Childhood Trauma and Psychosis

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KEYWORDS

- Childhood trauma • Childhood maltreatment • Childhood adversity • Child abuse
- Psychosis

KEY POINTS

- There is strong evidence that childhood adversity (defined as sexual abuse, physical abuse, emotional/psychological abuse, neglect, parental death, and bullying) is associated with increased risk for psychosis in adulthood.
- Particularly important to the clinician working with children and adolescents are the reported associations between peer victimization and bullying, and psychotic symptoms in childhood.
- There is a reported cumulative effect, showing an increased risk for psychosis with increase in number and types of childhood trauma, as well as hypothesized correlations between certain types of adversities and certain psychotic symptoms.
- There is consistent evidence that individuals with co-occurring psychosis and posttraumatic stress disorder can benefit from trauma-focused cognitive behavioral therapy interventions, despite recurrent and severe psychiatric symptoms, suicidal ideation, and psychosis.

INTRODUCTION

About one-fourth of children experience a traumatic event before the age of 18 years; these events may include physical or sexual abuse; domestic, community, or school violence; and/or the traumatic death of significant others. Neglect and placement in foster or institutional care are also among childhood adversities. Although most children are resilient after traumatic exposure, some develop significant and potentially long-lasting symptoms.[1] Over recent decades, child and adolescent psychiatry has moved away from explaining schizophrenia as being caused by parenting and abnormal communication styles in families, toward a more biological approach. However, current developmental psychopathology suggests reconsidering the interplay between environment and genetic vulnerabilities.[2]

CHILDHOOD TRAUMA AND PSYCHOSIS

This article focuses on childhood maltreatment and its association with psychotic illness.

There are several potential links between childhood maltreatment and psychosis:

1. Childhood maltreatment has been associated with psychosis and suggested as a risk factor leading to psychosis and schizophrenia in adulthood.
2. Posttraumatic stress disorder (PTSD) has been suggested to have a psychotic subtype that includes secondary or comorbid psychotic features.
3. Psychotic symptoms themselves have been suggested to be traumatic, as have restraints and seclusion. As such, these experiences have been suggested to cause PTSD symptoms in youth with psychotic illnesses.

DO CHILDHOOD ADVERSITIES INCREASE THE RISK OF PSYCHOSIS?

Until recently, review articles attempting to synthesize findings of studies of the associations between childhood trauma and psychotic disorders have been narrative in nature, and reached inconsistent conclusions.[3–5] Of late, a meta-analysis of patient-control, prospective, and cross-sectional cohort studies by Varese and colleagues[6] published in *Schizophrenia Bulletin* (2012), reported strong evidence that childhood adversity (defined as sexual abuse, physical abuse, emotional/psychological abuse, neglect, parental death, and bullying) is associated with increased risk for psychosis in adulthood. This meta-analysis included 18 case-control studies (n = 2048 psychotic patients and 1856 nonpsychiatric controls), 10 prospective and quasiprospective studies (n = 41,803), and 8 population-based cross-sectional studies from 6 countries including the United States, the United Kingdom, and the Netherlands (n = 35,546). There were significant associations between adversity and psychosis across all research designs, suggesting that childhood adversity and trauma increase the risk of psychosis with an odds ratio (OR) of 2.8, and that patients with psychosis were 2.72 times more likely to have been exposed to childhood adversity than controls. Assuming causality, which has been supported by prospective studies, if childhood adversities were removed from the population as risk factors, the number of people with psychosis would be reduced by a third. The investigators also reported that 9 out of 10 of the studies that tested for dose-response effect found positive relationships. Those studies that controlled for parental mental illness found that parental mental illness does not attenuate associations between childhood adversity and psychosis.[4,7–10]

Because many of these studies used retrospective reports by patients, it is important to note that the reliability of retrospective reports of childhood abuse in patients with psychosis has been shown to be stable over a long period of time. It seems that severity of psychotic symptomatology at the time of report does not influence the likelihood of reporting childhood abuse, and that rates of childhood trauma are similar when obtained by different assessment instruments as well as by clinical notes.[11]

When addressing the associations between trauma and psychosis, studies that evaluate and attempt to separate the contributions of the genetics of parental mental illness from the environmental influences of exposure to traumatic events and parental mental illness are critical. To that end, a prospective study of 2230 Dutch youth, followed between the ages 10 and 16 years, evaluated the separate contributions of genetic (ie, familial) and environmental (ie, childhood trauma) factors to the development of subthreshold psychosis. There was no interaction between general and psychotic parental mental illness and childhood trauma. However, both parental mental illness

and childhood trauma were correlated with persistent psychosis.[12] Husted and colleagues[10] (2010) investigated the history of prepsychosis childhood trauma in 184 members of 24 Canadian families in which multiple and multigenerational members had schizophrenia previously shown to be associated with a functional allele in the NOS1AP gene. In this sample, childhood trauma was more prevalent in those with narrowly defined schizophrenia (n = 79) than in their unaffected family members (n = 86) (OR = 4.17), even after adjusting for the NOS1AP risk phenotype, and for parental history of schizophrenia. This finding suggests that the association of schizophrenia with histories of childhood trauma is independent of familial and genetic risk.

Another aspect that may be particularly important to the clinician working with children and adolescents is the reported associations between peer victimization and bullying, and the development of psychotic symptoms in childhood. In a prospective cohort study, Schreier and colleagues[13] in the United Kingdom (2009) found that the risk of psychotic symptoms in early adolescence was twice as high in children who were victims of bullying at ages 8 to 10 years, independent of previously diagnosed psychiatric disorders, family psychosocial stressors, or the child's intelligence quotient (IQ). Chronic or severe bullying was associated with an even higher correlation. In another prospective study conducted in the United Kingdom, Arsenault and colleagues[9] (2011) followed 2232 twin children for traumatic experiences and psychotic symptoms between the ages of 5 and 12 years. Children who experienced maltreatment by an adult or bullying by peers were more likely than those who were not exposed to such events to report psychotic symptoms at age 12 years, regardless of when these events occurred. Again, this risk remained significant when controlling for prior internalizing or externalizing disorders, family adversity and socioeconomic status, IQ, and genetics, which was calculated for each pair of twins in accordance to zygosity and presence of psychosis. In a study of 6692 children in the United Kingdom interviewed at a mean age of 13 years, Fisher and colleagues[14] (2012) found that the association of bullying victimization and exposure to domestic violence with psychotic symptoms were only partially mediated by affective symptoms such as depression and anxiety. These findings highlight the need for clinicians working with children who report early symptoms of psychosis to inquire about traumatic events such as maltreatment and bullying.

ARE SPECIFIC TYPES OF TRAUMA ASSOCIATED WITH SPECIFIC PSYCHOTIC SYMPTOMS?

There is a reported cumulative effect, showing an increased risk for psychosis with increase in number and types of childhood trauma,[15,16] as well as hypothesized correlations between certain types of adversities and certain psychotic symptoms. Bentall and colleagues[17] (2012) examined the associations between different types of adversity (sexual trauma, physical abuse, bullying, and separation experiences) and reports of auditory hallucinations and paranoid beliefs in the 2006 to 2007 Adult Psychiatric Morbidity Survey in the United Kingdom. Childhood sexual abuse, especially rape, was associated with auditory verbal hallucinations, whereas victimization (physical abuse and bullying) predicted paranoia as well as auditory verbal hallucinations. Separation experiences (placements in foster care or institutions) were associated with paranoia. For each symptom, there was a dose-response relationship between the number of childhood traumatic events and the risk of the symptom.

A study by Hardy and colleagues[18] (2005) of the content of hallucinations in adults with nonaffective psychosis reported that 45% of patients who had experienced trauma (N = 40) had hallucinations with similar themes to their trauma, and 12.5%

had hallucinations with similar themes and content to their trauma. Traumas rated as intrusive were associated with intrusive hallucinations, and sexual abuse and bullying were most likely to be associated with hallucinations. Other studies have shown that psychotic symptoms with sexual content are related to history of previous sexual trauma[19]; and that although the association of trauma and paranoia may be explained by levels of anxiety, the association of trauma and hallucinations is not.[20]

Patients with psychotic illnesses and histories of childhood trauma may also have a different presentation at illness onset from those with psychotic illnesses and no exposure to childhood trauma. A chart review of 658 patients with first-episode psychosis showed that 34% had been exposed to sexual and physical abuse, and that these patients were more likely to have had PTSD and/or substance use disorders before psychosis onset, to have more history of suicide attempts, and poorer premorbid functioning.[21] Poor social adjustment predating the onset of psychosis has been shown in other studies.[22] It also seems that previous traumatic experiences are associated with more affective and positive symptoms in patients with first-episode psychosis.[23]

Although deficits in neurocognition have been described in association with psychosis, Aas and colleagues[24] showed worse deficits in cognitive performance in patients with first episode psychosis (FEP) who also experienced childhood trauma. They hypothesized that changes affected by stress through the hypothalamic-pituitary-adrenal axis lead to structural changes that explain this finding. The researchers used magnetic resonance imaging (MRI) to examine the association between childhood trauma, cognitive function, and amygdala and hippocampus volumes in 83 patients with first-episode psychosis (45% schizophrenia, 55% other psychosis) and 63 healthy controls (HCs). Mean amygdala volume was significantly smaller in patients compared with HCs, especially in those who experienced more significant childhood maltreatment, and seemed to have a mediating role between trauma exposure and cognitive impairment. Habets and colleagues[25] (2011) used MRI to measure cerebral cortical thickness in 88 patients with schizophrenia, 98 healthy siblings at higher than average genetic risk for schizophrenia, and 87 HCs. The researchers specifically assessed associations between cortical thickness and childhood trauma, and between cortical thickness and cannabis use. For both exposures, the schizophrenia group displayed stronger reduction of cortical thickness compared with the sibling group and to HCs. The opposite pattern was found in the sibling group, which displayed an increase in cortical thickness with higher levels of trauma.

In addition, the consideration of psychosis that is secondary to PTSD has been reported in adults only. Chronic PTSD with psychotic features has been described mostly in veterans with combat-related trauma, suggesting symptoms such as paranoid delusions, delusions of reference, hallucinations, and bizarre behavior that are distinct from PTSD-specific perceptual disturbances. The challenge remains in distinguishing whether such reports indicate poor symptom differentiation or increased risk and/or comorbidity. Intrusive recollections and flashbacks may mimic delusions and hallucination, whereas avoidance may mimic negative symptoms.[26] Braakman and colleagues[27] (2009) reviewed the evidence for a distinct diagnostic entity defined as PTSD with secondary psychosis (PTSD-SP) by reviewing 24 studies conducted in adults. PTSD-SP was defined as PTSD with later appearance of psychotic features not confined to episodes of reexperiencing. They reported distinct biological features differentiating PTSD-SP from both schizophrenia and PTSD: differences in smooth pursuit eye movement patterns, concentrations of corticotropin-releasing factor, and dopamine β-hydroxylase activity, suggesting that there is initial phenomenological and biological evidence for its validity as a diagnostic entity. However, the

distinction of PTSD-SP with comorbid major depression versus PTSD with comorbid major depression with psychotic features was not clearly established.

MANIFESTATION OF CO-OCCURRING TRAUMA AND PSYCHOSIS IN ADOLESCENTS

Although the relationship between interpersonal trauma exposure and psychosis is well established within the literature, the exact psychological mechanisms by which trauma influences the development of psychosis are less clear. One theory that provides a cognitive explanation of the relationship between trauma and psychosis is Morrison's[28] integrative cognitive approach. This theory suggests that experiencing trauma at any age can alter a child's or adult's attributional style, fostering negative beliefs about the self, the world, and others.[29] In the wake of trauma, adolescents often consider themselves vulnerable, others as untrustworthy, and the world as dangerous and unsafe.[30] Kilcommons and Morrison[29] argued that these negative belief structures can alter attributional styles, making paranoid, distressing interpretations of ambiguous events more likely.

In a recent study, Kilcommons and Morrison[29] (2005) tested this theory by exploring the relationship between negative appraisals resulting from childhood and adult trauma exposure and the development of psychotic symptoms. Participants were between 18 and 60 years old (mean age 34.5 ± 9.96 years), and all met Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) criteria for a range of schizophrenia spectrum disorders. Results of this study showed that the overall rate of childhood and adult trauma exposure in the population of individuals with symptoms of psychosis is larger than in the normative population, with 94% of this sample having been exposed to at least 1 traumatic event. Further, results suggest that the severity and recurrence of traumatic exposure in childhood and adulthood was strongly associated with the severity of psychotic symptoms that later developed. As postulated, correlational analysis revealed a relationship between negative attribution styles resulting from trauma and some psychotic symptoms, particularly hallucinations. There was a salient relationship between the content of the trauma previously experienced and the themes of delusions and hallucinations described by the subjects.[29] Thus, it seems as though experiencing interpersonal trauma may set in motion a deleterious developmental process whereby significant exposure to trauma alters the underlying schemata and cognitive appraisal systems of individuals, which may influence both the content of positive psychotic symptoms and the appraisal of internal and external experiences.

Clinical and Diagnostic Presentation

The scientific literature describing the clinical presentation of children and adolescents with co-occurring trauma and psychosis is nascent. However, research exploring this complex relationship within the adult population may provide insight into the diagnostic presentation of individuals experiencing trauma and psychosis. According to Braakman and colleagues,[27] adults presenting with PTSD and secondary psychosis often have more positive symptoms of psychosis than negative, and these positive symptoms are generally related to the traumatic events they have experienced. The delusional content is often paranoid and persecutory; the content of hallucinations is typically trauma related but accompanied by non–trauma-related content. Freeman and Fowler[20] (2009) conducted a study with adults showing that severe childhood sexual abuse was particularly associated with an increased risk for developing persecutory delusions and verbal hallucinations. In another study in adults between the ages of 18 and 60 years, physical abuse was associated with positive symptoms of

psychosis in general, whereas sexual abuse was associated with verbal hallucinations in particular.[29]

Although the presence of bizarre behaviors is common in adults with co-occurring trauma and psychosis, disorganized thinking (eg, loose associations and flight of ideas) are almost never endorsed.[27] Instead, thinking is often linear and organized. Affect is observed as flat to blunted with depressed, irritable, and anxious content. Level of insight varies by individual; however, many individuals with co-occurring psychosis and trauma recognize and report their hallucinogenic experiences as nonreal and disturbing. In essence, these symptoms are often the most egodystonic features of their psychiatric condition. Many adults seem to develop posttraumatic stress disorder before developing psychosis. However, once developed, positive symptoms of psychosis are typically present even in the absence of acute reexperiencing symptoms, like flashbacks and intrusive recollections.[27] Thus, psychotic symptoms do not seem to occur only within the context of reexperiencing symptoms; instead, they seem pervasive and recurrent.

Diagnostic Comorbidities

Both posttraumatic stress disorder and psychosis are associated with a range of diagnostic comorbidities. In a seminal epidemiologic study, Kessler and colleagues[31] (1995) obtained a representative national sample of more than 5000 adults to clarify common comorbidities between psychiatric conditions. Results of the National Comorbidity Survey showed that 88% of men and 79% of women with PTSD had at least 1 comorbid diagnosis. Major depressive disorder was the most common comorbidity, occurring in slightly less than half of individuals with PTSD. Substance use disorders, disruptive behavior disorders, and other anxiety disorders were also common comorbid diagnoses for individuals with PTSD and for individuals with psychotic disorders.[31]

Evidence-based Assessment Procedures

Clinician-administered PTSD Scale for Children and Adolescents

There are a series of evidence-based assessments for evaluating the frequency and intensity of posttraumatic stress symptoms in children and adolescents (**Table 1**). One such measure is the Clinician-administered PTSD Scale for Children and Adolescents (CAPS-CA), a 33-item clinician-administered PTSD scale for youth between the ages of 8 and 18 years.[32] These carefully worded interview questions are designed to assess the frequency and intensity of 17 PTSD symptoms, as well as their effect on social, developmental, and academic functioning. Administration typically requires 45 minutes, depending on the severity of symptoms, and scoring requires 20 to 30 minutes. Given the strong psychometric properties of this instrument, it is considered the gold standard for posttraumatic stress research in youth. However, practitioners may find the instrument cumbersome given the time required for administration and scoring.

UCLA PTSD Index for Adolescents

The UCLA (University of California, Los Angeles) PTSD Index[33] is one of the most widely used instruments for the assessment of posttraumatic stress disorder in children and adolescents. There are 3 versions of this measure: Child Self-Report, Adolescent Self-Report, and Parent Report. The adolescent measure, designed for youth between the ages of 13 and 18 years, comprises 41 questions with the first 14 questions being designed to assess for exposure to a variety of traumatic events. Items 15 to 27 assess the adolescent's immediate response to any traumatic events endorsed (ie, shock; horror; peritraumatic dissociation). The remaining 14 items

Table 1
Evidence-based assessments for trauma and psychosis in adolescents

Name	Type of Instrument	Purpose	Age Range (y)	Time (min)	Cost ($)
CAPS-CA	Semistructured clinical interview	Designed to assess the frequency and intensity of 17 PTSD symptoms, as well as their effect on social, developmental, and academic functioning	8–18	Administration: 45 Scoring: 25–30	110.00
UCLA PTSD Index	Self-report screening tool	Designed to efficiently screen for symptoms of posttraumatic stress disorder	6–18	Administration: 15–25 Scoring: 5–10	Free
CPSS	Self-report screening tool	Designed to efficiently screen for symptoms of posttraumatic stress disorder	8–18	Administration: 10 Scoring: 5–10	Free
TSCC	Self-report diagnostic measure	Designed to assess symptoms of posttraumatic stress, as well as general anxiety, depression, anger, sexual concerns, and dissociation	8–17	Administration: 10–20 Scoring: 15–20	168.00
PANSS	Clinician-rated diagnostic measure	Designed to assess positive and negative symptoms of psychosis	18 and older	Administration: 30–40 Scoring: 20	275.00

Abbreviations: CPSS, Child PTSD Symptom Scale; PANSS, Positive and Negative Syndrome Scale; TSCC, Trauma Symptom Checklist for Children.

assess the frequency and severity of any symptoms of reexperiencing, avoidance, and hypervigilance/hyperarousal. All items correspond with the DSM-IV Text Revision (DSM-IV-TR) diagnostic criteria for PTSD. Completion of this self-report measure typically requires 15 to 25 minutes, depending on the age and ability of the adolescent, and scoring typically requires 5 to 10 minutes. Like the CAPS-CA, the UCLA PTSD Index has strong psychometric properties; however, it is more widely used within clinical settings because of the efficiency of the measure.

Child PTSD Symptom Scale

The Child PTSD Symptom Scale (CPSS) is a 24-item self-report measure designed to assess symptoms of PTSD in youth between the ages of 8 and 18 years.[34] The first 17 items are designed to assess reexperiencing, avoidance, and hyperarousal symptoms. In the remaining 7 items, respondents are asked about specific functional impairments resulting from symptoms of posttraumatic stress. All items correspond with the DSM-IV-TR diagnostic criteria for PTSD. Completion of this measure typically requires 10 minutes, and scoring typically requires 5 to 10 minutes. This measure, like those discussed earlier, has strong psychometric properties both in terms of internal consistency, test-retest reliability, and convergent validity.[34]

Trauma Symptom Checklist for Children

The Trauma Symptom Checklist for Children (TSCC)[35] is a 54-item self-report measure for youth ranging from 8 to 17 years, designed to assess symptoms of posttraumatic stress as well as related psychological sequelae associated with trauma exposure. The TSCC consists of 6 clinical scales and 2 validity scales. Validity scales measure both under-reporting and over-reporting, whereas the clinical scales measure general anxiety, depression, posttraumatic stress, sexual concerns, dissociation, and anger. Completion of this measure typically requires 10 to 20 minutes to complete, and scoring typically requires 10 to 15 minutes. Numerous research studies using the TSCC indicate strong psychometric properties in terms of convergent and predictive validity, as well as test-retest reliability.

The Positive and Negative Syndrome Scale

The Positive and Negative Syndrome Scale (PANSS)[36] is a 30-item screening tool designed to assess positive and negative symptoms of psychosis. Positive symptoms of psychosis assessed include hallucinatory behavior, persecution and suspiciousness, delusions, conceptual disorganization, excitement, and hostility. Negative symptoms of psychosis assessed include blunted affect, social withdrawal, emotional withdrawal, lack of flow and spontaneity of conversation, difficulty with abstract thinking, and stereotyped thinking. The psychometric properties of the PANSS have been well established within the adult literature, and it is considered one of the most widely used research measurement tools. It has also been included in large treatment studies with adolescents, like the Treatment of Early Onset Schizophrenia Study, which was funded by the National Institute of Mental Health. However, although some clinicians use this instrument to assess for psychosis in adolescents, this measure requires further scientific study to determine its validity, reliability, and developmental sensitivity for those within the adolescent population.

In clinical practice, these assessment tools can be used to help clinicians assess their clients' baseline functioning, select appropriate treatments, as well as evaluate clients' overall response to psychotherapeutic and pharmaceutical intervention. Data from these scales are most helpful when collected at the outset of treatment and then at regular intervals over the course of treatment.

When collected at regular intervals, data gleaned from these tools can assist clients and practitioners alike with making treatment decisions. For instance, a therapist-client dyad may choose to augment the treatment approach after discovering that, although the client's symptoms of PTSD have reduced over the past 12 weeks, symptoms of paranoia remain unchanged, thus warranting perhaps the addition of a low-dose atypical antipsychotic. Integrating clinical scales in this manner has been shown to increase both the efficiency and effectiveness of psychotherapeutic and psychopharmacologic treatment, because it encourages collaboration between practitioners and clients while also encouraging all parties to remain focused on a focal problem.

EVIDENCE-BASED TREATMENTS FOR TRAUMA AND PSYCHOSIS IN ADOLESCENTS
Cognitive Behavioral Interventions

The scientific literature exploring the efficacy of trauma-focused interventions for adolescents with co-occurring PTSD and psychosis is nascent. However, there is considerable evidence in the child and adolescent trauma literature indicating that cognitive behavior therapies (CBTs) are the most effective interventions for children and adolescents with PTSD.[37] In a recent meta-analysis, Silverman and colleagues[37] (2008) reviewed 21 scientifically rigorous treatment studies evaluating a variety of PTSD treatments for adolescents. Results from this meta-analysis showed that, overall, CBT interventions consistently produced statistically significant treatment effects compared with non-CBT interventions. Further, CBT interventions were more effective than non-CBT interventions at reducing secondary effects of trauma, including depression, anxiety, and externalizing behavior problems. In terms of specific therapeutic approaches, trauma-focused CBT was identified as the most effective and well-researched therapeutic intervention to date for adolescents with PTSD, having been evaluated through multiple randomized controlled trials using rigorous comparison conditions, assessment procedures, adequate sample sizes, and multisite clinical trials.[37]

Trauma-focused CBT is a 12-session to 16-session treatment model designed to address a range of psychological traumas experienced by children and adolescents.[30] Components of the treatment are reflected in the acronym PRACTICE: psychoeducation and parenting skills, relaxation skills, affect recognition and modulation, cognitive coping skills, trauma narrative, in-vivo exposure, conjoint parent-child sessions, cognitive restructuring, and enhancing future safety. As with many cognitive behavioral treatments for PTSD, this treatment model begins by normalizing symptoms of PTSD through psychoeducation, while also bolstering the adolescents' capacity for adaptive coping. Once sufficient safety and adaptive coping are established, the adolescent is gradually and systematically encouraged to complete a trauma narrative, or a detailed account of the specific trauma or traumas evoking symptoms of PTSD. Particular attention is paid to the adolescent's self-rated level of distress when reading the narrative, because this should decrease over time. The adolescent's cognitive appraisals of the traumatic events described are also closely monitored, because negative cognitions undergo cognitive restructuring once the narrative is complete. Treatment culminates with the adolescent sharing the trauma narrative with the caregivers, but only after preparation and support is provided to both parent and child.

In addition to exposure-based CBT modalities, non–exposure-based CBTs have also shown clinical efficacy, with adults presenting with co-occurring PTSD and psychosis. In a recent randomized controlled trial, Mueser and colleagues[38] (2008) evaluated a CBT for a PTSD program for 108 adults with a mean age of 44.2 years presenting with comorbid PTSD and either a major mood disorder with and without psychosis (85%) or schizophrenia/schizoaffective disorder (15%). The CBT for

PTSD program is a 12-session to 16-session therapeutic approach that focuses primarily on identifying and restructuring underlying maladaptive cognitions that contribute to and maintain posttraumatic stress responses. Compared with subjects assigned to the treatment-as-usual condition, participants in the CBT condition showed statistically significant reduction in symptoms of PTSD, depression, anxiety, and negative trauma-related beliefs. In a similar study, van der Gaag and colleagues[39] (2012) evaluated the efficacy of a CBT intervention designed to target maladaptive cognitive biases in adolescents deemed at ultrahigh risk for developing psychosis. When compared with treatment as usual, subjects within the CBT condition showed a statistically significant reduction in their risk for developing psychosis. Results also showed a reduction in subclinical psychotic symptoms. Although this study did not evaluate for histories of trauma in the youth at ultrahigh risk for developing psychosis, other investigators have found that many individuals at ultrahigh risk typically have increased rates of trauma exposure, with one study citing 83% of its sample experiencing physical abuse, 67% experiencing emotional abuse, and 27% experiencing sexual abuse.[40] Thus, findings from both of these studies highlight the efficacy of CBT interventions for comorbid serious mental illness and trauma exposure.

Rosenberg and colleagues[41] (2011) evaluated a similar non–exposure-based CBT program for adolescents with PTSD alone. This treatment modality, called CBT for PTSD in adolescents, is a program of 12 to 16 weeks that incorporates cognitive restructuring as the primary therapeutic agent. Treatment consists of psychoeducation regarding core and secondary symptoms associated with PTSD, relaxation training, identification of the common styles of thinking associated with trauma, and the 5 steps of cognitive restructuring. Results from this pilot study revealed that, from baseline to after treatment, subjects showed significant reductions in symptoms of PTSD and depression, and these treatment gains were maintained at a 3-month follow-up.

Findings from these studies provide consistent evidence that adults with co-occurring psychosis and PTSD can benefit from trauma-focused cognitive behavioral interventions, despite recurrent and severe psychiatric symptoms, suicidal ideation, and psychosis. To date, there is not a sufficient evidence basis for CBT intervention in adolescents who have both PTSD and psychosis. However, both cognitive restructuring and exposure therapy have strong empirical support for the treatment of PTSD in the adolescent population in general,[37] and there is emerging evidence that CBT is an effective intervention for youths at ultrahigh risk for psychosis. Future studies are warranted to evaluate CBT in the treatment of youth who have both PTSD and psychosis. Nonetheless, at this time, many trauma therapists advise proceeding judiciously when considering any exposure therapy for individuals suffering from psychosis, because individuals with psychotic disorders can be highly sensitive to stress.[42]

Although psychopharmacologic treatment of psychosis in youth is reviewed elsewhere is this issue by Kranzler and Cohen, the evidence basis for psychopharmacologic treatment of PTSD and trauma effects in youth is sparse. At present, the data do not support using selective serotonin reuptake inhibitor as first-line treatments for PTSD in children and adolescents. There is limited evidence, mainly case controls, to suggest that the brief use of antiadrenergic agents, second-generation antipsychotics, and several mood stabilizers may offer some relief from PTSD symptoms in youth.[43]

SUMMARY

This article highlights recent advances regarding the complex causal relationship between childhood trauma exposure and psychosis. According to a recent meta-

analysis, there is strong evidence that childhood adversity and trauma significantly increase the risk for developing psychosis, and that those suffering from psychosis were 2.72 times more likely to have been exposed to childhood adversity than controls.[6] Several studies showed a dose-response relationship, showing that the risk for psychosis increases with the number and types of childhood traumas endorsed.[15,16] From the review of the literature, this article also discusses the relationship between specific adverse childhood experiences and specific symptoms of psychosis. According to Bentall and colleagues[17] (2012), child sexual abuse, especially rape, was associated with auditory verbal hallucination, physical abuse and bullying predicted paranoia and auditory verbal hallucinations, and separation experiences (ie, placement in foster care or institutions) were associated with increased rates of paranoia. The article culminates with a comprehensive review of evidence-based practices for assessing and treating co-occurring posttraumatic stress and psychosis in adolescents.

Although the relationship between trauma and psychosis has strong scientific support, the literature exploring exact underlying psychobiological and developmental mechanisms contributing to this complex relationship is inadequate. In addition, there is limited scientific evidence exploring the efficacy of evidence-based practices for adolescents with co-occurring PTSD and psychosis. At present, there are no randomized controlled trials or pilot studies that show the efficacy of specific therapeutic strategies for alleviating the psychological suffering of this unique population. Instead, practitioners are challenged to either apply interventions proved to be effective for adults with co-occurring PTSD and psychosis, or to use interventions that have shown efficacy with adolescents with PTSD in general. Further research is needed that comprehensively evaluates trauma-focused interventions for this population through the use of randomized controlled trials with rigorous comparison conditions and assessment procedures, and adequate sample sizes. In addition, the academe would benefit from research that focuses on elucidating the underlying psychobiological and developmental factors that contribute to the relationship between psychosis and trauma in adolescents. Expanding the scientific literature in these two areas will enhance the recovery process of numerous adolescents who, without support, would continue to suffer silently.

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