

Depression and Anxiety in Preschoolers



A Review of the Past 7 Years

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KEYWORDS

• Preschool depression • Preschool anxiety • Early onset • Mental disorder • Review

KEY POINTS

- Empirical work increasingly validates and clarifies the clinical characteristics of internalizing disorders in preschool-aged children.
- Studies using structural and functional neuroimaging have highlighted neural differences among children with preschool-onset internalizing disorders, and these differences are strikingly similar to those found in adolescents and adults with internalizing disorders.
- Several evidence-based treatments have shown promise for preschool-onset internalizing disorder and additional research is currently underway to further validate these treatment options.

INTRODUCTION

A little more than a decade ago the concept of a preschooler with depression and/or anxiety disorders was not taken seriously. Many people think that early childhood is a time of happiness, joy, and freedom from this kind of adult-level burden. Others suggest that preschoolers do not have the emotional or intellectual capacity to even harbor such intense feelings. However, since that time, hundreds of articles have been published defining, describing, and validating preschool-onset internalizing disorders

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and linking these early disorders to differences in behavior and brain functioning later in life. The scientific community has come to accept that many disorders of childhood and adolescence may have their onset as early as preschool. This article focuses on advances made toward elucidating the nature of preschool-onset depression and anxiety disorders, specifically focusing on diagnostic assessment/comorbidities, prevalence, risk factors, neurobiological correlates, and prognosis/treatment. Because other recent articles and reviews^{1–5} have been published in this area, this article focuses on work conducted over the last 7 years.

With wider acceptance of preschool internalizing disorders came controversy over how to correctly differentiate depression and anxiety, as well as how to accurately diagnose these disorders in such young children. Research on this topic has traditionally been split between two approaches:

1. A broad, two-dimensional grouping of symptoms into categories such as internalizing and externalizing (eg, Child Behavior Checklist [CBCL] score)
2. A more categorically defined taxonomy of specific symptoms and disorders (eg, Diagnostic and Statistical Manual of Mental Disorders [DSM]–5).

There are strengths and weakness to both approaches. However, one primary challenge is the limited ability of preschoolers to verbalize their own emotional states related to these symptoms. In addition, there are also high levels of comorbidity between the internalizing disorders as well as between internalizing and externalizing disorders in childhood.^{6–8} Another potential problem to the categorically based approaches is the duration of symptoms that are often required to meet formal criteria for DSM-5 diagnosis. Certain disorders require durations that are developmentally inappropriate given the child's age. For instance, a 6-month duration for a child 3 or 4 years old represents a significant proportion of the child's life, and therefore may not be a developmentally appropriate threshold. In addition, given greater affective variation and shifting of mental state early in development, there is some evidence that young children have periods of brightening (eg, in major depressive disorder [MDD]) that may mitigate the presentation of persistent symptoms for several weeks.⁹

The remainder of this article first describes the literature on preschool internalizing disorders, defined broadly and typically comprising symptoms of depression and anxiety together. Next, it focuses on reviewing the literature that has assessed preschool-onset depression and anxiety as specific and discrete disorders.

RESEARCH ON PRESCHOOL INTERNALIZING DISORDERS

Literature examining internalizing disorders in early childhood has lagged far behind the literature for externalizing disorders, in part because of the nature of symptom presentation. For instance, a shy, withdrawn child is less likely to attract attention and disrupt social activities. Internalizing disorders are theorized to exist on a continuum, with early differences detectable even in infancy.¹⁰ However, work in this area continues to grow. One benefit of this more dimensional approach to assessment is that depression and anxiety are often intimately linked at this young age with high rates of comorbidity. Dimensional approaches account for this and provide children with a score indicating higher or lower internalizing symptoms. In much of the literature to date, symptoms are assessed using the CBCL¹¹ and/or the Strengths and Difficulties Questionnaire (SDQ¹²).

Sterba and colleagues¹³ modeled the course of maternal-reported internalizing symptoms on the CBCL in 1364 children from ages 2 to 11 years. Two-thirds of these children were grouped in a low, stable class of internalizing symptoms, indicating that,

over time, their symptoms remained below clinical thresholds. However, there were also groups of children who maintained increased symptoms across the years, and those who showed initial declines in symptoms during the preschool period, followed by increases at school age. These findings highlight both the high prevalence rates of significant internalizing symptoms in a community sample and the overall stability in young children's internalizing symptom trajectories over time. Using the DSM nosology and a structured interview (eg, Preschool Age Psychiatric Assessment [PAPA]), Sterba and colleagues¹⁴ also studied differentiation among disorders in a community sample of preschoolers stratified by CBCL scores and found evidence for 3 distinguishable internalizing syndromes: social phobia, separation anxiety, and generalized anxiety/MDD. These findings mirror what is often seen in older children, in that Generalized Anxiety Disorder/MDD are highly correlated and unidimensional. Attempting to replicate the findings of Sterba and colleagues,¹⁴ Strickland and colleagues¹⁵ assessed a large, ethnically diverse community sample of preschoolers ($n = 796$) with the Children's Symptom Inventory. However, 4 distinct syndromes were identified: social phobia, separation anxiety, generalized anxiety, and MDD. The investigators suggest that the discrepant findings may be caused by the stratification used in the Sterba and colleagues¹⁴ sample, as well as the slightly older range of ages in the replication sample.

Several psychosocial and child characteristics have been shown to be associated with risk for internalizing disorders in preschoolers, and many of these same risk factors correspond with risk for depression and anxiety as well. These risk factors include negative family environments, child temperament,¹⁶ problematic peer relationships, and stressful life events. Depression and anxiety symptoms (measured together)¹⁷ increased between 1.5 and 5 years of age, specifically for children in high-rising and moderate-rising trajectories. Difficult temperament at 5 months of age and maternal depression distinguished the high-rising trajectory from the lower-risk trajectories. In a large sample of German children ($n = 1887$), stressful life events predicted emotional and behavioral symptoms reported on the CBCL,¹⁸ and the effect was particularly strong for children experiencing multiple stressful life events. Specifically, a parent restarting work, the move of a best friend, a family move, and death of a parent were associated with increased rates of internalizing disorders. Several studies have used data from the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care and Youth Development, a longitudinal, multisite study of young children and their families to assess risk factors for internalizing mental disorder.^{13,19,20} Each showed variability in the development and stability of internalizing disorders across time, as well as several risk factors that predicted trajectory membership. Davis and colleagues¹⁹ found that a unique combination of high negative emotionality in children and high maternal warmth predicted trajectories of increasing internalizing symptoms across preschool through adolescence. Fanti and Henrich²⁰ found that, from ages 2 to 12 years, trajectories of pure internalizing symptoms were influenced by maternal history of depression, as well as greater risk for being asocial with peers at later ages.

Limited work has linked internalizing symptoms with differences in biological and neural indices. Cortisol reactivity to a laboratory challenge has been found to be dysregulated in preschoolers with internalizing symptoms, particularly among girls.²¹ One study used both cross-sectional and longitudinal analyses to evaluate the role of social and neuroendocrinological risk factors (eg, cortisol) in the development of internalizing symptoms at preschool.²² Both negative peer relations and family environments were concurrently associated with internalizing symptoms in preschoolers, with increases in cortisol level during a stressful task moderating the relationship between negative family environment and internalizing symptoms.

Few attempts have been made to evaluate treatment in broadly defined preschool internalizing disorders. One study found that a brief intervention delivered to parents of preschool children at risk for internalizing disorders showed benefits for girls into middle adolescence.²³ Given the high prevalence rates of internalizing disorders in young children and the strong likelihood of continuation throughout development, future work should focus on treatment evaluations and recommendations for these syndromes.

ASSESSMENT OF PRESCHOOL DEPRESSION

DSM-5 makes no distinction between childhood and adult forms of depression, with the disorder being characterized by the same core symptoms and across the lifespan. Symptoms include sadness/irritability, loss of pleasure/anhedonia, concentration difficulty, negative self-evaluations/guilt, recurrent thoughts about death/suicide, fatigue, and changes in appetite. Until recently, diagnoses of clinical depression in preschoolers have historically been met with skepticism and unease. Recent research has focused on describing, validating, and identifying specific, developmentally appropriate diagnostic criteria for application to preschool children.^{6,24} Research conducted by Luby and colleagues^{25,26} suggests that some adjustments to the current criteria for depression may be indicated, including the addition of a developmental adjustment to the death preoccupation symptom (eg, persistent engagement in activities or play themes with death or suicide) as well as lessening the duration criteria. In addition, this research found that the symptom of anhedonia in preschoolers marked a more severe subtype of depression that differentiated depressed preschoolers from both psychiatric and healthy control groups.²⁷ The symptom of anhedonia was the most specific for preschool MDD because reports of anhedonia were not seen in any healthy or attention-deficit/hyperactivity disorder (ADHD)/oppositional defiant disorder (ODD) preschoolers in the sample.²⁶ Luby and colleagues^{25,27,28} have published extensively on the reliability and validity of these adjusted criteria for preschool children in 2 unique samples.⁹ Furthermore, data from numerous national and international sites have validated the construct of preschool depression^{29–31} using similar structured assessment measures.

There are several methods available to assess for preschool depression from a DSM framework. These methods include both screening checklists and structured interviews. One method that has been successfully used to screen for depression in preschool children is the Preschool Feelings Checklist,³² which is a 16-item yes-or-no questionnaire that is suitable for use in a variety of settings, such as community-based centers and primary care offices, with established reliability.³² A score of 3 or greater on this checklist typically indicates depressive symptoms at clinically significant levels, and signals that further clinical evaluation is warranted. This tool offers a major public health benefit, namely the ability to quickly screen for depression in young children in a variety of settings. Other more generic screening tools that also include depression subscales are the CBCL¹¹ and the SDQ.¹² The most widely used structured interview for assessing preschool depression to date is the PAPA.^{33,34} The PAPA consists of a series of developmentally appropriate questions assessing the DSM criteria for childhood depression, with information being obtained from parents of children in this young age range. Other work has also used the Diagnostic Interview Schedule for Children, Parent Scale, Young Child.³⁵ A new version of the Kiddie Schedule for Affective Disorders Early Childhood has also recently been developed and is in use in several ongoing studies.³⁶

PREVALENCE AND COURSE OF PRESCHOOL DEPRESSION

The population prevalence of preschool-onset depression remains understudied, given the recent acceptance by the scientific and clinical community of this phenomenon. Further, there have been few epidemiologic studies using developmentally appropriate diagnostic interviews.^{7,34,37} Egger and Angold⁶ found rates of preschool depression ranging from 0% to 2.1% depending on the sample and assessment measure used. These prevalence rates for preschool depression (~2%) were later replicated in 2 different community samples in 2009⁷ and 2011.³⁸ Recently, Wichström and colleagues⁸ assessed a community sample of Norwegian children ($n = 2475$) using a structured diagnostic tool, the PAPA,^{33,34} to determine the prevalence of psychiatric disorders in preschoolers. The prevalence rate in this sample was approximately 2%, similar to studies conducted in the United States.

Because the investigation of preschool-onset depression is still fairly new, there is little information regarding the stability and course of preschool depression into later childhood.^{14,39,40} Consistent with homotypic continuity, preschool depression predicts MDD later in childhood and adolescence.^{39,41,42} However, evidence also suggests that preschool depression predicts anxiety disorders and ADHD in later childhood as well.^{39,43} Using structured clinical interviews across time, one study found gender differences in depressive symptom severity from preschool through early adolescence.⁴⁴ Specifically, boys in the high-severity class showed an increase in symptoms from preschool through early school age followed by a decline in later school age, whereas girls in the high-severity latent class remained stable and high in depressive symptoms across time. Early childhood social adversity, familial history of affective disorder, preschool-onset ODD/CD, and school-age functional impairment differentiated high-risk trajectory classes among both boys and girls.⁴⁴

FACTORS ASSOCIATED WITH PRESCHOOL DEPRESSION

Factors and mechanisms contributing to preschool-onset depression remain understudied, particularly compared with known risk factors and mechanisms of childhood and adolescent depression. These factors encompass a variety of domains, including constructs both within child, family, and broader environmental systems.⁴⁵

In addition to the anhedonia research described earlier, pathologic guilt^{46–48} and irritability^{49,50} have also emerged as key markers of preschool depression. Pathologic guilt is defined as a very low threshold for experiencing guilt following a transgression and may manifest as preoccupied, delayed recovery from guilty feelings, even for situations in which the child is not responsible.⁴⁶ This type of guilt occurring during the preschool years was found to be associated with smaller anterior insula volumes, a region known to be associated with guilt processing, measured at school age, which were predictive of a recurrence of depression.⁵¹ Irritability has been defined as a low frustration tolerance characterized by anger and temper outbursts. Data from a large community sample of preschoolers also show that irritability measured at age 3 years predicted both depression and ODD at age 6 years,⁵⁰ even after accounting for overlapping items between irritability and psychiatric diagnoses. Furthermore, in the same sample, irritability continued to predict greater functional impairment and treatment use at age 9 years, although it did not continue to predict depression at age 9 years.⁵⁰ Changes in sleep and increased fatigue are also commonly reported symptoms of preschool depression.^{46,50} However, sleep patterns have also been shown to be a risk factor for preschool depression and anxiety. Specifically, parent-reported sleep onset latency and the child's refusal to sleep alone independently predicted both preschool-onset depression and anxiety severity across time.⁵² This work

suggests that 2 common sleep problems may be important to target in early interventions for preschool depression.

Surprisingly little work has focused on thoughts of death and suicidal ideation (SI) in preschool-onset depression.^{53–55} In part, the lack of research has been attributed to the belief that young children do not possess a mature, coherent conceptualization of death and dying. In addition, the meaning of death-related and suicidal statements and actions by young children is unclear; perhaps they represent a more general signal of distress, rather than an explicit wish to die. In one of the only studies of such behavior in preschool children younger than 7 years, Whalen and colleagues⁵³ evaluated the clinical significance of suicidality in a sample of 306 children between the ages of 3 and 7 years enrolled in a longitudinal investigation of preschool depression. Preschool SI was concurrently associated with several child mental disorders, including depression, anxiety disorders, ADHD, ODD, and CD, as well as demographic variables, including male gender and maternal psychiatric mental disorder. Preschool SI was the strongest predictor of later, school-age SI, even when controlling for psychiatric disorders at both time points.⁵³ Thus, the continuity of SI into later childhood suggests that, much like preschool-onset depression, preschool-onset SI may not be a developmentally transient phenomenon.

Other work has focused on the heritability/genetics^{56–59} associated with early-onset depression and, more specifically, a large body of literature has linked parental history of depression and related mental disorder to preschool-onset depression in their children.^{29,41,42,60,61} For example, a recent epidemiologic study found 2 distinct pathways linking prenatal and postnatal maternal depression to adolescent depressive symptoms: one pathway through preschool irritability symptoms and another through preschool anxiety/depressive symptoms.⁴² The investigators suggest that prenatal maternal depressive symptoms may lead to an intrauterine environment that is not conducive to healthy fetal development, thereby increasing risk for atypical development in childhood. Further, it is well documented that postnatal maternal depressive symptoms negatively affect the mother's ability to provide sensitive and responsive caregiving, increasing the risk for problematic outcomes in her children.

Early childhood temperament has emerged as a risk factor for depression both in preschool and at older ages.^{17,19,29,41,42,60,62,63} For example, in a multimethod, multi-informant, longitudinal study of preschoolers, early childhood temperament (age 3 years) was assessed using the Laboratory Temperament Assessment Battery, with each child participating in a standardized set of 12 tasks designed to elicit positive and negative affectivity, as well as inhibitory control.²⁹ Observed inhibitory control prospectively predicted the onset of depression by age 6 years. Interesting statistical interactions also emerged between early child temperament, early life stress, and parental mood disorders. Specifically, early life stress seemed to more greatly affect children with low temperamental fear/inhibition and without a history of parental mood/anxiety disorder to predict the onset of depression.

Research stemming from the Preschool Depression Study (PDS), a longitudinal study of preschool depression that has also included multiple waves of neuroimaging,⁴⁷ has uncovered several unique psychosocial and health factors associated with preschool-onset depression. For instance, children diagnosed with preschool-onset depression and/or anxiety disorders were no more likely than healthy preschoolers to be involved in relational aggression as an aggressor or victim at preschool or school age.⁶⁴ However, children with a preschool-onset depression and/or anxiety diagnosis were more than 6 times as likely to be classified as aggressive-victim at school age compared with healthy preschoolers. This finding held even after controlling for prior aggressor/victim status as well as current psychiatric symptoms

and functional impairment. This finding suggests that preschool-onset psychiatric disorders may be a pathway toward poor peer relationships at school age. Growth mixture modeling was also used to create physical health trajectories in the PDS sample.⁶⁵ Two unique trajectories were found:

1. A stable low group with few physical health problems
2. A high, increasing group of children who experienced higher and increasing physical health problems over time

Preschool psychiatric diagnoses, including depression, were found to predict membership in the high, increasing latent trajectory class. Furthermore, preschool psychiatric disorders mediated relations between adversity and physical health, suggesting a strong influence of early symptoms on co-occurring and later physical health problems. In addition, preschoolers in this study were grouped according to the intensity of their tantrum behaviors: normative, excessive without aggression, and excessive with aggression.⁶⁶ Preschoolers with a diagnosis of MDD were much more likely to engage in self-injurious behavior during a tantrum episode than healthy preschoolers as well as preschoolers with other disruptive behavior diagnoses.

Moving to factors outside the child, family stress/conflict,^{17,60,67} parenting practices,⁶⁰ and neglect⁶⁸ have all been shown to be associated with preschool-onset depression. In a diverse community sample of $n = 796$ 4-year-olds, multiple risk factors encompassing several domains were assessed and then incorporated into models to determine unique correlates of depressive versus anxiety symptoms.⁶⁰ The best-fitting model specified that family stress/conflict had direct effects on child symptoms of depression and anxiety, as well as indirect effects on these symptoms through pathways incorporating parenting depressive symptoms and parenting practices. Of interest is that distal risk factors, such as socioeconomic status and family stress/conflict affected child symptoms through long mediational chains with variables that were more proximal to the child (eg, temperament).

NEUROBIOLOGICAL CORRELATES OF PRESCHOOL DEPRESSION

A particularly exciting and innovative area is investigation of neural indicators as predictors of preschool depression as well as the ways in which preschool depression alters neurocircuitry. There have been several studies that investigated neural correlates of currently depressed preschoolers^{69,70} and in children/adolescents with a history of preschool depression.^{51,71–79} For example, one study used functional MRI (fMRI) to examine functional brain activity and its relationship to emotion regulation in $n = 23$ currently depressed preschoolers aged 4 to 6 years and $n = 31$ matched, healthy preschoolers.⁶⁹ The investigators found evidence for increased amygdala activity during a face-viewing task in depressed compared with healthy preschoolers. This finding mirrors what has been shown in older children and adolescents with depression and suggests that disrupted amygdala functioning may be a neural biomarker for depression. Neurobiological alterations have also been shown in older children/adolescents with a history of preschool-onset depression. Findings from the PDS sample indicate greater activation to sad faces in the bilateral frontal cortex, amygdala, claustrum hippocampal, and parahippocampal gyrus,⁷¹ as well as less activity in regions of the prefrontal cortex following a sad mood induction⁷⁵ among children with a history of preschool-onset depression. This same sample also showed smaller left hippocampal volumes and significant negative correlations between right hippocampal volume and left amygdala activation to negatively valenced faces,⁷⁶ a pattern often seen in childhood and adolescent MDD. Alterations have also been shown in subgenual cingulate

connectivity,⁷³ default mode network connectivity,⁷² and functional connectivity of the amygdala.⁷⁴ Children in the PDS study have completed up to 3 fMRI scans, allowing for trajectories of development in specific brain regions to be modeled. Recently, Luby and colleagues⁷⁷ examined the impact of early childhood depression on trajectories of cortical gray matter development across the 3 fMRI scans. Experiencing preschool-onset depression led to alterations in neural development, specifically cortical gray matter volume loss and thinning over time. Taken together, this body of work provides strong evidence for significant neurobiological alterations in currently depressed as well as previously depressed preschoolers that continues throughout childhood and into adolescence.

Other work has focused on neural reactivity assessed using event-related potentials (ERPs) in preschoolers with depression⁸⁰ and using ERP as an indicator of risk for depression.⁶³ For example, children ($n = 84$) participating in a large ongoing randomized controlled trial, the Parent-Child Interaction Therapy–Emotion Development (PCIT-ED), for preschool-onset MDD (PO-MDD) completed a guessing game while ERPs were recorded.⁸⁰ Of these, $n = 53$ depressed preschoolers (aged 4–7 years) and $n = 25$ matched, healthy control children had usable data. Depressed children had reduced reward positivity, an ERP component that indexes responses to positive outcomes compared with healthy children. This reduction is consistent with findings from samples of depressed adolescents and adults, and offers the first evidence for similar reward-related neural dysfunction at a much younger age, highlighting the importance of reward processing in understanding the pathophysiology of depression.

In addition to neurologic correlates, physiologic correlates have also been studied and linked to PO-MDD. In one study, $N = 166$ 4-year-old children participating in an ongoing longitudinal study of temperament and risk for depression provided a morning or evening cortisol sample.⁶² Observational assessments of temperament and parenting practices were conducted as well as clinical interviews assessing maternal history of depression and life stress. Findings indicate that increased waking cortisol level was associated with maternal history of depression and lower child positive emotionality before the onset of depression. This finding suggests that increased waking cortisol level may be a vulnerability marker for later depression, particularly because it is highly related to other prominent risk factors, such as parental history and temperament.

TREATMENT OF PRESCHOOL DEPRESSION

Evidence-based options for the treatment of preschool depression include both parenting interventions and psychotherapeutic interventions. Again, work from Luby and colleagues^{26,81,82} has been at the forefront of this area.⁸³ There are several psychotherapies designed for other psychiatric disorders in preschool children; however, these do not have empirical validation for the treatment of depression. For example, play therapy is widely used with very young children; this approach is often used for a host of problems presenting in early childhood, but empirical evidence showing efficacy is lacking. Other techniques based on cognitive-behavioral principles have also been applied to treat internalizing symptoms in young children, with some forms designed and tested for posttraumatic stress disorder.^{84,85} However, to date there have been no specific adaptations made to treat preschool depression. Given the limited empirical validity of treatments for preschool-onset depression, Luby and colleagues⁸² developed the PCIT-ED to specifically address the emotion development impairments hypothesized to characterize early-onset depression. PCIT-ED includes

3 modules conducted over 14 sessions. PCIT targets the parent-child relationship using behavioral and play therapy techniques to enhance relationship quality and parents' ability to set nurturing and effective limits with the child. This therapy seems to be a promising treatment of PO-MDD.^{81,83}

Although the literature contains some case reports of the use of antidepressants in preschool children, no large-scale empirical studies that investigate the safety and efficacy of these medications have been conducted in children less than 7 years of age. Further, there is some evidence that young children are more prone to some of the activating side effects of antidepressant medications.⁸⁶ Based on this, the use of medications is not recommended as a first or second line of treatment of preschool depression and should be considered only in severe and treatment-resistant cases. If medication is used, patients should be closely monitored by a child psychiatrist.

ASSESSMENT OF PRESCHOOL ANXIETY DISORDERS

DSM-5 defines anxiety disorders as “disorders that share features of excessive fear and anxiety and related behavioral disorders.”⁸⁷ DSM-5 describes 11 different anxiety disorders, and the 4 most common anxiety disorders experienced in the preschool period are:

- Separation anxiety disorder (excessive fear surrounding separation from caregivers)
- Social phobia (excessive fear of negative social evaluation)
- Generalized anxiety disorder (excessive anxious anticipation of future events)
- Specific phobia (excessive fear of specific stimuli, such as dogs or heights)

Several studies have confirmed that anxiety symptoms in preschoolers tend to cluster into the specific categories listed earlier and support the use of these different diagnoses in preschoolers rather than 1 nonspecific anxiety disorder diagnosis.^{15,88,89} Notably, posttraumatic stress disorder and obsessive-compulsive disorder are no longer classified as anxiety disorders and are not considered here.

When considering whether a child has a preschool anxiety disorder, it is critical to distinguish symptoms that cross the clinical threshold from normative situational fear. Fear is a normative, adaptive emotional response to perceived threats in the environment. The fear response includes physiologic responses such as increased heart rate and overt behavioral manifestations such as fearful expressions or crying; these responses serve important adaptive functions to promote fight or flight in response to threats as well as providing cues to caregivers to promote protective behaviors. Normative fear follows a well-defined developmental trajectory that is preserved across cultures: stranger anxiety emerges at around age 9 months, whereas separation anxiety occurs in the first year or two of life.^{90,91}

Anxiety disorders are distinguished from normal fear and anxiety based on high levels of distress and functional impairment. Of note, fear and anxiety may be expressed differently in preschoolers compared with adults and may be expressed as crying, anger, avoidance, freezing, clinging, or tantrums. Impairment in preschool anxiety disorders can take several forms, including high levels of distress, avoidance of important activities such as school or peer interactions, and disruption of family functioning. Several studies using objective measures have discovered that, in many cases, preschool anxiety disorders can be highly impairing^{38,92} and are even more impairing in the context of comorbid depression⁹³ or ODD.⁹⁴

Because of the high degree of variability in expression of anxiety during the preschool period and because of the difficulty in distinguishing normative from clinically

significant fear, it is important to use a multimodal approach to diagnosing preschool anxiety disorders. Ideally, the assessment of preschoolers includes parent-report and teacher-report symptom questionnaires,^{11,89} diagnostic interviews with the child and parent,^{6,95} and direct observation of the child in situations that are expected to provoke mild fear.⁹⁶ As with other preschool psychiatric assessments, it is also important to obtain a comprehensive assessment of medical, social, school, and familial factors.

PREVALENCE OF PRESCHOOL ANXIETY DISORDERS

Most studies estimate the prevalence of preschool anxiety disorders in the range of 10% to 20%,^{6,7,37,38,92,94,97–99} although some studies cite prevalences as low as 1.5%⁸ and others report prevalences of more than 20%.¹⁰⁰ The wide variation likely reflects variation in assessment tools (clinical interview, parental report, direct observation) and geographic location, and demographic differences between study samples. Despite this variation, anxiety disorders are widely acknowledged as the most prevalent class of psychiatric illness during the preschool period and across the lifespan, and retrospective studies report the median age of onset for anxiety disorders at around 6 years of age.^{97,101,102} Altogether, these data suggest that anxiety disorders are the most common type of psychiatric illness for all age groups, and symptoms usually start during or near the preschool period. In contrast with older children and adults,^{101,102} most studies during the preschool period do not find that prevalence rates for anxiety disorders differ based on sex^{7,97,103–105} or ethnicity.^{7,103,106} Preschoolers with anxiety disorders are more likely to have other anxiety disorders,^{38,100} depression,³⁸ ADHD,⁷ and ODD^{7,38,94} relative to peers, with up to 30% to 50% of preschoolers with anxiety disorder having some other nonanxious psychiatric disorder.⁹²

RISK FACTORS FOR PRESCHOOL ANXIETY DISORDERS

Heritability estimates for preschool anxiety disorders range widely, from 40% to 65%.¹⁰⁷ These estimates are lower than for other psychiatric disorders such as autism, schizophrenia, ADHD, and bipolar disorder,¹⁰⁸ suggesting a strong influence of both genetics and environment in determining risk for preschool anxiety disorders.

Temperament, defined as early-appearing, traitlike individual differences in emotional, attentional, and motor reactivity to novel stimuli,¹⁰⁹ is one of the most potent known risk factors for developing an anxiety disorder across the lifespan, including during the preschool period. Behavioral inhibition (BI) is a temperament that can be measured during the first year of life and is associated with high reactivity and negative emotional response to novel stimuli such as strangers or new toys. BI has consistently been identified as a strong risk factor for developing an anxiety disorder as a preschooler^{100,103,105,110} and beyond.^{111,112} In addition to BI, the temperaments of low positive affectivity,¹⁰³ low sociability, low exuberance,¹¹³ high negative affect, and low effortful control⁶⁰ have also been associated with risk for preschool anxiety disorders.

Several family-based factors have also been associated with risk for preschool anxiety disorders; these factors may operate through a combination of genetic and environmental influences. Parental history of internalizing difficulties, including high anxiety,¹⁰⁵ an anxiety disorder,¹⁰³ or depression,^{60,103} is a risk factor for preschool anxiety disorders. Parental anxiety and depression could be associated with preschool anxiety through genetic transmission, parenting techniques, observation of parental anxiety, or other mechanisms.^{114,115} Beyond family history, parents who are younger,³⁸ poorer,^{38,60} and less educated¹⁰³ are more likely to have children

with preschool anxiety disorders. Family structure is also related to risk, because children who do not live with both biological parents and children with more siblings in the household⁹² are more likely to develop preschool anxiety disorders relative to peers. Life stressors additionally confer risk for preschool anxiety disorders,^{103,116} and preschoolers with high levels of conflict in the home are more likely to experience significant anxiety relative to preschoolers in low-conflict homes.⁶⁰

Variation in parenting styles is also associated with variation in risk for preschool anxiety disorders. The parenting style with the least risk for preschool anxiety is authoritative: high in both warmth and control.¹⁰³ This type of parent is sensitive and empathic to the child's fears, but still gently and firmly encourages gradual exposure to feared stimuli (such as peer interactions). Parents who are less supportive of their children's emotions or more permissive in allowing their children to avoid feared stimuli are more likely to have a child with a preschool anxiety disorder.^{103,117,118} Similarly, overprotective parenting is associated with increased risk for preschool anxiety disorders.^{106,110,116} Overprotective parenting may be associated with anxiety disorders because children are not given the opportunity to master feared situations such as separating from caregivers or communicating with peers.

TREATMENT OF PRESCHOOL ANXIETY DISORDERS

Evidence-based options for treatment of preschool anxiety disorders include a variety of parenting¹¹⁹ and psychotherapeutic interventions. Several studies support the use of cognitive behavior therapy (CBT)^{120–124} with heavy parental involvement during treatment. Including the parent in sessions may increase preschoolers' comfort and aid in extending therapeutic techniques outside the therapy session. In addition to CBT, evidence also supports the use of modified versions of PCIT in the treatment of preschool anxiety disorders.^{125,126} A combination of training in parenting skills, cognitive restructuring, and exposure has been shown to reduce progression to anxiety disorders in preschoolers at high risk based on having high BI.¹²⁷

In contrast with a strong evidence base for psychotherapeutic interventions, there is limited support for the use of medication for preschool anxiety disorders. In general, medication should be reserved for highly impaired children who are not candidates for therapy or who fail other interventions. A recent review describes 11 preliminary studies of medication in preschool depressive and anxiety disorders and suggests that medications may be beneficial in some instances.¹²⁸

CASE STUDY

W.H. is a 4.5-year-old white boy who for the last 6 months has displayed frequent sadness and irritability with minor frustrations or having preferences not met (eg, being given the wrong-color cup). He expresses a persistent negative self-view and thinks he is not as good as other children at sports and that no one likes him (when there is no evidence that this is true). He has on several occasions been so upset about this that he has stated that he wished he was dead. When he breaks a rule, he apologizes excessively to his mother after he is caught. He has a great deal of difficulty separating from his mother to go to preschool every morning and elaborate good-bye rituals have been necessary with many reassurances. He has a family history of affective disorders in relatives but has no other medical or developmental problems. He is from an intact family but there is a great deal of marital conflict, which he worries about.

This case provides a typical picture of depression with associated separation anxiety in a preschool child. Persistent negative self-appraisals as well as excessive guilt are the markers most suggestive of depression, because the irritability evident in this

case is a more nonspecific marker. Parent-child psychotherapy that focuses on the relationships and enhancing more adaptive emotion processing would be a first line of treatment in this case.

SUMMARY

This article reviews recent literature on preschool-onset depression and anxiety, with a focus on assessment, prevalence, risk factors, and treatment options. A surprising amount of research has been conducted on preschool-onset internalizing disorders over the last 10 years; the field seems to be moving toward general acceptance and recognition for these constellations of symptoms in young children. Despite this growth in research, much work still needs to be done to further elucidate the causes, risks, and protective factors for preschool-onset internalizing disorders. More specifically, as outlined by Hankin,⁵ there is still a great need for developmental, theoretic models to incorporate research findings from multiple levels of analysis, including neurobiological, genetic, environmental, to more effectively highlight key causal and risk factors contributing to preschool internalizing symptoms. In addition, these types of models will uncover the protective factors that shield young children from these early-onset disorders, leading to more effective and targeted treatments.

In addition, this article highlights the need for and importance of longitudinal studies focused on early-onset internalizing disorders. These types of studies likely need to begin during infancy to capture the prodromal period for early-onset internalizing disorders. Given the vast differences already seen in physiologic, neurobiological, emotional, and social functioning among preschoolers with and without internalizing disorders, research is now needed to investigate these areas at younger ages, before the onset of disorder. In addition, as stated earlier, they need to include assessments in various domains of functioning.

Along this line, the unique pathways differentiating trajectories of and risk factors for preschool-onset anxiety disorders and depression remain unclear. It seems that there is a general set of risk factors that are related to both anxiety disorders and depression in preschoolers, with some additional evidence supporting the distinctiveness of particular risk factors, such as guilt, for depression and unique symptom profiles differentiating depression and anxiety. This issue is further complicated by the high rates of comorbidity between anxiety and depression in this age range (as well as throughout childhood) and the well-documented multifinality in outcomes among children with early-onset depression and anxiety. Beginning to answer these exciting but fundamental questions on preschool internalizing disorders will significantly challenge researchers and clinicians for the remainder of the decade.

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