



Limitations of Research on Psychosis in Childhood and Adolescence: Current Controversies and Future Directions

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Abstract

There is presently insufficient research for the implementation of evidenced based combined treatments of psychosis in children and adolescents. Even though knowledge about the neurobiological underpinnings of psychotic disorders has steadily accumulated, much is still unknown about the progression of psychosis in childhood and adolescence and its most effective treatment. Treatment models for childhood psychosis are largely derived from investigations of psychosis in adulthood. Research is needed that examines both psychotherapeutic and supportive psychosocial interventions as well as their combination with effective medications with minimal risks of negative side effects. Age-specific research and outcome studies are also necessary to illuminate appropriate treatment for psychotic disorders in children and adolescents.

Keywords: Psychotic disorders; Childhood psychosis; Psychosocial interventions; CBT; Family based treatment; Antipsychotic medication

Introduction

In spite of the increasing interest in the etiology of psychotic disorders and relevant advances in neuroscience, there has been relatively little research about the early identification and treatment of psychotic disorders in children and adolescents. Diathesis-stress models that account for the etiology of psychosis currently emphasize the interaction of multiple neurobiological, genetic and environmental factors. Studies are needed that will examine the heterogeneity of psychotic disorders in children and their ties to co-existing psychiatric disorders since comorbidity with psychosis is quite frequent. Research is also necessary on combining psychotherapies, such as cognitive behavior therapy, with supportive interventions and the use of medication. Outcome studies of the treatment of childhood psychosis are also lacking as are follow-up investigations of the long-term consequences of the use of antipsychotic medication with children. Similarly, there are few investigations of the potentially ameliorative impact of supportive and family interventions with high risk and psychotic youth. Our aim is to highlight the importance of the need for research on psychosis in childhood and adolescence in a number of key areas. Advances in the treatment of children with psychosis will rely on future studies in the areas of evaluation and early intervention, psychotherapy, supportive interventions, medications, and their combination with psychotherapy [1]. Collaborative treatments also need to be generated that integrate psychotherapy with skills training and family therapy with the goal of reducing the vulnerability to repeated episodes of psychosis.

Although psychotic disorders have a low prevalence rate in children and adolescents, for many children and youth the emergence of psychosis coincides with a disruption of their cognitive, emotional and social development. It's therefore crucial for scientists and clinicians to collaborate on the development of effective treatments that are sensitive to helping psychotic children and adolescents achieve age-appropriate functioning. At present, treatment models are largely derived from studies with adults while sufficient evidence is lacking to thoroughly inform the comprehensive treatment of children and youth with psychotic disorders. In general, research studies on psychosis encompass examinations of high risk groups and the continuum of psychosis in addition to investigations of treatment and outcome studies. The literature on children and adolescents with first episode of psychosis and its treatment with either individual or family therapy in

combination with medication is less robust than the literature on first episode of psychosis and its treatment with adults. Nevertheless, over the last ten years, there has been an increasing number of studies about the use of psychotherapeutic and psychoeducational interventions as well as the use of antipsychotic medications with children and adolescents with psychosis.

Signs of psychosis in children represent fluctuating states, not stable traits. They might constitute fleeting reactions to traumatic events, manifestations of a variety of psychiatric or medical disorders, or the symptomatic expression of early-onset psychotic disorders. Even though psychotic disorders, such as schizophrenia or major depression with psychosis, have low prevalence rates in children, isolated psychotic symptoms and psychotic-like experiences are fairly common in clinical populations [2]. Based on longitudinal studies of childhood maltreatment, it has also been established that psychotic symptoms are frequent among traumatized populations. In fact, children who have been abused have a greater likelihood of experiencing psychotic symptoms by age 12 [3]. The differential diagnosis of psychosis in children and youth with developmental disabilities can be particularly challenging because of their limited abilities to describe subjective internal states. Aside from a limited number of studies which explore the associations between trauma and psychosis and a few that do examine the difficulty of diagnosing psychosis in children with developmental and intellectual disabilities, the evaluation and diagnosis of psychosis in childhood is an under-investigated area of inquiry.

Need for Research on Evaluation

The evaluation process with children and adolescents with possible psychosis must be comprehensive with careful attention paid to the developmental and family history. Psychotic symptoms may or may

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not constitute psychotic disorders in children and adolescents, and the consequences of misdiagnosis can be serious. Accurate diagnosis and treatment planning requires detailed history taking and observation together with thorough psychiatric and psychological assessments. Most children who present with symptoms of psychosis do not actually meet the criteria for a psychotic disorder. The majority are experiencing transient psychotic symptoms associated with anxiety or mood disorders, or trauma, or manifesting communication deficits associated with a marked speech or language disorder. Considerable information can be obtained from a detailed history of the patient and the family including biological, psychological and social vulnerabilities as well as environmental stressors. Information should be gained about the onset of possible psychotic symptoms and the course of these symptoms as seen by various adults in the child's life. Semi-structured clinical interviews, such as the Schedule for Affective Disorders and Schizophrenia for School Age Children (K-SADS), can be provided to assess for the presence of hallucinations, thought disorder and gross behavioral abnormalities [4]. A complete physical examination is critical in order to ascertain the possibility of substance abuse or medical conditions that might underlie the psychotic symptoms. Literature reviews regarding the assessment and diagnosis of children and adolescents at risk for psychosis, including those with limited symptoms of psychotic illness, indicate that even though these vulnerable youth seem to be subject to later mental health disorders most do not develop psychotic disorders [5].

Longitudinal studies of the vulnerability to psychosis suggest that there is an overall continuity between psychotic disorders in childhood and adolescence and the similar manifestations of psychotic disorders with an onset in adulthood [6]. Although developmental differences occur in symptomatic expression, for particularly vulnerable individuals there may be the possibility of a progression of psychotic disorders from childhood to adolescence to adulthood. When psychotic disorders are accurately diagnosed in children and adolescents, mood disorders with psychosis have the greatest prevalence [7].

Need for Research on Early Intervention and Prevention

The extant research on early intervention with childhood and adolescent onset psychotic disorders is beginning to show the positive impact of evidenced based psychological and psychopharmacological interventions [8]. Some early identification and prevention studies focus on the very early detection and treatment of psychosis while others with a longitudinal focus examine eventual rates of conversion to psychotic disorders. In keeping with the literature on prodromal stages of early onset psychosis, some investigators have emphasized preventative interventions prior to the actual onset of psychotic symptoms. Among longitudinal studies, those which assess variables associated with the prevalence of the conversion to psychosis in very high risk youth have been particularly valuable. Pharmacological treatment studies with childhood or adolescent onset psychosis are somewhat limited. Only a few have examined the potentially preventative use of antidepressant medication for the treatment of youth who are in the prodromal phase of schizophrenia [9]. Increasingly, the hypothesis has been raised that family based interventions, such as Multi-Systemic Family Therapy, might decrease rates of relapse for children and adolescents with psychotic disorders, and family based psychoeducational programs have been designed to reduce relapse rates [10].

Studies that scrutinize the effectiveness of structured family interventions have yielded promising results, suggesting that improved family communication and family relationships might decrease the re-

occurrence of psychotic episodes. For example, Miklowitz et al. [11] reported a reduction in positive symptoms of psychosis as a result of family interventions in conjunction with skills-based training for adolescents at risk for psychosis. They noted that the combination of teaching strategies for stress reduction and problem solving with increased family support and improved communication proved to be beneficial. Investigations of skills-based interventions with adolescents at risk for psychosis have found similar beneficial results in both short-term and long-term follow up studies [12,13].

A fairly recent study evaluating early intervention for children and adolescents in an inpatient setting found that the majority of the youth were well connected to after-care treatment and that there was a decrease in the number of their readmissions [14]. Another study of the impact of a one year intervention for adolescents and adults with first break psychosis similarly found an improvement in general functioning and a decrease in depressive and negative symptoms [15]. The results of a study with specially trained foster parents and high risk adolescents in foster care suggest that targeting behavioral problems can lead to a significant reduction in comorbid psychotic symptoms [16]. The use of a variety of combined psychosocial interventions, e.g., cognitive and behavioral intervention, social skills training, and family intervention with adults following a first episode psychosis has likewise been shown to be helpful. Further studies are needed that will assess the impact of different types of psychotherapy and psychoeducational interventions with very high risk children and youth as well as those with first episode of psychosis.

Need for Research on Psychotherapy and Supportive Interventions

Experiencing psychosis can be very traumatic for children and adolescents as well as for their families. It is important that children and adolescents struggling with psychosis are treated in the least restrictive environment with as much predictability and support as possible in order to reduce the likelihood of environmental stressors exacerbating the child's symptomatology [17]. The degree of family support for the psychotic child is essential in being able to maximize treatment benefits in the least restrictive environment. Psychoeducational programs that include support for both the family and the youth at risk for psychosis have demonstrated benefits in symptom reduction and improved quality of life for adolescents [18,19]. Modest benefits have been shown from combining psychosocial interventions with Cognitive Behavior Therapy (CBT) for children at risk for psychosis [20]. However, to date no studies have thoroughly evaluated the long-term effectiveness of CBT in childhood onset psychosis or compared CBT with other forms of psychotherapy in randomized trials.

One study by Haddock et al. found that for high risk individuals under the age of 21 a greater benefit was derived from supportive psychotherapy than from CBT [21]. There have also been inconsistent findings when CBT interventions have been compared with treatment as usual for children and adolescents at risk for psychosis. One study found a significant difference [22] while the findings of another study indicated no improvement in either group [23]. There have also been no studies of the efficacy of psychodynamic psychotherapy with psychotic children and youth in spite of the use of psychodynamic principles in the understanding psychotic communication. Green, Fazio-Smith, and Parson [24] recently described a play therapy approach with children with psychosis, one that combines school - based supports, family therapy interventions, and play techniques such as the use of art, with the selected use of CBT techniques. Integrative treatment approaches

of this kind are designed to reflect the individual vulnerabilities and strengths of the psychotic child. Nevertheless, the evidence for the use of play therapy with psychotic children is currently lacking.

Need for Research on Medication

The judicious use of medication in conjunction with psychosocial interventions is the current recommended treatment for childhood psychosis [25]. While several pilot studies have shown symptom reduction and improved outcome in at risk adolescents who received psychoeducational programs [18], the evidence for the long-term effectiveness of antipsychotic medication after first break psychosis is limited [25]. It has also been shown that children may be more sensitive to the side effects of antipsychotics than adults, and even if smaller doses are recommended, they can be associated with adverse side effects. Most adults diagnosed with psychosis require long-term treatment with both medications and psychological interventions. To date, there are no studies evaluating the very long-term effects of antipsychotic medications with children and adolescents. Similarly, there is also an absence of long-term studies on injectable vs. oral antipsychotics in children or adolescents though adult studies show some benefits to long acting injectable medications; however randomized control trials are lacking [26]. It is also important to note that not all at risk children and youth even those with attenuated psychotic symptoms actually develop psychotic disorders [27].

Given the efficacy of second generation, atypical antipsychotic medications and both the possible cognitive effects and the physical side effects associated with the first generation antipsychotic medications (e.g., Hyperprolactinaemia, Neuroleptic Malignant Syndrome, Dystonia, Tardive Dyskinesia and Parkinsonian symptoms), atypical antipsychotic medications are generally used with the symptoms of psychosis in children and adolescents. Side effects with atypical antipsychotic medication, such as marked weight gain, cardiovascular problems and Type II Diabetes, have been found to vary considerably depending on the particular child or adolescent and the medication [28]. Clozapine has been shown to be better than first generation and second generation antipsychotics when treating first break psychosis [29]. However, Clozapine can also be associated with a number of negative side effects, including increased weight gain and metabolic deregulation [30]. When two atypical antipsychotic medications have been ineffective, a switch to Clozapine is often recommended because of its superiority over other medications with treatment resistant psychosis patients [25]. In a recent study of the use of atypical antipsychotic medications with child and adolescent psychiatric patients being treated in Spain, Baeza et al. [31] reported that Risperidone was the most widely prescribed medication not only for youth with Schizophrenia Spectrum Disorders and Psychosis, Not Otherwise Specified, but also for Disruptive Behavior Disorders. In a very recent study of the 12 week results of the treatment of adolescents with Schizophrenia Spectrum Disorder and Psychosis Not Otherwise Specified, Vernal et al. [32] compared Risperidone, Olanzapine, Aripiprazole, Quetiapine, and Ziprasidone. They reported that there were significant improvements with the clinician's choice of medication among both groups of patients, but there were also high rates of discontinuance among both groups. Given the findings on structural and functional brain changes associated with psychotic disorders, particularly schizophrenia, and the need to enhance the cognitive, social, and emotional functioning of many children and adolescents with psychosis, the need for further research on the long-term consequences of antipsychotic medications is essential.

Conclusions and Need for Research on Combined Treatments

Models for the psychological and psychopharmacological treatment of psychosis in children and adolescents have been largely derived from work with adults. Investigators have identified factors which contribute to the emergence of psychotic disorders and their progression in children and adolescents, but the treatments remain largely symptom focused. The difficulties of conducting research with children and adolescents with psychotic disorders are multifiform. They include the need for in-depth, comprehensive assessment and accurate diagnosis, the widespread occurrence of comorbidity among children with psychosis, the heterogeneity of the expression of psychotic symptoms, and developmental differences in the ways that psychotic symptoms might be manifest at different ages. Research designs and statistical measures need to account for extensive variables that might impact important patient characteristics and moderating treatment variables. For example, cognitive variables, such as attention and processing speed, might play a significant role in patients' ability to derive benefit from a particular treatment intervention, but thorough neuropsychological assessments are often not included in treatment studies. The need for research on combining medications with multiple forms of therapy is crucial as is the need for studies that explore combining psychotherapy and supportive interventions with efforts to enhance cognitive functioning.

The complexity of accounting for patient variables in research on psychosis parallels the challenge of conducting treatment studies that integrate several types of psychotherapy with supportive interventions and medication trials. Nevertheless, implementing multi-faceted psychosocial interventions together with individual therapy seems to have an ameliorative effect on the course of psychotic symptoms in children and youth. Empirically based family interventions may benefit very high risk and psychotic youth by reducing both their psychotic and non-psychotic symptomatology. Follow-up studies will be necessary in order to establish the long-term effects of psychotherapeutic interventions as well as the use of antipsychotic medication with children and adolescents. Interdisciplinary treatment efforts and further studies in a variety of areas will thus be needed if treatments for psychosis are to reflect the individual child or adolescent's unique strengths and vulnerabilities.

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