ENCYCLOPEDIA
on Early Childhood
Development

Recognition and Assessment of Anxiety & Depression in Early Childhood

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December 2023, Éd. rév.

Introduction

Anxiety disorders are characterized by emotional arousal associated with fear, worry, or nervousness that is out of proportion to the situation. Significant fears in preschool-aged children have been documented since the 1920's,[1] but were not widely recognized as clinically impairing and deserving of specialized treatment until early in the 21st century. Young children's anxiety often manifests as fearfulness, defiance, or tearful outbursts in stressful situations (e.g., separating from a caregiver). Diagnosis of depression in early childhood remains rare, but symptoms seen in older children, including sadness, appetite/weight problems, sleep problems, low energy, irrational guilt, and low self-esteem can represent a distinct syndrome in young children,[2] and the clinical syndrome of preschool-onset Major Depressive Disorder has been validated.[3] Evidence suggests that anxiety and depressive symptoms in young children are correlated but distinct entities, with unique symptom trajectories.[4] To meet diagnostic criteria, symptoms must be severe enough to impair normal functioning. Most young children with

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depressive symptoms do not meet the criteria for a formal DSM-5 diagnosis, but experts agree that children can experience the core symptoms of depression by age 3.[2]

In psychopathology *research*, assessment is designed to capture psychological phenomena to deepen understanding of disorder presentation, course, risk factors, and treatments. Assessment in a *clinical* context refers to gathering screening and/or clinical data to inform clinical judgments regarding the diagnostic presentation of a specific child and to tailor individualized interventions to promote optimal social, academic, and family functioning. The key to valid, reliable assessment is employing a multi-method, multi-informant approach that includes repeated clinical observations, diagnostic interviews, developmental history, and standardized, comprehensive symptom checklists.[5]

Subject

Studies that focused on the prevalence of psychiatric disorders in preschool-aged children have reported prevalence rates as high as 9% for anxiety disorders and around 2% for depression among preschool children.[3,6,7] While most childhood fears and transient sadness are normative, some children suffer from emotional problems that cause significant distress and impairment, limiting their ability to develop age-appropriate social and pre-academic skills and/or participate in age-appropriate activities and settings. Assessment is necessary to understand the phenomenology of emotional symptoms and identify young children with mental health needs, which is paramount to connecting them with ameliorative services.

Problems

Researchers struggle to distinguish variations in *temperament*, (stable individual differences relating to reactivity and self-regulation), from symptoms of *psychopathology*. There is also inconsistency regarding studying anxiety and depressive symptoms as a single “internalizing domain” or as two clinically distinct presentations.[8,9] Similar issues with taxonomy are reflected in the lack of consensus relating to whether emotional problems should be conceptualized and studied in a categorical versus dimensional fashion.[10] Diagnostic criteria (DSM-5)[11] are often insufficient for young children and do not capture developmentally salient types of impairment (e.g., disruption in family routine), which makes it difficult to apply psychiatric research methods. One diagnostic manual, the DC: 0-5, was developed specifically to aid diagnostic decisions in young children.[12] It includes a multi-axial approach for addressing relational, developmental,

medical, and other environmental contextual factors and includes some disorders that are not in the DSM-5.

Despite significant advances in the assessment, recognition, and treatment of early childhood emotional disorders,[13-15] rates of mental health service receipt and participation in prevention programs remain low, especially for ethnic minority children and those living in poverty.[16-19] Low levels of service utilization in this age group also likely reflects societal attitudes that have been slow to accept the seriousness of preschool-age mental health problems as well as ongoing stigmatization of mental health and parents of children with clinically significant mental health concerns.[20]

Research Context

Serious emotional symptoms tend to be relatively stable throughout childhood if they are not identified and treated,[21,22] emphasizing the importance of assessment tools. Several widely-used parent-report “checklist-style” assessments (e.g., Child Behavior Checklist,[23] Infant-Toddler Social and Emotional Assessment,[24] Behavior Assessment System for Children[25]) cover a broad range of functioning, including internalizing, externalizing, and other problematic behaviors in early childhood. Other methods include semi-structured diagnostic interviews with parents, which mirror empirically-based diagnostic practices in adults. The most widely used is the Preschool Age Psychiatric Assessment.[26] Young children are often unable to describe their own emotional experiences using traditional methods. Hence, the Berkeley Puppet Interview uses child-friendly puppets to help preschool-aged children identify symptoms.[27] Another assessment method uses observation of the child’s behavioral symptoms, which minimizes bias associated with parent or self-reported instruments. One such instrument, the Anxiety Dimensional Observational Scale (Anx-DOS) uses “presses” designed to evoke different dimensions related to anxiety, such as separation distress and fear of novel or potentially frightening toys.[28] The challenge with observational methods is converting the observations into quantifiable data. While many of the methods described here can be very useful from a research standpoint, they are often difficult to adapt for clinical contexts. For example, observational assessments such as the Anx-DOS are routinely rated from recordings in research settings. In contrast, most clinical observational tools are designed to be rated live, or in real-time during the assessment administration.

Advancing the study of emotional assessment in young children necessitates a conceptual distinction between temperament and internalizing symptomology. For example, behavioral

inhibition (prominent shyness in novel and social situations[29]) has long been considered a normative temperamental profile that increases the risk of developing an anxiety disorder later in childhood,[30] but for some children may represent an early onset of disorder.[13,31] Unfortunately, most assessments do not capture child or family impairment, which is one way to distinguish between normative and clinical concerning variations within these constructs. Further, both early emerging symptoms of anxiety and temperamental measures have been used to successfully identify children with concurrent and later anxiety disorders.[32,33]

Whereas emotional symptoms reflect biological processes and mechanisms, there currently exists no biological “test.” While psychophysiological assessments can identify anxiety-related patterns of autonomic arousal (electrodermal activity (EDA), heart rate variability (HRV), breathing rate, stress cortisol), these vary greatly from one child to the next. Hence, while they can help researchers study emotional arousal in the laboratory, they have limited utility for making diagnostic decisions. A clinical diagnosis still requires a diagnostic interview to assess symptom onset, duration, severity, and associated impairment.

Key Research Questions

Key research questions include:

1. How can screening and assessment methods be improved to minimize reliance on parent report, while remaining minimally labor intensive?
2. How can assessments differentiate between normative variations in temperament and clinically significant emotional symptoms?
3. What criteria should be used to diagnose anxiety and depressive disorders in young children, or would employing a dimensional approach be advantageous?
4. How can awareness and recognition be improved to increase participation in prevention and early intervention efforts?

Recent Research Results

Significant advances have been made in assessment methods and age-appropriate diagnostic criteria for emotional disorders in young children.[12,34,35] Differentiation between symptoms of individual anxiety disorders (e.g., separation anxiety, generalized anxiety) has been found as

early as two years of age.[8] Assessment tools for children aged 3-5, including the Preschool Anxiety Scale - Revised, captures these various dimensions of anxiety symptoms.[36] Further, requiring evidence of impairment for diagnosis can minimize over-pathologizing.[37]

The most notable research advances in assessment are in the area of studying clinically-relevant units of analysis that can be measured objectively. These include constructs that may be behavioral, cognitive, or neurobiological, which underlie clinical syndromes (diagnoses).[38] This approach represents a departure from previous research that aimed to study diagnostic syndromes themselves, which are characterized by variations in presentation and a clinical approach to assessment, frustrating research progress.

Attention bias to threat—a cognitive profile in which children show more attention to potentially threatening stimuli—has been identified as a correlate or risk factor for anxiety disorders.[39] To study this and other cognitive phenomena, researchers have employed the use of event-related potentials (ERP), which are minute voltage changes detected by electroencephalogram, to measure brain activity in a specific region. This application of ERP has provided evidence of neural indicators related to attention bias to help uncover relationships to anxiety symptoms.[40]

Other research in young children has focused on physiological measures of arousal of the autonomic nervous system, which governs fear and emotional responses to trauma. Current research is investigating how risk and exposure to trauma can disrupt the nervous system functions, including affecting heart-rate variability as it relates to memory for traumatic events.[41] While these constructs may not aid current diagnostic procedures, they are helping researchers understand underlying constructs that may constitute risk for later emotional disorders.[42]

Regarding depression, novel findings have used functional magnetic resonance imaging (fMRI) to identify distinct patterns of brain activation, which were similar to those of adults with depression.[43] Recent fMRI research has indicated that children with preschool-onset depression showed a specific relationship between the volume of the hippocampus (which plays a role in the way fear learning and experiences of stress) and emotional responsivity in subcortical brain structures.[44] Finally, researchers have also used ERPs to measure changes in reward responses in the brain as a neural indicator of anhedonia in the context of a treatment study for preschool-onset depression.[45] These examples illustrate how modern psychological research is merging with neuroscience to clarify the relationship between clinical syndromes and brain function.

Finally, although a genetic test for anxiety and depressive disorders does not exist, the novel field of epigenetics research provides insight into how gene expression can be altered by the environment. Exposure to trauma, especially in childhood, can change gene expression and influence the risk of future generations developing similar conditions.[46]

Research Gaps

More research is needed to fully understand the phenomenology and diagnostic presentation of emotional disorders in young children. Also, research can improve the integration of data from observational systems, clinical interviews, child-report assessments, and measures of child and family impairment. Research that identifies meaningful ways of distinguishing between temperament and clinically significant emotional symptoms is also needed. While there have been significant advances in research on the underlying neurological functions as they relate to emotional disorders in young children, these have yet to dramatically improve assessment in clinical contexts. Finally, research is needed on best practices for increasing awareness of clinically significant emotional disturbances in young children to better engage parents, pediatricians, and educators in early identification, prevention, and intervention efforts.

Conclusions

Recent advances in assessment methods have made it clear that young children can suffer from serious emotional disorders. These disorders are distressing and impairing to young children and their families and present similarly to disorders in older children. Advancements have led to improved assessment methods (i.e., diagnostic interviews, observational systems, child-report assessments, psychophysiological tests) that reduce sole reliance on parent reports and increase diagnostic validity and reliability. Major advances in neuroscience and psychophysiological assessments of emotional functioning have contributed to a greater understanding of emotional disorders in young children. While these advances mark substantial progress, more research is needed. Despite availability, screening tools for identifying young children at risk are underutilized, partly due to limited awareness among pediatricians, parents, and educators. Even when identified, rates of parent participation in clinical services remain low.

Implications for parents, services and policy

The lack of awareness regarding the importance of identifying and ameliorating young children’s emotional disturbances is one of the greatest challenges facing advances in assessment and

identification of early childhood emotional problems. This problem is manifested by low levels of treatment-seeking behavior by parents,[17] as well as the rarity of referrals from pediatricians and early educators. Compared with externalizing problems, such as aggression, emotional symptoms tend to be more difficult to recognize and assess, and because they are less disruptive, they are less likely to get noticed. However, it is clear that young children can struggle with distressing and impairing emotional problems that warrant sophisticated assessment and treatment approaches. Emotional disorders reflect neurological function and interfere with important aspects of development. With this in mind, researchers continue to explore and refine assessment tools and screening measures to identify young children in need of services, but dissemination and broad systems for implementation are still developing.

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