Correlates and Consequences of Suicidal Cognitions and Behaviors in Children Ages 3 to 7 Years

Diana J. Whalen, PhD, Katherine Dixon-Gordon, PhD, Andrew C. Belden, PhD, Deanna Barch, PhD, Joan L. Luby, MD

Objective: Despite research documenting the existence of depression and other psychiatric disorders in early childhood, little is known about the nature and consequences of suicidal cognitions and behaviors (SI) in young children ages 3 to 7 years. The identification of trajectories of SI across childhood is a critical step toward preventing childhood suicide.

Method: Participants were 306 children enrolled in a prospective longitudinal investigation of young children and their families. Children and their families completed a baseline assessment between ages 3 and 7 years, and at least 1 follow-up assessment (ages 7–12 years). Child psychopathology, suicidal thoughts, plans, and behaviors were assessed via parent and trained interviewer report before age 9, and also with self-report after age 9. Data on maternal history of psychopathology, as well as maternal and family history of suicide attempts, were also obtained through parent report.

Results: Controlling for a range of clinical and demographic variables, early-childhood SI (as defined as suicidal thoughts, behavior, or any expression of plans/attempts occurring before age 7) and suicidal themes in play were concurrently associated with childhood attention-deficit/hyperactivity (ADHD) and oppositional defiant/conduct disorders (ODD/CD). Early-childhood SI also predicted school-age depression and ODD/CD; however, these findings were no longer significant after controlling for the same diagnoses at the childhood baseline. Longitudinal analysis indicated that early-childhood SI was a robust predictor of school-age SI, even after accounting for psychiatric disorders at both time points.

Conclusion: Extending current research, these findings demonstrate that early-childhood SI confers significant risk for continuation into school-age SI and is concurrently associated with ADHD and ODD/CD. Although the meaning of early-childhood SI remains unclear, results suggest that it is a clinically important phenomenon that should be carefully assessed and taken seriously as a marker of risk for ongoing suicidal ideation/behavior. These findings suggest that early screening for SI in childhood is indicated in clinical settings, particularly in children less than 7 years of age with depression and externalizing disorders.

Key Words: early childhood, suicidality, longitudinal, psychopathology

After more than a decade of research documenting the existence of depression and other mental health disorders early in childhood,[1] we still know very little about the nature and consequences of suicidal cognitions and behaviors (SI) in young children 3 to 7 years of age. As such, it is unknown whether SI earlier in childhood represents transient developmental and nonspecific expressions of distress, or whether it predicts persistent suicidal cognitions and behaviors later in development. The identification of the trajectory of SI across childhood is an important first step toward preventing childhood suicide.

To date, several empirical studies have focused on childhood-onset SI, with very few studies to inform SI occurring before age 7 years. In 1 of the first studies to assess childhood-onset SI, Pfeffer *et al.* found that 72% of

psychiatrically hospitalized children (N = 58) aged 6 to 12 years exhibited some SI.[2] These children endorsed more depression, hopelessness/worthlessness, wanting to die, and preoccupations with death. A recent review identified several risk factors for suicide in childhood.[3] Specifically, parental history of suicidal attempts and psychopathology, child's previous history of SI, and child's psychopathology, particularly affective and disruptive disorders, emerged as risk factors among children less than 14 years of age. For example, in a longitudinal study spanning nearly 6 years, children who had a parent attempt suicide were at almost a 5-fold greater risk for attempting suicide.[4] In addition to parental history of psychopathology and suicide attempts, psychopathology is often present in children with SI, with rates of diagnosable disorders averaging around 50%[5,6] and rates of subsyndromal difficulties likely much higher.[7] Compared to youth without SI, children and adolescents with SI are more likely to have serious psychopathology, such as major depressive disorder, internalizing, and externalizing disorders.[8-10]

There is also evidence for longitudinal associations between childhood SI and adolescent/adult SI. The high rates of

This article is discussed in an editorial by Drs. Charles H. Zeanah and Mary Margaret Gleason on page 884.

Supplemental material cited in this article is available online.

previous SI among children who later committed suicide[5,6,8,9] suggest that SI, even in children, is likely to be chronic and persistent. In addition, childhood SI, defined as occurring before age 11 in the study cited, predicted adult SI in a longitudinal study.[8] However, little is known about the long-term outcomes of SI that begins even earlier in children ages 3 to 7.

Most work on childhood SI has focused on older children, with a few participants as young as age 5 included. Consequently, there is limited work addressing the correlates and consequences of SI, and whether and under what circumstances SI could arise earlier in development during the ages of 3 to 7 years.[11-15] Although it may be questioned whether young children can understand these constructs, empirical evidence has shown that although children's conceptions of death and suicide change across development, they vary as a function of personal experiences with death, suicide, religion, and education.[16-21] However, empirical evidence indicates that young children possess a more elaborate understanding of death and even suicide than generally assumed. Thus, although a younger child's conception of death or suicide is less complex than an older child's or adult's concept, studies suggest that around age 4, children understand that death leads to a cessation of the ability to act and is distinguished from sleep.[16,18,22,23]

Although most young children (ages 4–8 years) are able to verbalize the inevitability and irreversibility of death,[17,24] few are able to state the ways in which people die,[24] and little is known about young children's understanding of suicide. However, it appears that children's concepts of suicide are related to their concepts of death.[17,25] In a study of first- through fifth-graders, all but 3 children (all first-graders) were able to define and discuss "killing oneself."[16] All children who could define and discuss "killing oneself" were able to mention viable methods for doing so, such as using a knife or firearm.[16] Although not specific to early childhood, the results from this study might suggest that children between 6 and 10 years of age "know full well that an intentional act of suicide will result in death and understand that death is permanent and final" ([16]; p. 115). In both studies, children's understanding of suicide was related to their cognitive maturity and their experiences (both personal and in the media) with suicide.[16,17] However, there have been no studies to our knowledge that focus specifically on children's conceptions of suicide during ages 3 to 7.

A growing preliminary research base documents the presence of SI in young children often assumed to be too emotionally immature to contemplate and understand the consequences of such actions. In one of the only available studies using young children (ages 2½–5 years), a small sample referred to an outpatient psychiatry clinic because of SI (N = 16) were also found to be more hyperactive/impulsive, higher on depressive symptoms, more likely to run away from home, and have higher rates of abuse or neglect when compared to a matched group of young children with behavior problems but without SI.[12] Furthermore, most (n = 13) of these young children had made multiple suicide attempts before enrollment in the study (despite this being a relatively rare phenomenon). Given these suggestive data, and the validity of depressive disorders in early

childhood,[26] studies that investigate the clinical correlates of SI in young children are now needed.

Four of the known risk factors for childhood SI (e.g., parental history of suicidal attempts and psychopathology; child's previous history of SI and psychopathology)[3] have yet to be explored with children ages 3 to 7. For instance, children aged 3 to 7 may not comprehend the meaning of SI in caregivers (e.g., may see it as nonspecific distress), or may be more protected from the impact of SI (e.g., mothers may be less likely to express SI to younger children). It may be that general parental psychopathology exerts a more influential role in the development of early SI.[27] Alternatively, there may be important familial influences in SI, in which case it would be expected that SI earlier in childhood would be strongly predicted by parental history of suicide attempts. The psychopathological correlates of SI during ages 3 to 7, and specifically whether this is associated with depressive disorders or other, more nonspecific psychopathology, also remain underinvestigated. In one study, preschoolers with both bipolar and unipolar depression endorsed SI, with the bipolar group exhibiting SI at significantly higher rates.[28] Given that SI has both a mood component and an impulsivity component, an association with either or both mood disorders and externalizing disorders, such as oppositional defiant disorder (ODD) earlier in childhood, seems possible.

To our knowledge, no empirical studies have longitudinally investigated outcomes among children ages 3 to 7 expressing SI. This research is particularly important, given the increasing prevalence rates of SI from childhood into adolescence,[29] the increasing rates of suicide in specific groups of children,[30] and enhanced risk for completed suicide once a child has made an attempt. Furthermore, research has consistently demonstrated the risk, etiology, and deleterious psychological and neurobiological outcomes associated with early-childhood psychopathology such as depression.[1,31-33] Given the homotypic continuity and stability of childhood psychopathology, research in the area of SI occurring earlier in childhood may elucidate additional trajectories of chronic impairment at younger ages, extending opportunities for intervention.

The purpose of this study was to investigate the occurrence and correlates of childhood SI occurring during ages 3 to 7 years in a high-risk sample studied longitudinally. Given that SI likely exists on a continuum ranging from suicidal ideation to suicide attempts, identifying the presence of SI in young children is of great public health significance. Given existing theoretical models[34,35] and empirical reviews of childhood SI,[36] we predicted that early-childhood SI would be associated with concurrent, early-childhood psychopathology, specifically depression and externalizing disorders, as well as maternal history of psychopathology and suicide attempts. We hypothesized that early-childhood SI would also predict school-age diagnoses and school-age SI, over and above relevant demographic and clinical variables.

METHOD

Participants

Participants were enrolled in the Preschool Depression Study (PDS), a prospective longitudinal investigation of young children and their

families conducted at Washington University.[26] The current study reports on 306 children from the PDS who completed an early-childhood baseline assessment between ages 3 and 7 years (mean = 5.35 years, SD= 0.86 years, range = 37–83 months) and at least 1 additional school-age psychiatric assessment between the ages of 7 and 12 years (mean = 9.56 years, SD = 0.89 years). Parental written consent and child assent were obtained before participation, and the Washington University Institutional Review Board approved all procedures.

Details of recruitment have been previously reported.[26,31] Participants in this study were enrolled during 2003 to 2005. Young children between the ages of 3 and 7 years were recruited from primary care practices and preschools/daycares throughout the St. Louis metropolitan region, using a screening checklist to oversample children with symptoms of depression, with the aim of recruiting a large group of ethnically and socioeconomically diverse young children with depression and smaller groups with both disruptive disorders and healthy behaviors for comparison. At baseline, 12 children were 3 years of age, 92 children were 4 years of age, 126 children were 5 years of age, and 76 children were 6 years of age.

Measures

Child Psychopathology and Traumatic Life Events. Psychiatric diagnoses were assessed at each time point using the Preschool Age Psychiatric Assessment (PAPA)[37,38] when participants were between the ages of 3 and 8 years and the Child and Adolescent Psychiatric Assessment (CAPA)[39,40] at 9 years and older. The PAPA and CAPA consist of a series of developmentally appropriate questions assessing the *DSM-IV* criteria for childhood disorders with information being obtained from parents before the child reached age 9 years (via the PAPA) and making use of both child and parent reports after the child reached age 9 (via the CAPA). A total of 272 children were more than 9 years of age at follow-up and therefore used the CAPA interview. For the purpose of the present report, meeting *DSM-IV* criteria for the following disorders was assessed: depression (κ = 1.0; intraclass correlation coefficient [ICC] = 0.98), attention-deficit/hyperactivity disorder (ADHD), ODD/CD, posttraumatic stress disorder (PTSD), and anxiety disorders (combined generalized anxiety and separation anxiety). In addition, for school-age assessments, diagnoses of panic and social anxiety were also included in the anxiety diagnosis composite variable. These symptoms were not assessed during the early-childhood period. All diagnoses were coded as 0, "*DSM-IV* diagnostic criteria not met," or 1, "*DSM-IV* diagnostic criteria met."

The PAPA and CAPA also assessed the frequency of traumatic life events, as reported by caregivers, at each annual assessment. The PAPA and CAPA define traumatic life events as any type of emotionally harmful life events including abuse, natural disasters, serious accidents, and unexpected deaths.[41] The total number of reported traumatic life events was used as a continuous variable.

Income-to-Needs Ratio. Mothers reported family income at each assessment. The income-to-needs ratio was computed as the total family income at baseline divided by the federal poverty level, based on family size, at the time of data collection.[42]

Maternal History of Psychopathology. The Family Interview for Genetic Studies (FIGS)[43] assessed for the presence of psychopathology and SI in first- and second-degree relatives. The following disorders were assessed in mothers: depression, bipolar, anxiety, suicide attempt or completion, ADHD, substance abuse, and CD. History of suicide attempts or completion was assessed via the following question: "Did anyone (in your family): Attempt or complete suicide?" This is a widely used and well-validated, fully structured measure of family history of psychiatric disorders. A senior psychiatrist (J.L.L.), who was blinded to the child's diagnostic status, reviewed questions

about the diagnostic status of a family member. This report focuses on 3 variables: maternal history of psychopathology, maternal history of suicide attempts, and history of suicide attempts in first/second degree relative, all coded as 0 = no and 1 = yes.

Suicidal Cognitions and Behaviors (SI). Suicidal thoughts, behavior, and any expression of plans or attempts were assessed using the PAPA (before age 9 years) and CAPA (after age 9), as well as a measure of impairment from self-harmful behavior (Preschool and Early-Childhood Functional Assessment Scale [PECFAS]/Child and Adolescent Functional Assessment Scale [CAFAS]; see below) completed by interviewers who had met all reliability criteria set forth by the PECFAS/CAFAS authors. The following provides a description of items that were assessed. Death and suicidal thoughts were assessed via parent endorsement (e.g., repeated/persistent/intrusive or absent) of either of the following questions: Does s/he seem to think about or talk about death or dying?; or Does s/he ever think about ending it all? Suicidal plans and intent were assessed by parent endorsement (e.g. either present or absent) of the following: Has s/he thought about actually killing her/himself?; or Has s/he had a plan to kill her/himself? Suicidal behavior and attempts were assessed by parent endorsement (e.g. either present or absent) of the question, Has s/he ever tried to kill her/himself?

Interviewers who achieved reliability criteria completed the PECFAS.[44] The PECFAS assesses the psychosocial functioning and impairment of children between the ages 3 and 7 years based on information gleaned from the PAPA/CAPA as well as other sources. For this report, the self-harmful behavior subscale was used. Interviewers rated children as having severe (e.g., has a plan to hurt self), moderate (e.g., talks repeatedly about harming or killing self), mild (e.g., repeated nonaccidental behavior suggesting self-harm), or no impairment. At baseline, 3 children were rated as having severe, 11 moderate, and 28 mild impairment. For the purpose of the present report, early-childhood SI was coded as 0 "no" and 1 "yes" if any of the above items (e.g., PAPA/CAPA or PECFAS) were endorsed by parent or interviewer report between ages 3 and 7 (α = 0.58).

During school-age, SI was assessed using similar questions on the CAPA (during assessments after age 9) and PAPA (at each assessment). In addition, item 9 from the Children's Depression Inventory (CDI)[45] was included from children's self-reports (e.g., I think about killing myself). CDI data are not available during the early-childhood period, as this instrument is valid for children over age 8. School-age SI was coded as 0 = no and 1 = yes if any of the above items were endorsed by self, parent, or clinician report (α = 0.61). All children reporting SI were encouraged to seek treatment, and referrals were provided to parents/caregivers. Immediate action (e.g., walking the child and family to the hospital) was taken with any child endorsing suicidal intent.

Suicidal Themes in Play. Death and suicidal themes in play were also assessed via the PAPA interview. Parent endorsement of death and/or suicidal themes in play were recorded as either present or absent based on the following questions: Has s/he ever engaged in fantasy play that persistently involves death or dying?; or Has s/he ever played games in which s/he or another character in the game kills her/himself? Suicidal themes in play were not included in our SI variable described above; however, exploratory analyses were conducted to determine any diagnostic correlates of this behavior in children ages 3 to 7 and whether this behavior predicted school-age psychiatric disorders.

RESULTS

Correlates of SI During Ages 3 to 7 Years
Table 1 presents data on each SI item and suicidal themes in play at the early-childhood baseline (ages 3–7 years)

TABLE 1 Frequency Rates of Suicidal Cognitions and Behavior in the Study Sample: Baseline and Follow-Up

Assessment	Assessment Question or Item	Frequency of Endorsement Ages 3–7 (n = 306)		Frequency of Endorsement School-Age (n = 274)
		Age (y)	n	
PAPA/CAPA	Persistent death/suicidal themes in play only (n = 14)	4	3	—
		5	5	
		6	6	
	Persistent thoughts about death/dying and/or suicide (without play) (n = 28)	3	1	39
		4	7	
		5	11	
		6	9	
	Suicidal plans and intent (n = 4)	4	1	13
		6	3	
	Suicidal behavior and/or attempts (n = 5)	3	2	3
		4	2	
		5	1	
PECFAS/CAFAS	Mild impairment (n = 28)	3	7	36
		4	7	
		5	5	
		6	9	
	Moderate impairment (n = 11)	3	1	—
		4	3	
		5	3	
		6	4	
	Severe impairment (n = 3)	3	1	—
		4	2	
CDI	Item 9: I think about killing myself	—		26

Note: CAFAS = Childhood and Adolescent Functional Assessment Scale; CAPA = Child and Adolescent Psychiatric Assessment; CDI = Children's Depression Inventory; PAPA = Preschool Age Psychiatric Assessment; PECFAS = Preschool and Early-Childhood Functional Assessment Scale.

and school-age follow-up assessments. Table 2 presents descriptive statistics for all variables at baseline. Examples of early-childhood SI are listed in Table S1, available online. SI was present in approximately 11% of children ages 3 to 7 years in this sample (n = 34 of 306) and 73% (n = 25 of 34) of these youth continued to endorse SI at the school-age follow-up assessment.

Early-childhood SI was concurrently associated with several demographic variables at the baseline assessment including male gender ($\chi_{(1)}^2$ = 3.93; $p < .05$) and maternal psychiatric diagnoses (t_{300} = −3.66; $p < .000$). Maternal or family history of suicide attempts was not concurrently associated with early-childhood SI. No significant group differences were found between children's age at baseline, age at follow-up, family income-to-needs ratio, or history of traumatic life events among children with and without SI. However, significant effects were found for early-childhood psychopathology: children ages 3 to 7 with SI were more likely to meet criteria for depression, ADHD, ODD/CD, and anxiety disorders (Table 2). Young children with and without SI were equally likely to meet criteria for PTSD.

Logistic regressions were conducted to investigate whether early-childhood SI was associated with meeting diagnostic criteria for the disorders listed above at the baseline assessment, while controlling for gender, age, income-to-needs ratio, presence of maternal psychopathology, and presence of other

disorders during ages 3 to 7 (e.g., when predicting early-childhood depression, ADHD, ODD/CD, and anxiety disorders during childhood were controlled). Early-childhood SI was positively associated with concurrent early-childhood ADHD (odds ratio [OR] = 2.68) and ODD/CD (OR = 2.83) (Table 3), after controlling for the above-mentioned covariates, but early-childhood SI was not associated with concurrent depression or anxiety disorders (Table 3).

Correlates of Suicidal Themes in Play During Ages 3 to 7
Fourteen children endorsed suicidal themes in play and no other SI item. Independent-sample t tests and χ^2 analyses were conducted to compare young children reporting persistent death themes only in play (n = 14) to young children reporting additional SI item endorsement, without including play themes (n = 34). There were no significant differences between the 2 groups in terms of demographic variables, presence of early-childhood disorders, or presence of school-age disorders (Table S2, available online). In addition, we compared young children who reported persistent death themes only in play (n = 14) to young children who did not report any SI (n = 258). Young children who reported persistent death themes only in play were more likely to be male ($\chi_{(1)}^2$ = 4.95; $p < .05$). Although there were no other demographic or maternal psychopathology differences between the groups, children ages 3 to 7 who

TABLE 2 Demographic Characteristics of Participants at Baseline

Characteristic	No SI During Ages 3–7 (n = 258)	SI During Ages 3–7 (n = 34)	Statistic
Demographics			
Gender (% male)	50	67	$\chi_{(1)}^2 = 3.93^*$
Age, mean (SD)	5.33 (0.83)	5.47 (1.03)	$t_{(304)} = -0.90$
Age at follow-up, mean (SD)	9.52 (0.89)	9.90 (0.72)	$t_{(221)} = -1.81$
Income-to-needs ratio, mean (SD)	2.07 (1.09)	1.71 (1.10)	$t_{(301)} = 1.77$
Traumatic life events, mean (SD)	3.46 (3.67)	5.24 (6.40)	$t_{(300)} = -1.56$
Maternal Psychopathology (% present)			
History of suicide attempts	7	9	$\chi_{(1)}^2 = 0.26$
Depression	37	57	$\chi_{(1)}^2 = 5.12^*$
Bipolar	5	12	$\chi_{(1)}^2 = 1.81$
Anxiety	11	30	$\chi_{(1)}^2 = 7.83^{**}$
ADHD	3	3	$\chi_{(1)}^2 = 0.00$
Substance abuse	5	15	$\chi_{(1)}^2 = 4.93^*$
CD	4	12	$\chi_{(1)}^2 = 4.70^*$
Total number of diagnoses, mean (SD)	0.76 (1.02)	1.45 (1.03)	$t_{(300)} = -3.66^{***}$
1st or 2nd degree relative with a history of suicide attempts	26	27	$\chi_{(1)}^2 = 0.28$
Early-Childhood Psychopathology (ages 3–7; % present)			
Depression diagnosis	36	76	$\chi_{(1)}^2 = 17.70^{***}$
ADHD diagnosis	18	64	$\chi_{(1)}^2 = 33.40^{***}$
ODD/CD diagnosis	31	79	$\chi_{(1)}^2 = 27.99^{***}$
PTSD diagnosis	5	6	$\chi_{(1)}^2 = 0.08$
Anxiety diagnosis	32	59	$\chi_{(1)}^2 = 9.27^{**}$

Note: Means and standard deviations are presented for continuous variables. ADHD = attention-deficit/hyperactivity disorder; CD = conduct disorder; PTSD = posttraumatic stress disorder; ODD = oppositional defiant disorder; SI = suicidal cognitions and behaviors.
*p < .05; ** p < .01; ***p < .001.

reported persistent death themes only in play were more likely than young children not endorsing any SI variable to meet criteria for early-childhood depression, ADHD, and ODD/CD. Furthermore, these young children were more likely to meet criteria for depression and anxiety disorders during school age (Table S3, available online).

Predicting School-Age Psychopathology From SI During Ages 3 to 7

Logistic regressions were run to predict children's diagnoses at the school-age follow-up assessment, approximately 3 to 4 years later (mean = 3.78 years later; range = 1–6 years) from early-childhood SI, while controlling for gender, age at school-age follow-up assessment, income-to-needs ratio at school-age follow-up assessment, and maternal psychopathology (Table 4). Early-childhood SI predicted school-age depression (OR = 3.28) and ODD/CD (OR = 3.15). After controlling for baseline disorders present earlier in childhood, however, these results became nonsignificant (Table 4).

Predicting School-Age SI From SI During Ages 3 to 7

Logistic regression was performed to assess the impact of the demographic variables listed above and early-childhood SI on the likelihood of school-age SI. The

model contained 5 independent variables (current age, gender, income-to-needs ratio, maternal psychopathology, and early-childhood SI) and was significant (χ^2= 23.24; $p < .001$), demonstrating the ability to distinguish children who reported school-age SI from those who did not. As shown in Table 5, 2 independent variables (income-to-needs ratio and early-childhood SI) made unique, statistically significant contributions to the model. The strongest predictor of school-age SI was early-childhood SI, with an OR of 5.79. These findings indicate that children with SI occurring during ages 3 to 7 years were 4 times as likely as children without SI to report school-age SI, after controlling for all other risk factors in the model. The odds ratio of 0.68 for income-to-needs ratio was less than 1, indicating that children whose families reported more income, relative to needs, were less than half as likely to report school-age SI, after controlling for other factors in the model.

Logistic regression was also performed to assess the additional impact of early-childhood psychiatric disorders on the prediction of school-age SI (Table 5). After controlling for early-childhood psychiatric disorders, early-childhood SI was the strongest predictor of school-age SI (OR = 3.85). Early-childhood ODD/CD was also a significant predictor of school-age SI (OR = 3.04). An additional model including the impact of school-age follow-up symptoms of

TABLE 3 Logistic Regression Analyses Examining Unique Concurrent Associations Between Early-Childhood Psychiatric Disorders and Suicidal Cognitions and Behaviors (SI)

Examining Unique Concurrent Associations With Early-Childhood Depression	B	SE	Wald	df	p	OR	95% CI for OR	
							Lower	Upper
Age	0.36	0.17	4.55	1.00	.03	1.43	1.03	1.99
Gender (male)	0.05	0.28	0.03	1.00	.85	1.05	0.61	1.82
Income-to-needs ratio	0.05	0.13	0.15	1.00	.70	1.05	0.81	1.36
Maternal psychopathology	0.74	0.28	6.82	1.00	.01	2.09	1.20	3.63
SI during ages 3–7	0.72	0.51	1.96	1.00	.16	2.05	0.75	5.61
Early-childhood ADHD	0.99	0.36	7.56	1.00	.01	2.69	1.33	5.43
Early-childhood ODD/CD	0.97	0.31	9.95	1.00	.00	2.64	1.44	4.82
Early-childhood anxiety disorders	0.83	0.29	8.23	1.00	.00	2.29	1.30	4.04
Constant	−3.76	1.00	14.26	1.00	.00	0.02		
Examining Unique Concurrent Associations With Early-Childhood ADHD								
Age	−0.21	0.20	1.08	1.00	.30	0.81	0.54	1.21
Gender (male)	−0.52	0.34	2.32	1.00	.13	0.59	0.30	1.16
Income-to-needs ratio	−0.16	0.15	1.15	1.00	.28	0.85	0.63	1.15
Maternal psychopathology	0.58	0.36	2.67	1.00	.10	1.79	0.89	3.62
SI during ages 3–7	0.98	0.49	4.01	1.00	.05	2.68	1.02	7.01
Early-childhood depression	0.98	0.37	7.12	1.00	.01	2.66	1.30	5.47
Early-childhood ODD/CD	1.73	0.36	23.60	1.00	.00	5.63	2.80	11.32
Early-childhood anxiety disorders	0.73	0.35	4.38	1.00	.04	2.07	1.05	4.11
Constant	−1.60	1.15	1.92	1.00	.17	0.20		
Examining Unique Concurrent Associations With Early-Childhood ODD/CD								
Age	−0.21	0.18	1.44	1.00	.23	0.81	0.57	1.14
Gender (male)	−0.37	0.29	1.65	1.00	.20	0.69	0.39	1.22
Income-to-needs ratio	−0.22	0.13	2.77	1.00	.10	0.80	0.62	1.04
Maternal psychopathology	0.26	0.30	0.77	1.00	.38	1.30	0.72	2.34
SI during ages 3–7	1.04	0.52	3.98	1.00	.05	2.83	1.02	7.85
Early-childhood depression	0.94	0.31	9.44	1.00	.00	2.57	1.41	4.70
Early-childhood ADHD	1.74	0.35	24.05	1.00	.00	5.69	2.84	11.40
Early-childhood anxiety disorders	0.29	0.31	0.83	1.00	.36	1.33	0.72	2.46
Constant	0.03	0.98	0.00	1.00	.98	1.03		
Examining Unique Concurrent Associations With Early-Childhood Anxiety Disorders								
Age	0.23	0.16	2.16	1.00	.14	1.26	0.93	1.72
Gender (male)	0.31	0.27	1.30	1.00	.25	1.36	0.80	2.30
Income-to-needs ratio	0.13	0.12	1.10	1.00	.30	1.14	0.89	1.45
Maternal psychopathology	0.10	0.28	0.13	1.00	.72	1.11	0.64	1.92
SI during ages 3–7	0.44	0.43	1.03	1.00	.31	1.55	0.66	3.64
Early-childhood depression	0.83	0.29	8.18	1.00	.00	2.28	1.30	4.02
Early-childhood ADHD	0.81	0.34	5.67	1.00	.02	2.26	10.15	40.42
Early-childhood ODD/CD	0.27	0.31	0.73	1.00	.39	1.31	0.71	2.41
Constant	−3.08	0.94	10.80	1.00	.00	0.05		

Note: ADHD = attention-deficit/hyperactivity disorder; CD = conduct disorder; ODD = oppositional defiant disorder.

psychopathology was analyzed. As shown in Table 5, the strongest predictor of school-age SI was early-childhood SI, with an odds ratio of 4.18. Not surprisingly, school-age depression was also a significant predictor of school-age SI (OR = 3.43). A final model included the impact of both early-childhood and school-age disorders as predictors of school-age SI (Table 5). After controlling for both early-childhood and school-age psychiatric disorders, SI during ages 3 to 7 years remained a predictor of school-age SI (OR = 3.62). In this model, both early-childhood ODD/CD (OR = 4.82) and school-age depression (OR = 3.34) also remained significant predictors of school-age SI.

TABLE 4 Logistic Regression Analyses Predicting School-Age Disorders From Early-Childhood Suicidal Ideation

							95% CI for OR	
Predicting School-Age Depression Without Controlling for Early-Childhood Baseline Disorders	B	SE	Wald	df	p	OR	Lower	Upper
Age	0.52	0.19	7.50	1.00	.01	1.68	1.16	2.42
Gender (male)	−0.23	0.31	0.55	1.00	.46	0.79	0.43	1.47
Income-to-needs ratio	−0.28	0.16	3.00	1.00	.08	0.76	0.55	1.04
Maternal psychopathology	0.83	0.32	6.54	1.00	.01	2.29	1.21	4.32
SI during ages 3−7	1.19	0.55	4.68	1.00	.03	3.28	1.12	9.65
Constant	−5.60	1.83	9.40	1.00	.00	0.00		
Predicting School-Age ADHD Without Controlling for Early-Childhood Baseline Disorders								
Age	0.09	0.20	0.22	1.00	.64	1.10	0.75	1.62
Gender (male)	−0.64	0.34	3.56	1.00	.06	0.53	0.27	1.03
Income-to-needs ratio	−0.29	0.17	3.12	1.00	.08	0.74	0.54	1.03
Maternal psychopathology	0.67	0.35	3.65	1.00	.06	1.96	0.98	3.89
SI during ages 3−7	1.00	0.52	3.64	1.00	.06	2.72	0.97	7.58
Constant	−1.66	1.89	0.77	1.00	.38	0.19		
Predicting School-Age ODD/CD Without Controlling for Early-Childhood Baseline Disorders								
Age	0.05	0.20	0.06	1.00	.80	1.05	0.71	1.55
Gender (male)	−1.00	0.35	8.16	1.00	.00	0.37	0.18	0.73
Income-to-needs ratio	−0.12	0.17	0.48	1.00	.49	0.89	0.64	1.24
Maternal psychopathology	0.85	0.36	5.62	1.00	.02	2.33	1.16	4.70
SI during ages 3−7	1.15	0.53	4.70	1.00	.03	3.15	1.12	8.88
Constant	−1.53	1.90	0.65	1.00	.42	0.22		
Predicting School-Age Anxiety Disorders Without Controlling for Early-Childhood Baseline Disorders								
Age	0.22	0.17	1.70	1.00	.19	1.25	0.89	1.75
Gender (male)	−0.01	0.29	0.00	1.00	.97	0.99	0.56	1.76
Income-to-needs ratio	−0.07	0.15	0.22	1.00	.64	0.93	0.69	1.25
Maternal psychopathology	0.63	0.30	4.31	1.00	.04	1.87	1.04	3.38
SI during ages 3−7	0.84	0.52	2.61	1.00	.11	2.31	0.84	6.37
Constant	−2.91	1.65	3.10	1.00	.08	0.05		
Predicting School-Age Depression After Controlling for Early-Childhood Baseline Depression								
Age	0.49	0.20	6.23	1.00	.01	1.64	1.11	2.41
Gender (male)	−0.20	0.33	0.37	1.00	.54	0.81	0.42	1.57
Income-to-needs ratio	−0.28	0.17	2.73	1.00	.10	0.76	0.54	1.05
Maternal psychopathology	0.66	0.34	3.71	1.00	.05	1.94	0.99	3.80
SI during ages 3−7	0.83	0.57	2.08	1.00	.15	2.29	0.74	7.06
Early-childhood depression	1.51	0.33	20.55	1.00	.00	4.55	2.36	8.75
Constant	−5.99	1.92	9.74	1.00	.00	0.00		
Predicting School-Age ADHD Disorder After Controlling for Early-Childhood Baseline ADHD								
Age	0.10	0.21	0.24	1.00	.63	1.11	0.74	1.66
Gender (male)	−0.46	0.36	1.61	1.00	.20	0.63	0.31	1.28
Income-to-needs ratio	−0.23	0.18	1.62	1.00	.20	0.80	0.56	1.13
Maternal psychopathology	0.47	0.37	1.56	1.00	.21	1.59	0.77	3.31
SI during ages 3−7	0.58	0.58	1.00	1.00	.32	1.78	0.57	5.50
Early-childhood ADHD	1.72	0.38	21.04	1.00	.00	5.59	2.68	11.67
Constant	−2.30	2.01	1.31	1.00	.25	0.10		

TABLE 4 Continued

Predicting School-Age ODD/CD After Controlling for Early-Childhood Baseline ODD/CD								
Age	0.15	0.22	0.45	1.00	.50	1.16	0.75	1.80
Gender (male)	−0.86	0.38	5.05	1.00	.02	0.42	0.20	0.90
Income-to-needs ratio	0.01	0.19	0.00	1.00	.98	1.01	0.70	1.45
Maternal psychopathology	0.66	0.39	2.84	1.00	.09	1.93	0.90	4.13
SI during ages 3−7	0.64	0.57	1.24	1.00	.27	1.90	0.61	5.84
Early-childhood ODD/CD	2.04	0.38	28.21	1.00	.00	7.67	3.62	16.26
Constant	−3.60	2.17	2.74	1.00	.10	0.03		
Predicting School-Age Anxiety Disorders After Controlling for Early-Childhood Baseline Anxiety Disorders								
Age	0.20	0.18	1.26	1.00	.26	1.22	0.86	1.72
Gender (male)	0.00	0.30	0.00	1.00	1.00	1.00	0.55	1.81
Income-to-needs ratio	−0.04	0.16	0.05	1.00	.82	0.97	0.71	1.31
Maternal psychopathology	0.61	0.31	3.90	1.00	.05	1.84	1.00	3.38
SI during ages 3−7	0.66	0.53	1.55	1.00	.21	1.94	0.68	5.52
Early-childhood anxiety disorders	0.99	0.31	10.42	1.00	.00	2.70	1.48	4.92
Constant	−3.09	1.70	3.30	1.00	.07	0.05		

Note: ADHD = attention-deficit/hyperactivity disorder; CD = conduct disorder; ODD = oppositional defiant disorder; OR = odds ratio; SI = suicidal cognitions and behaviors.

Exploratory Analysis

Given evidence for the intergenerational continuity of SI in related literature, we explored whether the presence of maternal psychopathology, maternal suicide attempts, or history of suicide attempts in first- or second-degree relatives was predictive of school-age SI. Maternal psychopathology was strongly related to school-age SI ($\chi^2 = 13.26$; $p < .001$). Specifically, maternal bipolar disorder ($\chi^2 = 12.29$; $p < .001$), anxiety disorder ($\chi^2 = 4.89$; $p < .05$), substance abuse ($\chi^2 = 15.60$; $p < .001$), and CD ($\chi^2 = 11.30$; $p < .001$) were related to school-age SI. Much like early-childhood SI, there was no relation between maternal history of suicide attempts ($\chi^2 = 2.68$; $p = .10$) or suicide attempts in first- or second-degree relatives and school-age SI ($\chi^2 = 0.20$, $p = .65$).

DISCUSSION

This study provides evidence to inform the correlates and school-age consequences of SI occurring during ages 3 to 7 years from a longitudinal study of early-childhood depression. SI was present in approximately 11% (n = 34) of young children in this sample enriched for early-childhood depression and other forms of psychopathology, and 75% (n = 25 of 34) of these youth continued to endorse SI at the school-age follow-up assessment. Early-childhood SI was more common among boys and highly associated with a variety of maternal psychopathology, but not maternal or family history of suicide attempts. Early-childhood SI was associated with concurrent ADHD and ODD/CD, after controlling for the presence of other symptoms and relevant demographic covariates. Notably, traumatic life events were not a predictor of early-childhood SI. Results indicate that early-childhood SI is a significant and robust predictor of school-age SI, as children reporting SI between ages 3 and 7 years were more than 3 times as likely to continue reporting SI later in childhood, even after controlling relevant demographic variables, psychiatric disorders in early childhood, and school-age psychiatric disorders. This finding extends existing research on early-childhood SI by demonstrating that SI occurring during ages 3 to 7 years confers significant risk for continuation into the school-age period, particularly alongside early ODD/CD.

Study findings are consistent with and extend extant research on SI in later childhood, suggesting that this clinical phenomenon may be equally valid in younger children. For example, evidence of heightened SI among young boys mirrors findings among older children and adolescents.[3] This finding extends these results into a younger age range, suggesting some similarity between early-childhood SI and SI in later childhood and adolescence. Maternal history of psychopathology, but not maternal or family history of suicide attempts specifically, was also found to be associated with early-childhood SI. In other work, however, maternal and/or family history of suicide attempts does predict SI in older children and adolescents.[4] Our results indicate that perhaps during younger ages, the influence of maternal or family history of suicide attempts is not as strong as the more general influence of family history of psychopathology. Alternatively, maternal and/or family history of suicide attempts were infrequently reported in our sample (n = 21 and n = 80, respectively), and therefore, this finding could simply reflect a lack of power to detect such findings. Maternal psychopathology may also have an impact on parenting practices, leading to enhanced risk for poor child outcomes.[46] Additional work is needed in younger samples to further delineate the influences of family history of suicide attempts and psychopathology in general on early-childhood SI, and whether the strength of these influences may change across development.

TABLE 5 Logistic Regression Predicting the Likelihood of School-Age Suicidal Ideation

Before Controlling for Disorders at Early-Childhood Baseline	B	SE	Wald	df	p	OR	95% CI for OR Lower	95% CI for OR Upper
Age	0.03	0.20	0.02	1.00	.88	1.03	0.69	1.54
Gender (male)	−0.14	0.35	0.16	1.00	.69	0.87	0.44	1.72
Income-to-needs ratio	−0.38	0.17	4.85	1.00	.03	0.68	0.49	0.96
Maternal psychopathology	0.56	0.36	2.35	1.00	.12	1.74	0.86	3.54
SI during ages 3–7	1.76	0.55	10.32	1.00	.00	5.79	1.98	16.90
Constant	−1.22	1.96	0.39	1.00	.53	0.30		
After Controlling for Early-Childhood Disorders								
Age	0.08	0.21	0.14	1.00	.70	1.08	0.71	1.64
Gender (male)	0.06	0.37	0.03	1.00	.87	1.06	0.51	2.21
Income-to-needs ratio	−0.33	0.18	3.28	1.00	.07	0.72	0.50	1.03
Maternal psychopathology	0.34	0.38	0.80	1.00	.37	1.41	0.66	2.99
Early-childhood depression	0.74	0.40	3.34	1.00	.07	2.09	0.95	4.61
Early-childhood ADHD	0.33	0.43	0.59	1.00	.44	1.39	0.60	3.22
Early-childhood ODD/CD	1.12	0.40	7.73	1.00	.01	3.06	1.39	6.73
Early-childhood anxiety disorders	−0.69	0.42	2.65	1.00	.10	0.50	0.22	1.15
SI during ages 3–7	1.35	0.58	5.34	1.00	.02	3.84	1.23	12.02
Constant	−2.45	2.08	1.39	1.00	.24	0.09		
After Controlling for School-Age Disorders								
Age	−0.16	0.22	0.50	1.00	.48	0.85	0.55	1.33
Gender (male)	0.12	0.39	0.10	1.00	.75	1.13	0.53	2.41
Income-to-needs ratio	−0.32	0.19	3.00	1.00	.08	0.72	0.50	1.04
Maternal psychopathology	0.19	0.39	0.23	1.00	.63	1.21	0.56	2.62
School-age depression	1.23	0.43	8.23	1.00	.00	3.43	1.48	7.97
School-age ADHD	0.53	0.42	1.61	1.00	.20	1.70	0.75	3.85
School-age ODD/CD	0.55	0.43	1.63	1.00	.20	1.73	0.74	4.04
School-age anxiety disorders	0.09	0.41	0.05	1.00	.82	1.10	0.49	2.46
SI during ages 3–7	1.43	0.58	6.09	1.00	.01	4.18	1.34	13.04
Constant	−0.31	2.12	0.02	1.00	.89	0.74		
After Controlling for Early-Childhood and School-Age Disorders								
Age	−0.08	0.23	0.11	1.00	.74	0.93	0.59	1.46
Gender (male)	0.17	0.40	0.18	1.00	.67	1.18	0.54	2.59
Income-to-needs ratio	−0.30	0.19	2.49	1.00	.11	0.74	0.51	1.08
Maternal psychopathology	0.14	0.41	0.11	1.00	.74	1.15	0.52	2.54
Early-childhood depression	0.35	0.44	0.61	1.00	.43	1.42	0.59	3.38
Early-childhood ADHD	0.19	0.46	0.18	1.00	.67	1.21	0.49	2.97
Early-childhood ODD/CD	1.04	0.45	5.39	1.00	.02	2.82	1.17	6.78
Early-childhood anxiety disorders	−0.86	0.45	3.55	1.00	.06	0.42	0.17	1.04
School-age depression	1.21	0.44	7.45	1.00	.01	3.34	1.40	7.93
School-age ADHD	0.48	0.46	1.09	1.00	.30	1.61	0.66	3.98
School-age ODD/CD	0.15	0.48	0.10	1.00	.75	1.16	0.46	2.97
School-age anxiety disorders	0.17	0.43	0.16	1.00	.69	1.19	0.51	2.78
SI during ages 3–7	1.29	0.59	4.76	1.00	.03	3.62	1.14	11.49
Constant	−1.41	2.22	0.40	1.00	.53	0.24		

Note: ADHD = attention-deficit/hyperactivity disorder; CD = conduct disorder; ODD = oppositional defiant disorder; OR = odds ratio; SI = suicidal cognitions and behaviors.

Of particular interest, the present findings highlight the unique associations of early-childhood ADHD and ODD/CD with early-childhood SI. When controlling for other symptoms and relevant demographic variables, early-childhood SI was concurrently associated with children's diagnoses of both ADHD and ODD/CD, but not depression or anxiety disorders. Thus, SI during early-childhood exhibits some specificity to externalizing

diagnoses and may not be a marker of general psychopathology. Indeed, emerging literature suggests that youth characterized by impulsivity and aggression may be particularly at risk for suicidal behaviors.[47-49] Likewise, the inhibition that characterizes anxiety symptoms appears to be functioning as a protective factor. Future work should continue to explore these possibilities as well as whether diagnostic severity and/or comorbidity may influence a young child's risk for SI.[7,12]

Longitudinal analyses revealed that early-childhood SI was a significant predictor of future school-age depression and ODD/CD. However, early-childhood SI did not remain a significant predictor of school-age disorders after controlling for children's baseline symptoms of the same pathology. This finding in young children extends other longitudinal work in older children and adolescents, suggesting that a large part of the association between early-childhood SI and later psychopathology is due to high levels of internalizing and externalizing pathology during early childhood.[8] Alternatively, only children with psychiatric diagnoses endorsed SI; therefore, there may not have been enough variability across time to detect a significant association, particularly when other demographic and clinical variables were included in the models, and given that a portion of this sample was originally recruited based on the presence of mood symptoms.

The present findings underscore the clinical significance of SI during ages 3 to 7 years as an early marker of risk for ongoing SI. In this study, school-age SI was predicted by early-childhood SI. Young children with SI were more than 3 times as likely to continue to have school-age SI, even after controlling for past and current psychiatric diagnoses, demographic variables, and maternal psychopathology. In these models, both early-childhood ODD/CD and school-age depression also conferred greater risk for school-age SI. This suggests some level of homotypic continuity in these behaviors from early to middle childhood, establishing an earlier developmental starting point to the well-documented trajectory of SI from school-age into adolescence/adulthood.[29,50] As such, although a more nuanced understanding of death and suicide[16,17,20] likely develop over middle childhood, the present findings suggest that young children's reports of SI may correspond to those same behaviors at school age, providing indirect evidence of continuity across time. Despite these findings and a growing body of developmental work, it remains unclear exactly what young children mean when they say that they want to die or harm themselves, and a conceptual understanding of death was not tested in the current study. Yet, data indicate that death/suicidal statements, behaviors, and actions among young children are strongly associated with distress and psychopathology as well as later suicidal ideation at school age, underscoring the need to attend to this symptom as an important marker of risk. Although the understanding of death and suicide may change, SI may serve as a signal of clinical distress and impairment across age groups.

Notably, however, no associations with traumatic life events were found. Furthermore, larger nonclinical, community-based samples of young children that are fully assessed for SI will help elucidate what (if any) aspects of childhood SI are normative and at what level these symptoms become clinically impairing or predictive of later negative outcomes. Children exhibiting SI during ages 3 to 7 years may be at high risk for maintaining or possibly intensifying their SI across time, particularly combined with the presence of early-onset ODD/CD. This group of young children represents a group that is at high risk for negative outcomes, such as suicide attempts and severe psychopathology, and should be targeted for early intervention. These findings suggest that clinicians should assess for the presence of SI in young children with ADHD and/or ODD/CD—a domain that has been clinically neglected in this age group to date.

Although not the primary purpose of this report, we also explored potential correlates and school-age outcomes of persistent death and suicidal themes present in the play of children ages 3 to 7 years. Results suggest that persistent death and suicidal themes in play are concurrently associated with increased rates of early-childhood depression, ADHD, and ODD/CD. Furthermore, young children with persistent death and suicidal themes in their play were also more likely than children not endorsing these play themes/SI to meet criteria for depression and anxiety disorders during school age. Although our base rate for these behaviors occurring without other SI items was low (n = 14), these preliminary findings offer evidence suggesting that persistent death and suicide themes in play may be indicative of general distress and psychiatric impairment that may continue into school age.

The most salient limitation of this study was the relatively small number of young children endorsing childhood SI. Although this variable is expected to have a low base rate of occurrence, future work may be strengthened by including larger sample sizes to capture more variability and endorsement of SI in this age range. Young children in this study were recruited based on high endorsement of symptoms of depression; therefore, prevalence rates may be higher than would be expected for a less clinically enriched sample. The SI information collected from the study relied primarily on parent report, a method with several known shortcomings, including reporter bias.[51] This study is also complicated by the possibility that the meaning of SI changes over the course of development: we know that understanding of death develops over childhood,[20] and it is difficult to know what a young child means with his/her suicidal expressions and actions. Nevertheless, most empirical data suggest that young children have acquired some understanding of death[17,20] and fear of death[52] by this age. Of note, specific life experiences (e.g., religion, education, death, and suicide) have been found to hasten an understanding of death in young children.[16,36] It is possible that adverse life experiences and/or psychopathology likewise increase children's understanding of the meaning of death and suicide. It may also be that an understanding of death and suicide in young children depends on how such information is presented and who is delivering the information

(e.g., a caregiver versus another child). This remains an open question for future inquiry. This study is also limited by inability to assess the genetic contributions of SI from parents to children. Given the strong evidence linking parental suicide attempts and psychopathology to off-spring SI,[4] future work would benefit from including genetic assessments of inherited liability to psychopathology and/or impulsivity. Young children in this sample were recruited from the general community, and therefore, we could not control for any outside treatment that these children received throughout the study.

The continuity of SI throughout childhood reported here should inform prevention and treatment efforts. Given that school-age children experience an increase in the means to carry out suicide as well as exposure to additional risk factors correlated with suicide attempts, this group of children who had SI during ages 3 to 7 may be at increased risk. Furthermore, the present findings provide additional support for the independent association between ODD/CD and SI among young children. Evidence-based practices for disruptive behavior disorders may be particularly beneficial for these children and help to moderate the association between early and later childhood SI. In addition, pending replication of this work, suicide risk prevention programs may benefit by incorporating skills focused on reducing the impact of externalizing disorders. Such early intervention, particularly during early childhood, may offer a crucial window of opportunity to alter the trajectory of SI across childhood. &

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TABLE S1 Examples of Suicidal Cognitions and Behaviors in Children Ages 3–7

Example
A 5-year-old wraps a belt around his neck and expresses that he wants to die.
A 4-year-old states that he wants to run out into traffic to be hit by a car.
A 6-year-old runs up to a second story balcony and threatens to jump off.
A 5-year old hides a knife under his pillow and repeatedly expresses that he does not deserve to live.
A 5-year-old states, "I want to go to sleep forever" when sad.
A 4-year-old wants to go to heaven to join a beloved grandparent.

TABLE S2 Demographic and Clinical Differences Between Young Children With Death/Suicidal Themes in Play and Children With Other Suicidal Cognitions and Behaviors (SI) Items

	Death/Suicidal Themes in Play (n = 14)	Other Early-Childhood–Onset SI (n = 34)	Statistic
Demographics			
Gender (% male)	78	67	$\chi_{(1)}^2 = 0.57$
Age, mean (SD)	5.54 (0.83)	5.47 (1.03)	$t_{(46)} = 0.82$
Income-to-needs ratio, mean (SD)	2.33 (1.55)	1.71 (1.10)	$t_{(46)} = 0.20$
Traumatic life events, mean (SD)	3.07 (2.76)	5.24 (6.40)	$t_{(45)} = -1.22$
Maternal Psychopathology (% present)			
History of suicide attempts	7	9	$\chi_{(1)}^2 = 0.05$
Depression	43	57	$\chi_{(1)}^2 = 0.86$
Bipolar disorder	14	12	$\chi_{(1)}^2 = 0.41$
Anxiety	29	30	$\chi_{(1)}^2 = 0.01$
ADHD	0	3	$\chi_{(1)}^2 = 0.43$
Substance abuse	7	15	$\chi_{(1)}^2 = 0.57$
CD	7	12	$\chi_{(1)}^2 = 0.26$
Total number of diagnoses, mean (SD)	1.14 (1.17)	1.45 (1.03)	$t_{(45)} = -0.91$
1st or 2nd degree relative with a history of suicide attempts	35	27	$\chi_{(1)}^2 = 0.34$
Early-Childhood Psychopathology (ages 3–7; % present)			
Depression diagnosis	92	76	$\chi_{(1)}^2 = 1.75$
ADHD diagnosis	43	64	$\chi_{(1)}^2 = 1.95$
ODD/CD diagnosis	64	79	$\chi_{(1)}^2 = 1.21$
PTSD diagnosis	0	6	$\chi_{(1)}^2 = 0.86$
Anxiety diagnosis	43	59	$\chi_{(1)}^2 = 1.02$
School-Age Psychopathology (% present)			
Depression diagnosis	57	67	$\chi_{(1)}^2 = 0.37$
ADHD diagnosis	36	47	$\chi_{(1)}^2 = 0.47$
ODD/CD diagnosis	36	50	$\chi_{(1)}^2 = 0.79$
Anxiety diagnosis	79	53	$\chi_{(1)}^2 = 2.56$

Note: ADHD = attention-deficit/hyperactivity disorder; CD = conduct disorder; ODD = oppositional defiant disorder; PTSD = posttraumatic stress disorder.

TABLE S3 Demographic and Clinical Differences Between Children With Death/Suicidal Themes in Play and Children Without Early-Childhood–Onset Suicidal Cognitions and Behaviors (SI)

	Death/Suicidal Themes in Play (n = 14)	No Early-Childhood–Onset SI (n = 258)	Statistic
Demographics			
Gender (% male)	78	50	$\chi^2_{(1)} = 4.95^*$
Age, mean (SD)	5.54 (0.83)	5.33 (0.83)	$t_{(270)} = -0.97$
Income-to-needs ratio, mean (SD)	2.33 (1.55)	2.07 (1.09)	$t_{(264)} = 0.71$
Traumatic life events, mean (SD)	3.07 (2.76)	3.46 (3.67)	$t_{(267)} = 0.68$
Maternal Psychopathology (% present)			
History of suicide attempts	7	7	$\chi^2_{(1)} = 0.01$
Depression	43	37	$\chi^2_{(1)} = 0.20$
Bipolar disorder	14	5	$\chi^2_{(1)} = 1.84$
Anxiety	29	11	$\chi^2_{(1)} = 3.65$
ADHD	0	3	$\chi^2_{(1)} = 0.45$
Substance abuse	7	5	$\chi^2_{(1)} = 0.11$
CD	7	4	$\chi^2_{(1)} = 0.48$
Total number of diagnoses, mean (SD)	1.14 (1.17)	0.76 (1.02)	$t_{(267)} = -1.43$
1st or 2nd degree relative with a history of suicide attempts	35	26	$\chi^2_{(1)} = 0.74$
Early-Childhood Psychopathology (ages 3–7; % present)			
Depression diagnosis	92	36	$\chi^2_{(1)} = 18.33^{***}$
ADHD diagnosis	43	18	$\chi^2_{(1)} = 5.14^*$
ODD/CD diagnosis	64	31	$\chi^2_{(1)} = 6.68^*$
PTSD diagnosis	0	5	$\chi^2_{(1)} = 0.74$
Anxiety diagnosis	43	32	$\chi^2_{(1)} = 0.74$
School-Age Psychopathology (% present)			
Depression diagnosis	57	29	$\chi^2_{(1)} = 4.83^*$
ADHD diagnosis	36	19	$\chi^2_{(1)} = 1.20$
ODD/CD diagnosis	36	19	$\chi^2_{(1)} = 1.20$
Anxiety diagnosis	79	30	$\chi^2_{(1)} = 14.03^{***}$

Note: ADHD = attention-deficit/hyperactivity disorder; CD = conduct disorder; ODD = oppositional defiant disorder; PTSD = posttraumatic stress disorder.
*p < .05; ***p < .001.