = 24.2, 75% men). Control group, <i>n</i> = 80 (<i>M</i> age = 25.3, 72% men). <i>Inclusion criteria:</i> Distressing and/or disabling psychotic symptoms for ≥7 days	<i>Intervention</i> IPS opportunities guided by an EI team vocational specialist, with vocational participation assessments at 6 mo preintervention, 1 mo preintervention, and 12 mo postintervention <i>Control</i> EI services without a vocational specialist, with vocational participation assessments at same time points	<ul style="list-style-type: none"> • Employed or in studies 	Employment for the intervention group increased during the treatment phase but declined by 6 mo after termination of IPS services.
Killackey et al. (2008) https://doi.org/10.1192/bip.bp.107.043109	Level I RCT <i>N</i> = 41. Intervention group, <i>n</i> = 20 (<i>M</i> age = 21.29, 80.0% men). Control group, <i>n</i> = 21 (<i>M</i> age = 21.42, 81.0% men). <i>Inclusion criteria:</i> Individuals with FEP interested in competitive employment, with ≥6 mo remaining in treatment program	<i>Intervention</i> IPS + TAU for 6 mo <i>Control</i> TAU	<ul style="list-style-type: none"> • SCID • BPRS • SANS • QLS • CESD-R • SOFAS 	The intervention group had better employment outcomes; more IPS participants found and kept jobs (i.e., 13 vs. 2) and worked more hours per week. 4 participants in each group enrolled in educational studies during the trial.

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Supplemental Table 1. Evidence Table for the Systematic Review on Early Intervention in Mental Health for Adolescents and Young Adults (cont.)

Author/Year	Level of Evidence/Study Design/ Participants/Inclusion Criteria	Intervention and Control	Outcome Measures	Results
Major et al. (2010) https://doi.org/10.1007/s00127-009-0034-4	Level II Naturalistic prospective cohort <i>N</i> = 114 (<i>M</i> age = 24, 62% men). Intervention group, <i>n</i> = 44. Control group, <i>n</i> = 70. <i>Inclusion criteria:</i> FEP (psychotic symptoms persisting ≥1 wk or resulting in hospital admission or crisis team intervention); no antipsychotic medication at therapeutic dose for ≥6 wk, previous diagnosis of psychotic illness, prodromal status, or symptoms secondary to personality disorder, posttraumatic stress disorder, or drug use	<i>Intervention</i> Specialist occupational therapy–led vocational services consisting of comprehensive baseline assessment, individual support, liaison with workplaces and educational institutions, provision of groups (both vocation-oriented and less specific social groups), and specific skills training (e.g., interview techniques) <i>Control</i> No specialist vocational services	<ul style="list-style-type: none"> • Vocational status, defined as gaining or returning to competitive employment (competitively assessed work, paid at market rate) or an educational activity clearly leading to a nationally recognized vocational qualification or degree, entered into at any point in the follow-up period 	The intervention group had significantly improved vocational status compared with the control group.
Rinaldi et al. (2010) https://doi.org/10.3109/09638230903531100	Level III Pre–post <i>N</i> = 166 (baseline and 6 mo), <i>N</i> = 142 (12 mo), <i>N</i> = 106 (18 mo), <i>N</i> = 67 (24 mo) (<i>M</i> age = 22 [range = 17–32], 69% men). <i>Inclusion criteria:</i> El clients who received vocational intervention	<i>Intervention</i> IPS + education <i>Control</i> No control	Employment or educational status	Open employment outcomes improved over 2 yr, peaking at 12 mo, but attrition was high (166 began the study but only 67 were evaluated at 2 yr). Mainstream education or training improved in the 1st 6 mo but then declined through the remaining 18 mo.
Family Psychoeducation				
Calvo et al. (2014) https://doi.org/10.1016/j.jaac.2014.04.004	Level I RCT <i>N</i> = 55 (age range = 14–18). Intervention group, <i>n</i> = 27 (<i>M</i> age = 16.4, 59.3% men). Control group, <i>n</i> = 28 (<i>M</i> age = 16.5, 64.3% men). <i>Inclusion criteria:</i> Early FEP, ≥1 positive psychotic symptom (delusions or hallucinations) before age 18, <i>DSM-IV</i> diagnosis of major mental illness with psychosis	<i>Intervention</i> Psychoeducation in a structured, problem-solving group format offered by same 2 therapists to teens and parents separately plus written materials; 12 90-min sessions every 15 days <i>Control</i> Nonstructured supportive group format offered by same 2 therapists to teens and parents separately with no written materials; 12 90-min sessions every 15 days	<ul style="list-style-type: none"> • <i>DSM-IV</i> • PANSS, Spanish version • C-GAS • Family Environment Scale • Specially designed questionnaire to record no. of hospital admissions, total no. of psychiatric hospitalizations, no. of ER visits 	Psychoeducation reduced relapse rates, reduced negative symptoms, and promoted reduced medication dosage during intervention. Psychoeducation promoted more youth interest in recreation. Both groups showed improved positive symptoms and functioning.

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Supplemental Table 1. Evidence Table for the Systematic Review on Early Intervention in Mental Health for Adolescents and Young Adults (cont.)

Author/Year	Level of Evidence/Study Design/ Participants/Inclusion Criteria	Intervention and Control	Outcome Measures	Results
Calvo et al. (2015) https://doi.org/10.1016/j.jaac.2015.09.018	Level I RCT 2-yr follow-up Initial $N = 55$ (age range = 14–18). Intervention group, $n = 27$ (M age = 16.4, 59.3% men). Control group, $n = 28$ (M age = 16.5, 64.3% men). <i>Inclusion criteria:</i> Early FEP	Follow-up review of 89% of Calvo et al. (2014) participants to understand sustained effects in intervention and control groups	<ul style="list-style-type: none"> • Schedule for Affective Disorders and Schizophrenia for School-Age Children • Analysis of hospital admissions and visits statistics 	<p>2-yr postintervention effects were sustained for the psychoeducation intervention group, who had fewer ER visits than the control group (13% vs. 50%), suggesting that psychoeducation helped families develop tools for dealing with crises.</p> <p>2-yr PANSS total scores improved significantly for both groups, but PANSS General Symptom scores improved significantly only in the intervention group.</p>
Granó et al. (2009) https://doi.org/10.1111/j.1751-7893.2009.00114.x	Level III Single-group pre–post $N = 28$ (M age = 14.5 [range = 12–18], 35.7% men). <i>Inclusion criteria:</i> CHR with no previous psychotic episodes	<i>Intervention</i> Family-oriented meetings focused on reducing stress in all life areas, held in youths' natural surroundings (home, school) for as long as necessary for youths to feel secure while supporting functioning; participants in meetings included clients, family members, and professionals from the community and treatment team	<ul style="list-style-type: none"> • Screen for Prodromal Symptoms of Psychosis • BSABS • GAF • QLS 	Overall functioning and QOL improved with the intervention, which promoted engagement with school and work. By follow-up, prepsychotic, depression, and anxiety symptoms had improved at the group level.
Granó et al. (2016) https://doi.org/10.1016/j.psychres.2016.01.037	Level II 2-group comparison study $N = 56$ (age range = 12–22). Intervention group, $n = 28$ (M age = 15.5, 32.1% men). Control group, $n = 28$ (M age = 16.3, 32.1% men). <i>Inclusion criteria:</i> Youth with CHR	<i>Intervention</i> Supportive sessions as needed in natural community surroundings with a focus on reducing stress through strengthening family communication and support, based on the Family- and Community-Oriented Integrative Treatment Model, which incorporates elements of family therapy, treatment for emerging psychosis, open dialogue, and CBT; sessions included the youth with CHR, family members, and primary health care workers	<ul style="list-style-type: none"> • Global Assessment of Functioning–Modified • Beck Anxiety Inventory • BDI–II • Beck Hopelessness Scale • SIPS 	<p>No clinical group differences were found at baseline, but intervention participants were younger.</p> <p>Intervention participants experienced greater improvements in function (20% vs. 6%), depression, and hopelessness compared with the control group.</p>
Harder et al. (2014) https://doi.org/10.1521/psyc.2014.77.2.155	Level II Multisite comparison $N = 269$ (age range = 16–35, 67.3% men). Intervention group, $n = 119$. Control group, $n = 150$.	<i>Intervention</i> Manualized supportive psychodynamic psychotherapy, which uses the developmental psychopathology approach to help clients understand pathways to illness and the impact on social functioning and developmental processes, plus standard treatment, offered for 3 yr and followed up to 5 yr	<ul style="list-style-type: none"> • Operational Criteria Checklist for Psychotic Illness • GAF • Strauss Carpenter Scale • PANSS 	The intervention group showed significant improvements in social functioning, lower positive symptoms, and fewer overall symptoms compared with the control group, but effects were not sustained at 5-yr follow-up.

(Continued)

Supplemental Table 1. Evidence Table for the Systematic Review on Early Intervention in Mental Health for Adolescents and Young Adults (cont.)

Author/Year	Level of Evidence/Study Design/ Participants/Inclusion Criteria	Intervention and Control	Outcome Measures	Results
	<i>Inclusion criteria:</i> Youth on the schizophrenia spectrum with FEP	<i>Control</i> Standard treatment consisting of as-needed contact with physicians and staff nurses, short psychoeducational programs, group meetings, medical care, and referrals to outside available resources		
McFarlane et al. (2015) http://doi.org/10.1093/schbul/sbu1108	Level II Risk-based allocation (regression discontinuity) <i>N</i> = 337 (<i>M</i> age = 16.6; gender not reported). Intervention group, <i>n</i> = 250. Control group, <i>n</i> = 87.	<i>Intervention</i> Family-aided Assertive Community Treatment <i>Control</i> Community care	<ul style="list-style-type: none"> • SIPS • GAF • GF-R • GF-S • QLS • SCID 	The intervention group had significantly reduced positive, negative, disorganized, and general symptoms; increased GAF scores; and superior overall improvement compared with the control group.
Miklowitz et al. (2014) https://doi.org/10.1016/j.jaac.2014.04.020	Level I RCT <i>N</i> = 129 participants (<i>M</i> age = 17.4, 57.4% men) and their families. Intervention group, <i>n</i> = 66. Control group, <i>n</i> = 63. <i>Inclusion criteria:</i> Aged 12–35; attenuated positive symptoms, brief intermittent psychosis, or genetic risk and deterioration; met criteria for 1 of 3 prodromal syndromes assessed by SIPS and SOPS	<i>Intervention</i> Family-focused therapy consisting of psychoeducation and training in communication and problem solving <i>Control</i> Enhanced care	<ul style="list-style-type: none"> • SIPS/SOPS • GAF • GF-Role • GF-Social 	The intervention group had greater improvement in attenuated positive symptoms over 6 mo compared with the control group. Both groups showed significant improvements in negative symptoms over 6 mo. Both groups improved in social and role functioning. Intervention participants aged >20 and control participants aged 16–19 had greater functional improvement.
O'Brien et al. (2014) https://doi.org/10.1037/a0034667	Level I RCT	<i>Intervention</i> Family-focused therapy consisting of psychoeducation and training in communication and problem solving	10-min family problem solving interaction (coded by trained raters)	Youth and family members or significant others who participated in the intervention demonstrated improved constructive communication

(Continued)

Supplemental Table 1. Evidence Table for the Systematic Review on Early Intervention in Mental Health for Adolescents and Young Adults (cont.)

Author/Year	Level of Evidence/Study Design/ Participants/Inclusion Criteria	Intervention and Control	Outcome Measures	Results
	<p><i>N</i> = 129 (66 youth [<i>M</i> age = 16.9] and 63 family members; gender not reported).</p> <p>Intervention group, <i>n</i> = 66.</p> <p>Control group, <i>n</i> = 63.</p> <p><i>Inclusion criteria:</i> Aged 12–35; attenuated positive symptoms, brief intermittent psychosis, or genetic risk and deterioration</p>	<p><i>Control</i> Enhanced care</p>		<p>during family problem-solving interactions compared with those in the control group.</p>

Note. BDI = Beck Depression Inventory; BPRS = Brief Psychiatric Rating Scale; BSABS = Bonn Scale for the Assessment of Basic Symptoms; CACR = computer-assisted cognitive remediation; CBT = cognitive-behavioral therapy; CDS = Calgary Depression Scale; CES-D = Center for Epidemiologic Studies Depression Scale; CESD-R = Center for Epidemiologic Studies Depression Scale-Revised; C-GAS = Children's Global Assessment Scale; CHR = clinical high risk for psychosis; CPT-IP = Continuous Performance Test, Identical Pairs version; CR = cognitive remediation; DSM = Diagnostic and Statistical Manual of Mental Disorders; EI = early intervention; ER = emergency room; FEP = first-episode psychosis; GAF = Global Assessment of Functioning; GF-R = Global Function-Role adjustment; GF-S = Global Functioning-Social scales; HDRS = Hamilton Depression Rating Scale; HMO = health maintenance organization; IPS = Individual Placement and Support; K-SADS = Schedule for Affective Disorders and Schizophrenia for School-Age Children; *M* = mean; MCCB = MATRICS Consensus Cognitive Battery; PANSS = Positive and Negative Syndrome Scale; QLS = Quality of Life Scale; QOL = quality of life; RAVLT = Rey Auditory Verbal Learning Test; RBANS = Repeatable Battery for the Assessment of Neuropsychological Status; RCT = randomized controlled trial; RPT = relapse prevention therapy; RSES = Rosenberg Self-Esteem Scale; SANS = Scale for the Assessment of Negative Symptoms; SAS = Social Attainment Scale; SCID = Structured Clinical Interview for DSM-IV; SFS = Social Functioning Scale; SIPS = Structured Interview for Prodromal Symptoms; SOFAS = Social and Occupational Functioning Assessment Scale; SOPS = Scale of Prodromal Syndromes; SQ = Status Questionnaire; TAU = treatment as usual; Trails A = Trail Making Test Part A; Trails B = Trail Making Test Part B; UPSA-B = University of California, San Diego, Performance Skills Assessment; VLMT = Verbal Learning Memory Test; WTAR = Wechsler Test of Adult Reading.

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Supplemental Table 2. Risk-of-Bias Analysis for Individual Studies in the Systematic Review on Early Intervention in Mental Health for Adolescents and Young Adults

Citation	Selection Bias		Blinding of Participants and Personnel (Performance Bias)	Blinding of Patient-Reported Outcomes (Detection Bias)	Incomplete Outcome Data (Attrition Bias)		Selective Reporting (Reporting Bias)
	Random Sequence Generation	Allocation Concealment			Short Term (2–6 wk)	Long Term (>6 wk)	
Addington et al. (2011)	+	?	?	+	+	+	+
Baksheev et al. (2012)	+	+	–	–	?	?	+
Bechdolf et al. (2007)	+	+	–	–	NA	–	+
Brent et al. (2015)	+	+	+	–	?	?	+
Calvo et al. (2014)	+	?	–	+	NA	–	+
Calvo et al. (2015)	+	?	–	+	NA	–	+
Clarke et al. (2001)	+	+	–	+	+	+	+
Dudley et al. (2014)	–	–	–	–	NA	–	–
Gleeson et al. (2013)	+	+	–	+	NA	+	+
Granö et al. (2009)	–	–	–	–	?	?	+
Granö et al. (2016)	–	–	?	?	NA	?	+
Harder et al. (2014)	–	–	–	–	NA	–	+
Holzer et al. (2014)	+	+	–	+	NA	–	+
Jackson et al. (2008)	?	?	–	+	–	–	+
Killackey et al. (2008)	+	+	–	–	NA	+	+
Lee et al. (2013)	–	–	–	–	NA	+	+
Loewy et al. (2016)	?	?	?	+	NA	–	+
Major et al. (2010)	–	–	–	?	+	+	+
McFarlane et al. (2015)	–	–	–	+	NA	+	+
Mendella et al. (2015)	+	+	–	–	NA	+	+
Miklowitz et al. (2014)	?	?	–	+	NA	+	+
O'Brien et al. (2014)	+	?	–	+	NA	+	+
Østergaard Christensen et al. (2014)	+	+	–	+	NA	+	+
Puig et al. (2014)	?	–	–	+	NA	+	+
Rauchensteiner et al. (2011)	–	–	–	–	?	NA	+
Rinaldi et al. (2010)	–	–	–	–	NA	–	–
Stice et al. (2008)	+	?	–	+	+	+	+
Yung et al. (2011)	+	+	–	+	NA	+	+

Note. Categories for risk of bias are as follows: + = low risk of bias; ? = unclear risk of bias; – = high risk of bias; NA = not applicable.

Risk-of-bias table format adapted from “Assessing Risk of Bias in Included Studies,” by J. P. T. Higgins, D. G. Altman, and J. A. C. Sterne, in *Cochrane Handbook for Systematic Reviews of Interventions* (Version 5.1.0), by J. P. T. Higgins and S. Green (Eds.), 2011, London: Cochrane Collaboration. Retrieved from <http://handbook-5-1.cochrane.org>. Copyright © 2011 by The Cochrane Collaboration.

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Supplemental Table 3. Risk-of-Bias Analysis for Studies Included in the Systematic Review on Early Intervention in Mental Health for Adolescents and Young Adults

Citation	A Priori Design Included?	Duplicate Study Selection/Data Extraction?	Comprehensive Literature Search Performed?	Status of Publication as Inclusion Criteria?	List of		Quality of		Methods Used to Combine Results Appropriate?	Likelihood of Publication Bias Assessed?	Conflict of Interest Stated?
					Included/ Excluded Studies Provided?	Characteristics of Included Studies Provided?	Studies Assessed and Documented?	Assessment Used Appropriately?			
Bond et al. (2015)	+	+	-	-	-	+	-	-	+	-	+
Hutton & Taylor (2014)	+	+	+	+	+	+	+	+	+	-	+

Note. Risk-of-bias categories: + = low risk of bias; - = high risk of bias.

Risk-of-bias table format adapted from "Development of AMSTAR: A Measurement Tool to Assess the Methodological Quality of Systematic Reviews," by B. J. Shea, J. M. Grimshaw, G. A. Wells, M. Boers, N. Anderson, C. Hamel, . . . L. M. Bouter, 2007, *BMC Medical Research Methodology*, 7, p. 10. <https://doi.org/10.1186/1471-2288-7-10>

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