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Depression and Anxiety in Preschoolers: A Review of the Past 7 Years

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Synopsis

This article reviews recent empirical literature on the prevalence, correlates, assessment, and treatment of preschool-onset internalizing disorders. Major advances in the acceptance and recognition of both preschool-onset depression and anxiety have occurred over the past decade. This work has been greatly enhanced by the discovery of genetic, neural, and physiological indicators, which further validate these constellations of symptoms in young children. Despite this growth in research, much work still needs to be done to further elucidate the etiology, risk treatment and protective factors for preschool-onset internalizing disorders.

Keywords

preschool depression; preschool anxiety; early-onset; psychopathology; review

Introduction

A little over a decade ago the concept of a preschooler with depression and/or anxiety disorders was not taken seriously. Many believe early childhood to be a time of happiness, joy, and freedom from this kind adult-level of burden. Others suggest that preschoolers do not have the emotional or intellectual capacity to even harbor such intense feelings. Since that time, however, hundreds of papers have been published defining, describing, and validating preschool-onset internalizing disorders 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 onset as early as preschool. In this review, we focus on advances made toward elucidating the nature of preschool-onset depression and anxiety disorders, specifically focusing on diagnostic

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assessment/co-morbidities, prevalence, risk factors, neurobiological correlates and prognosis/treatment. As other recent chapters and reviews¹⁻⁵ have been published in this area, we focus on work conducted over the last seven 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. Traditionally research on this topic has been split between two approaches:

1. a broad, two-dimensional grouping of symptoms into categories such as internalizing and externalizing (e.g., CBCL score) and
2. a more categorically defined taxonomy of specific symptoms and disorders (e.g., 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 co-morbidity between the internalizing disorders as well as between internalizing and externalizing disorders in childhood⁶⁻⁸. 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 3 or 4 year 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 (for example in MDD) that may mitigate the presentation of persistent symptoms for several weeks⁹.

For the remainder of this review, we first describe literature on preschool internalizing disorders, defined broadly and that typically comprise of symptoms of depression and anxiety together. Next, we focus 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 externalizing disorders, in part due to the nature of symptom presentation. For instance, a shy, withdrawn child is less likely to draw attention to him/herself and disrupt social activities. Internalizing disorders are theorized to exist on a continuum, with early differences detectable even in infancy¹⁰. 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 co-morbidity. 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 Child Behavior Checklist (CBCL¹¹) and/or the Strengths and Difficulties Questionnaire (SDQ¹²).

Sterba and colleagues¹³ modeled the course of maternal-reported internalizing symptoms on the CBCL in 1,364 children from ages 2–11. 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 elevated 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 relatively 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 (e.g., PAPA), Sterba and colleagues¹⁴ also looked at differentiation among disorders in a community sample of preschoolers stratified by CBCL scores and found evidence for three, distinguishable internalizing syndromes: social phobia, separation anxiety, and generalized anxiety/MDD. These findings mirror what is often seen in older children, in that GAD/MDD are highly correlated and unidimensional. Attempting to replicate the findings of Sterba and colleagues¹⁴, Strickland and colleagues¹⁵ assessed a large ethnically-diverse community sample of preschoolers ($n = 796$) with the Children's Symptom Inventory (CSI). However, in this sample, four distinct syndromes were identified: social phobia, separation anxiety, generalized anxiety, and MDD. The authors suggest that the discrepant findings may be due to the stratification used in the Sterba 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 to risk for depression and anxiety as well. These include: negative family environments, child temperament¹⁶, problematic peer relationships, and stressful life events, among others. Depression and anxiety symptoms (measured together, labeled DAS)¹⁷ increased between 1 ½ to 5 years of age, specifically for children in high-rising and moderate-rising trajectories. Difficult temperament at five 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 CBCL¹⁸, and the effect was particularly strong for children experiencing multiple stressful life events. Specifically, a parent re-starting work, move of a best friend, family move, and death of a parent were associated with increased rates of internalizing disorders. Several studies have utilized data from the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care and Youth development, a longitudinal, multi-site study of young children and their families to assess risk factors for internalizing psychopathology^{13,19,20}. Each evidenced variability in the development and stability of internalizing disorders across time, as well as several risk factors that predicted trajectory membership. Davis and colleagues found that a unique combination of high negative emotionality in children and high maternal warmth predicted trajectories of increasing internalizing symptoms across preschool through adolescence¹⁹. Fanti and Henrich found that from ages 2–12, trajectories of pure internalizing symptoms were influenced by maternal history of depression, as well as greater risk for being asocial with peers at later ages²⁰.

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 girls²¹. One study used both cross-sectional and longitudinal analyses to evaluate the role of social and neuroendocrinological risk factors (e.g., cortisol) in the development of internalizing symptoms at preschool²². Both negative peer relations and family environments were concurrently associated with internalizing symptoms in preschoolers, with cortisol increases during a stressful task moderating the relationship between negative family environment and internalizing symptoms.

Very 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 adolescence²³. 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, 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 (e.g., “persistent engagement in activities or play themes with death or suicide”) as well as lessening the duration criteria^{25,26}. 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 groups²⁷. The symptom of anhedonia was the most specific for preschool MDD as reports of anhedonia were not seen in any healthy or ADHD/ODD preschoolers in the sample²⁶. Luby and colleagues have published extensively on the reliability and validity of these adjusted criteria for preschool children in two unique samples^{9,25,27,28}. 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 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 (PFC)³². This 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 reliability³². A score of 3 or greater on this checklist is typically

indicative of 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 sub-scales are the Child Behavior Checklist (CBCL¹¹) and/or the Strengths and Difficulties Questionnaire (SDQ¹²). The most widely used structured interview for assessing preschool depression to date is the Preschool Age Psychiatric Assessment (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 during this young age range. Other work has also used the Diagnostic Interview Schedule for Children-Parent Scale-Young child version (DISC-YC)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 studies³⁶.

Prevalence and Course of Preschool Depression

The population prevalence of preschool-onset depression remains understudied, given the relatively recent acceptance by the scientific and clinical community of this phenomenon. Further, there have been very few epidemiological studies using developmentally appropriate diagnostic interviews^{7,34,37}. Egger and Angold found rates of preschool depression ranging from 0–2.1% depending on the sample and assessment measure used⁶. These prevalence rates for preschool depression (~2%) were later replicated in two different community samples in 2009⁷ and 2011³⁸. Recently, Wichstrøm and colleagues⁸ assessed a community sample of Norwegian children ($n=2,475$) using a structured diagnostic tool, the preschool Age Psychiatric Assessment (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.

Since the investigation of preschool-onset depression is still relatively 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^{41–43}. However, evidence also suggests that preschool depression predicts anxiety disorders and ADHD in later childhood as well^{41,44}. Using structured clinical interviews across time, one study found gender differences in depressive symptom severity from preschool through early adolescence⁴⁵. Specifically, boys in the high severity class evidenced 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 girls⁴⁵.

Factors Associated with Preschool Depression

Factors and mechanisms contributing to preschool-onset depression remain understudied, particularly when compared to 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 systems⁴⁶.

In addition to the anhedonia research described above, pathological guilt⁴⁷⁻⁴⁹ and irritability^{50,51} have also emerged as key markers of preschool depression. Pathological 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 where the child is not responsible⁴⁷. 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 depression⁵². Irritability has been defined as a low frustration tolerance characterized by anger and temper outbursts. Data from a large, community sample of preschoolers also shows that irritability measured at age 3 predicted both depression and ODD at age 6 years⁵¹, even after accounting for overlapping items between irritability and psychiatric diagnoses. Furthermore, in this same sample, irritability continued to predict greater functional impairment and treatment use at age 9, although it did not continue to predict depression at age 9⁵⁰. Changes in sleep and increased fatigue are also commonly reported symptoms of preschool depression^{47,51}. 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 time⁵³. This work suggests that two, relatively 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 depression⁵⁴⁻⁵⁶. 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 looking such behavior in preschool children younger than 7, Whalen and colleagues⁵⁴ evaluated the clinical significance of suicidality in a sample of 306 children between the ages 3 and 7 enrolled in a longitudinal investigation of preschool depression. Preschool suicidal ideation was concurrently associated with several child psychopathologies, including depression, anxiety disorders, ADHD, ODD, and CD, and demographic variables, including male gender and maternal psychiatric psychopathology. Preschool SI was the strongest predictor of later, school-age SI, even when controlling for psychiatric disorders at both time points⁵⁴. Thus, the continuity of suicidal ideation 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/genetics⁵⁷⁻⁶⁰ associated with early-onset depression and more specifically, a large body of literature has linked parental history of depression and related psychopathology to preschool-onset depression in their children^{29,42,43,61,62}. For example, a recent epidemiological study found two distinct pathways linking pre- and post-natal maternal depression to adolescent depressive symptoms, one pathway through preschool irritability symptoms and another through

preschool anxiety/depressive symptoms⁴³. The authors suggest that prenatal maternal depressive symptoms may lead to an intra-uterine 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 impact a mother's ability to provide sensitive and responsive caregiving, increasing the risk for problematic outcomes in their children.

Early childhood temperament has emerged as a risk factor for depression in both preschool and at older ages^{19,29,42,43,61,63–65}. For example, in a multi-method, multi-informant longitudinal study of preschoolers, early childhood temperament (age 3) was assessed using the Laboratory Temperament Assessment Battery (Lab-TAB) where each child participated in a standardized set of 12 tasks designed to elicit positive and negative affectivity, as well as inhibitory control²⁹. Observed inhibitory control prospectively predicted the onset of depression by age 6. Interesting statistical interactions also emerged between early child temperament, early life stress, and parental mood disorders. Specifically, early life stress appeared to more greatly impact 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 neuroimaging⁴⁸ has uncovered a number of 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-age⁶⁶. However, children with a preschool-onset depression and/or anxiety diagnosis were more than six times as likely to be classified as aggressive-victims at school-age, when compared to 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 sample⁶⁷. Two unique trajectories were found:

1. a stable low group evidencing few physical health problems, and
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 behavior: normative, excessive without aggression, and excessive with aggression⁶⁸. 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 of the child, family stress/conflict^{17,61,69}, parenting practices⁶¹, and neglect⁷⁰ have all been shown to be associated with preschool-onset depression. In a diverse community sample of n=796 four-year-olds, multiple risk factors encompassing several domains were assessed and then incorporated into models to determine unique correlates of depressive versus anxiety symptoms⁶¹. 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 SES and family stress/conflict impacted child symptoms through long mediational chains with variables that were more proximal to the child (e.g., 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^{71,72} and in children/adolescents with a history of preschool depression^{52,73–81}. For example, one study used functional magnetic resonance imaging (fMRI) to examine functional brain activity and its relationship to emotion regulation in n=23 currently depressed, 4–6 year old preschoolers and n=31 matched, healthy preschoolers⁷¹. The authors found evidence for increased amygdala activity during a face-viewing task in depressed, compared to 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 gyrus⁷³, as well as less activity in regions of the prefrontal cortex following a sad mood induction⁷⁷ among children with a history of preschool-onset depression. This same sample also evidenced smaller left hippocampal volumes and significant negative correlations between right hippocampal volume and left amygdala activation to negatively valenced faces⁷⁸, a pattern often seen in childhood and adolescent MDD. Alterations have also been shown in subgenual cingulate connectivity⁷⁵, default mode network connectivity⁷⁴, and functional connectivity of the amygdala⁷⁶. 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 colleagues⁷⁹ 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 depression⁸² and using ERP as an indicator of risk for depression⁶⁵. For example, children (n= 84) participating in a larger ongoing randomized controlled trial

(RCT) study (PCIT-ED [Parent-Child Interaction Therapy-Emotion Development]) for Preschool Onset Major Depressive Disorder (PO-MDD) completed a guessing game while ERPs were recorded⁸². Of these, n=53 depressed preschoolers (ages 4–7) and n=25 matched, healthy control children had usable data. Depressed children had reduced reward positivity (RewP), an ERP component that indexes responses to positive outcomes when compared to 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 neurological correlates, physiological correlates have also been studied and linked to PO-MDD. In one study, N=166 four-year-old children participating in an ongoing longitudinal study of temperament and risk for depression provided a morning or evening cortisol sample⁶⁴. 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 elevated waking cortisol was associated with maternal history of depression and lower child positive emotionality prior to the onset of depression. This suggests that elevated waking cortisol may be one vulnerability marker for later depression, particularly since 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 has been at the forefront of this area^{26,83–85}. 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, yet empirical evidence demonstrating 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 Post Traumatic Stress Disorder^{86,87}. 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 colleagues developed an adaptation and expansion of Parent Child Interaction Therapy (PCIT) by adding a new Emotion Development (ED) component to specifically address the ED impairments hypothesized to characterize early-onset depression⁸⁵. PCIT-ED includes three modules conducted over 14 sessions. PCIT targets the parent-child relationship using behavioral and play therapy techniques to enhance relationship quality and parent's ability to set nurturing and effective limits with the child. This therapy appears to be a promising treatment for PO-MDD^{85,88}.

While 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 under the age of 7. Further, there is some evidence that young children are more prone to some of the activating side effects of

antidepressant medications⁸⁹. Based on this, the use of medications is not recommended as a first or second line of treatment for preschool depression and should be considered only in very severe and treatment resistant cases. If medication is used, patients should be very 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”⁹⁰. DSM 5 describes eleven different anxiety disorders, and the four 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), and
- 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 above and support the use of these different diagnoses in preschoolers rather than one non-specific “anxiety disorder” diagnosis^{15,91,92}. Notably, Post-Traumatic Stress Disorder (PTSD) and Obsessive-Compulsive Disorder (OCD) 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 physiological 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 provide 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 nine months, while separation anxiety occurs in the first year or two of life^{93,94}.

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 to 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^{38,95} and are even more impairing in the context of co-morbid depression⁹⁶ or Oppositional Defiant Disorder⁹⁷.

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 very important to use a multi-modal approach to diagnosing preschool anxiety disorders. Ideally, the assessment of the preschooler would include parent- and teacher-report symptom questionnaires^{11,92}, diagnostic interviews with the child and parent^{6,98}, and direct observation of the child in situations that would be expected to provoke mild fear⁹⁹. 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 10–20%^{6,7,37,38,95,97,100–102} although some studies cite prevalence as low as 1.5%⁸ while others report prevalence above 20%¹⁰³. The wide variation likely reflects variation in assessment tools (clinical interview, parental report, direct observation), geographical 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 around 6 years of age^{100,104,105}. 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 to older children and adults^{104,105}, most studies during the preschool period do not find that prevalence rates for anxiety disorders differ based on sex^{7,100,106–108} or ethnicity^{7,106,109}. Preschoolers with anxiety disorders are more likely to have other anxiety disorders^{38,103}, depression³⁸, attention deficit-hyperactivity disorder⁷, and oppositional defiant disorder^{7,38,97} relative to peers, with up to 30 – 50% of preschoolers with anxiety disorder having some other non-anxious psychiatric disorder⁹⁵.

Risk Factors for Preschool Anxiety Disorders

Heritability estimates for preschool anxiety disorders range widely from 40–65%¹¹⁰. These estimates are lower than for other psychiatric disorders such as autism, schizophrenia, ADHD, and bipolar disorder¹¹¹, suggesting a strong influence of both genetics and environment in determining risk for preschool anxiety disorders.

Temperament, defined as early-appearing, trait-like individual differences in emotional, attentional, and motor reactivity to novel stimuli¹¹², 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^{103,106,108,113} and beyond^{114,115}. In addition to BI, the temperaments of low positive affectivity¹⁰⁶, low sociability, low exuberance¹¹⁶, high negative affect, and low effortful control⁶¹ 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 anxiety¹⁰⁸, an anxiety disorder¹⁰⁶, or depression^{61,106}, 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^{117,118}. Beyond family history, parents who are younger³⁸, poorer^{38,61}, and less educated¹⁰⁶ are more likely to have children with preschool anxiety disorders. Family structure is also related to risk, as children who do not live with both biological parents and children with more siblings in the household⁹⁵ are more likely to develop preschool anxiety disorders relative to peers. Life stressors additionally confer risk for preschool anxiety disorders^{106,119}, and preschoolers with high conflict in the home are more likely to experience significant anxiety relative to preschoolers in low-conflict homes⁶¹.

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 control¹⁰⁶. This type of parent is sensitive and empathic to their 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 child's emotion or more permissive in allowing their child to avoid feared stimuli are more likely to have a child with a preschool anxiety disorder^{106,120,121}. Similarly, overprotective parenting is associated with increased risk for preschool anxiety disorders^{109,113,119}. 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 preschool anxiety disorders include a variety of parenting¹²² and psychotherapeutic interventions. Several studies support the use of cognitive behavioral therapy (CBT)^{123–127} with heavy parental involvement during treatment. Including the parent in sessions may increase preschoolers' comfort and aid in extending therapeutic techniques outside of the therapy session. In addition to CBT, evidence also supports the use of modified versions of parent-child interaction therapy (PCIT) in the treatment of preschool anxiety disorders^{128,129}. 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 behavioral inhibition¹³⁰.

In contrast to 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 instances¹³¹.

Case Study

W.H. is a 4.5 year old WM who for the last 6 months has displayed frequent sadness and irritability with minor frustrations or having preferences not met (e.g. being given the wrong color cup). He expresses a persistent negative self-view and feels he is not as good as other kids 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 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 that 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, as irritability evident in this case is a more non-specific 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.

General Conclusions

In this article, we aimed to review 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 ten years; the field appears 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 etiology, risk and protective factors for preschool-onset internalizing disorders. More specifically, as outlined by Hankin⁵, there is still a great need for developmental, theoretical models to incorporate research findings from multiple levels of analysis, including neurobiological, genetic, environmental, and so on to more effectively highlight key etiological 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 review 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 truly capture the prodromal period for early-onset internalizing disorders. Given the vast differences already seen in physiological, neurobiological, emotional, and social functioning among preschoolers with and without internalizing pathology, research is now needed to investigate these areas at younger ages, prior to the onset of disorder. In addition, as stated above, 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. From this review, it appears 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 co-morbidity 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, yet fundamental questions on preschool internalizing pathology will significantly challenge researchers and clinicians for the remainder of the decade.

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Key Points

1. Empirical work increasingly validates and clarifies the clinical characteristics of internalizing disorders in preschool-age children.
2. 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.
3. Several evidenced-based treatments have shown promise for preschool-onset internalizing disorder and additional research is currently underway to further validate these treatment options.

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