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Suicidal Ideation and Self-Harm Behavior in a Community Sample of Preadolescent Youth: A Case-Control Study

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Abstract

Objective—Research has focused on understanding risk factors associated with suicidal ideation and self-harm behaviors in older youth, but less is known regarding these behaviors in preadolescents. We examined characteristics associated with suicidal ideation and self-harm behavior in youth ages 10–13 years.

Design/Methods—A community sample of 387 youth, were enrolled in a prospective study assessing precursors of risk behaviors. Twenty three subjects endorsing items regarding suicidal ideation or self-harm behaviors (Achenbach's Youth Self-Report [YSR])(Endorsers), were matched with 23 Non-Endorsers. Groups were compared on problem behaviors, impulsivity, neurocognitive function, risk behaviors, and other variables.

Results—Endorsers had higher levels of impulsivity, were more likely in borderline/clinical range on 5 of 8 YSR Syndrome Scales, and reported more risk taking. Endorsers and Non-Endorsers were similar in neurocognitive function. More Non-Endorsers were on stimulants, but groups were similar in parental monitoring and parental report of behavioral/emotional issues, SES, and marital status.

Conclusion—In this study, preadolescent Endorsers report significantly more problem behaviors than Non-Endorsers. However, parental monitoring and parent report of problems were similar between groups. Given these findings, we suggest that at-risk youth may be under-recognized at young ages.

Keywords

Suicidal ideation; self-harm; preadolescent; community sample; problem behaviors; impulsivity; neurocognitive function; risk behaviors

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Approximately 20% of all youth express suicidal ideation during adolescence,[1] with suicide being the fourth leading cause of death in children between the ages of 10–13.[2] There has been significant research on understanding suicidal ideation and self-harm behavior in older youth, while less is known regarding suicide in younger populations.[3–6] The purpose of the present study was to examine factors associated with suicidal ideation and self-harm behaviors in youth ages 10.0–12.9.

A community sample of 387 youth recruited from the Philadelphia school district was enrolled at mean age 11.6 years in a longitudinal study exploring precursors of adolescent drug use.[7] Participants were in grade 4–7 and were of diverse racial and socioeconomic backgrounds. The study was approved by the Institutional Review Board at The Children’s Hospital of Philadelphia. Parental consent and child assent were obtained.

As part of an annual assessment, participants completed a 112 item questionnaire, the Youth Self Report (YSR).[8] The YSR provides both general problem scales (Internalizing, Externalizing, and other problems) and syndrome scales (anxious/depressed, withdrawn/depressed, somatic complaints, aggression, rule-breaking, social, thought, and attention problems). Two items are embedded, one relating to suicidal ideation: “I think about killing myself,” and the other to self-harm behavior: “I deliberately try to hurt or kill myself”. Items are rated on a 3-point scale, with responses ranging from 0 for “not true”, 1 for “somewhat or sometimes true”, and 2 for “very true or often true”. Participants were assigned to one of two categories: Endorsers (those that responded > 0 on either or both items) and Non-Endorsers (those who responded 0 to both items). During year one, 23 participants endorsed at least one of these questions. Of these, 12 (52%) positively endorsed ideation, two (9%) positively endorsed self-harm behavior, and nine (39%) endorsed both statements. Each Endorser was matched on age, gender, race, and, when possible zip code, school, or grade with a remaining Non-Endorsing participant (See Table 1).

All participants also completed assessments of problem behaviors, impulsivity, neurocognitive function, risk behaviors, and other variables.[9] Using the YSR problem behavior scores and individual syndrome scales, participants were classified as in the normal or borderline/clinical range. Two dimensions of impulsivity were measured: Acting Without Thinking using the Eysenck I7 Junior Impulsivity Subscale, and Sensation Seeking using the Reduced Brief Sensation Seeking Scale. Working Memory, Cognitive Control, and Reward Processing were assessed using tasks in Table 2. Risk Behaviors were assessed by self-report with the Youth Risk Behavior Survey and the Monitoring the Future Questionnaire. Parental involvement was assessed using a 21 item participant-report regarding parental monitoring and mentoring behaviors. Parents reported on other participant and family variables including medical, behavior/emotional issues, prescription medication, and family demographics. Assessment details have been reported previously.[9]

Statistical Analysis

T-tests and chi square tests were used for comparisons of Endorsers and Non-Endorsers.

On the YSR, Endorsers were more likely than Non-Endorsers to have borderline/clinical range scores on internalizing, externalizing, and other problem behaviors (See Table 2). Endorsers were more likely to score in the clinical/borderline range on five of the eight YSR syndrome scales: anxious/depressed, withdrawn/depressed, somatic complaints, aggressive behavior, and social problems. For Impulsivity, Endorsers showed higher levels on both Acting Without Thinking and Sensation Seeking ($p = 0.001$). Endorsers also reported more risk taking behaviors such as: gambling, sex, and drugs ($p=0.05$) with low levels of risk behaviors for both groups. In regard to Neurocognitive Function, scores on Working Memory and Cognitive Control tasks were similar between Endorsers and Non-Endorsers. However, for Reward Processing, while similar in Reversal Learning, Endorsers had lower scores on the BART (Balloon Analogue Risk Task), an index of riskiness or disinhibition ($p=0.013$). Groups were similar in parental involvement and on parent report of medical and behavioral/emotional issues. Five Non-Endorsers compared to one Endorser were taking prescription stimulant medication; however, sample size precluded analysis for statistical significance.

In our community sample of 387 preadolescents, we identified 23 (5.9%) youth who endorsed suicidal ideation and/or self-harm behavior on the YSR at ages 10–13. We found Endorsers showed higher levels of impulsivity, risk behaviors, and other problem behaviors compared to Non-Endorsers. It is important to note that in our annual follow-up of participants, to date none of the 23 Endorsers has died by suicide.

Impulsivity, risky behavior, the prevalence of psychiatric problems including multiple comorbidities, and aggressive behavior have all been linked to increased preadolescent suicide risk.[6] While our findings are consistent with other studies, we extended current research by identifying links between suicide risk and two specific components of impulsivity, Sensation Seeking and Acting Without Thinking. Further, we add to prior self-report research by confirming increased levels of risk-taking in Endorsers. Previous research also has identified strong parent-child attachment as a protective factor against suicide.[10] One proxy for this is parental involvement, yet we found no differences between groups in this area.

Several limitations temper our findings. First, examination of factors associated with suicidal ideation and/or self-harm behavior was not an aim of the original study, therefore, our assessment of ideation and self-harm behavior was limited to two items on one assessment instrument. Nevertheless, in our community sample, we were able to identify robust differences between these groups, and extend generalizability of these findings beyond prior research with higher risk clinical samples. Second, with only 23 Endorsers we were unable to perform multivariate analyses evaluating the relative importance of factors associated with endorsement. Third, our design was cross sectional. Longitudinal research is needed in high risk groups of similar age to assess how these differences are predictive of behavioral change over time.

In conclusion, while preadolescent Endorsers exhibit more problem behaviors and impulsivity than Non-Endorsers, these issues appear to be under-recognized by caregivers. Given these findings we suggest early screening by pediatricians may identify at-risk youth.

Further, school personnel and other mental health gatekeepers should assess suicide risk in students presenting with behavioral problems. This action would allow timely initiation of empirically supported interventions before problems escalate to levels that will require more comprehensive interventions, such as hospitalization.

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Implications and Contribution

In a community sample of 10–13 year olds, 5.9% reported intent for suicide or self-harm as well as increased levels of impulsivity, risk behaviors, and problem behaviors. Intent was under-recognized by caregivers, suggesting that early screening may identify youth at risk for suicide so that early interventions may be initiated before problems escalate.

Table 1

Endorsers and Non-Endorsers: Demographics

	Endorsers (n = 23)	Non-Endorsers (n = 23)	p- value
Gender, Male	16 (69.6) ^a	16 (69.6)	1.00
Race			
White	6 (26.1)	6 (26.1)	1.00
African American	17 (73.9)	17 (73.9)	
Age	11.6 ± 1.0 ^b	11.6 ± 0.9	0.80
	10.0, 13.8 ^c	10.1, 13.8	-
SES, Score	42.2 ± 13.8	42.8 ± 15.3	0.90
Parental Marital Status			
Married ^d	15/21 (71)	12/22 (54.5)	0.35

^a n (%)^b Mean ± SD^c Range: minimum, maximum^d Missing marital status data for 3 subjects

Table 2

Endorsers and Non-Endorsers: Assessments and Outcomes

	Endorsers (n=23)	Non-Endorsers (n=23)	p- value
YSR Scales ^a			
Internalizing	16 (69.6) ^b	3 (13)	0.001
Anxious/Depressed	10 (43.5)	2 (8.7)	0.017
Withdrawn/Depressed	7 (30.4)	1 (4.3)	0.047
Somatic Complaints	12 (52.2)	4 (17.4)	0.029
Externalizing	11 (47.8)	0 (0)	0.001
Aggressive Behaviors	11 (48)	0 (0)	0.000
Rule-Breaking Behaviors	2 (9)	0 (0)	0.489
Other Behaviors	-	-	-
Social Problems	8 (34.8)	1 (4.3)	0.022
Thought Problems	9 (39.1)	5 (21.7)	0.337
Attention Problems	3 (13.0)	0 (0)	0.233
Impulsivity			
Acting Without Thinking	7.13 ± 2.8 ^c	3.8 ± 2.8	0.001
Sensation Seeking	11.0 ± 3.5	7.5 ± 2.9	0.001
Total Risk Taking	3.0 ± 2.6	1.1 ± 1.5	0.05
Neurocognitive Function: Standard Scores			
Working Memory			
Corsi Block Tapping	97.2 ± 14.8	97.5 ± 13.4	0.96
Digit Span (WISC-IV)	101.2 ± 18.3	95.5 ± 15.5	0.30
Letter Two Back	100.2 ± 16.3	100.6 ± 16.5	0.95
Spatial Working Memory	97.5 ± 14.2	99.7 ± 16.7	0.63
Cognitive Control			
Counting Stroop	105.0 ± 19.4	101.1 ± 15.0	0.46
Erikson Flanker	103.3 ± 12.9	102.2 ± 19.1	0.83
Reward Processing			
Reversal Learning	99.0 ± 15.8	99.7 ± 16.7	0.89
Balloon Analogue Risk Task	91.8 ± 12.3	101.8 ± 13.7	0.013
Other Participant and Family Variables			
Participant Report			
Parental Involvement	2.5 ± 0.5	2.6 ± 0.4	0.41
Parent Report			
Medical Issues	3 (13.0)	5 (21.7)	0.70
Behavioral/Emotional Issues	1 (4.3)	2 (8.7)	1.0
Stimulant Medication	1 (4.3)	5 (21.7)	0.19

^aBorderline/Clinical Range⁶

^b_n (%)

^cMean ± SD

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