Published in final edited form as:

Suicide Life Threat Behav. 2009 December ; 39(6): 599. doi:10.1521/suli.2009.39.6.599.

Thoughts of Death and Suicide in Early Adolescence

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Abstract

This community-based study estimates the prevalence and persistence of thoughts of death and suicide during early adolescence. A latent class approach was used to identify distinct subgroups based on endorsements to depression items administered repeatedly over 24 months. Two classes emerged, with 75% in a LOW IDEATION class across four assessments. <2% persisted in the HIGH IDEATION class over 3+ assessments. African American and Asian American adolescents were more likely than European Americans to belong to the HIGH IDEATION class. No members of the LOW IDEATION class endorsed "thought about killing myself", while "thoughts of death and dying" was endorsed by members of both classes. Implications for interpreting meanings of death and suicide ideation in early adolescence are discussed.

Suicide is the third leading cause of death among adolescents (Anderson, 2002) with many more youth reporting thoughts of suicide as well as suicide attempts (Center for Disease Control and Prevention [CDC], 2006). While risk of death by suicide is still relatively low among children younger than 12 years of age, suicide is the fourth leading cause of death among 12-year-olds (Hoyert, Heron, Murphy, & Kung, 2006). A 2006 survey of a representative sample of 4447 public school students in Washington State found that 11% of eighth graders had considered attempting suicide in the prior twelve months (Washington State Department of Health [DOH], 2007). In a community-based study the occurrence of suicidal thoughts was investigated among seventh through ninth graders using three items from the Center for Epidemiological Studies Depression Scale (Garrison, Addy, Jackson, McKeown, & Waller, 1991). Assessments were conducted annually over a three year period in early adolescence. At each assessment, 70% of respondents reported no suicidal thoughts, 15 to 20% reported some thoughts, while 6% reported high suicidal ideation scores. Given that thoughts about suicide appear to be quite common among adolescents (Lewinsohn, Rhode, & Seeley, 1996), some researchers suggest that suicidal ideation during high school age adolescents is normative (Marcenko, Fishman, & Friedman, 1999). The meaning and developmental course of suicidal thoughts in early adolescence is, however, not well understood.

Early adolescence is a period of significant change, during which children undergo the physical changes associated with puberty and face new challenges as they transition to middle school where they encounter increased peer and academic pressures (Rudolph, Lambert, Clark, &

Kurlakowsky 2001; Simmons, Burgeson, Carlton-Ford, & Blyth, 1987). The number of youth who experience emotional and behavioral problems increases (Hankin et al., 1998; Newman et al., 1996). Recent developments in neuroscience contribute to our understanding of why the risk of emotional and behavioral problems increases during adolescence (Giedd, 2004; Steinberg et al., 2006). The research suggests that there is a significant developmental lag between the intensification of emotional and behavioral states that accompany the hormonal changes of puberty in early adolescence and the mastery of cognitive and emotional coping skills that are enabled through cortical development during late adolescence and early adulthood. This lag leaves vulnerable adolescents prone to increased moodiness with biased interpretations of experiences, self-criticality, poor judgment, and emotion-focused coping (Dahl, 2003; Rudolph & Clark, 2001; Sethi & Nolen-Hoeksema, 1997; Shibley, Mezulis, & Abramson, 2008). These features of adolescent development may also contribute to the increase in suicidal ideation that has been observed as youth move through the middle school years (Garrison et al., 1991). Young adolescents are particularly vulnerable to perceiving problems as overwhelming and to seeking “all or nothing” solutions. Given the earlier timing of their pubertal development, girls are most vulnerable, and indeed studies indicate that girls report more suicidal ideation and attempts than boys (McKeown et al., 1998). Completed suicide, however, continues to be less common in girls than boys during adolescence in part because, compared to boys, girls tend to use methods with lower lethality when making a suicide gesture (Gunnell, Wehner, & Frankel, 1999).

In addition to the normative features of adolescent development, a number of individual characteristics, including the presence of a significant mood or disruptive behavior disorder, preoccupation with death, and family history of significant psychopathology or suicidal behavior are associated with increased risk for suicide (Pfeffer, 1997; Tishner, Reiss, & Rhodes, 2007). Environmental risks include living in poverty, family discord, and exposure to abuse or neglect (De Leo & Heller, 2004; Hawton et al., 2003). Recent attention has been focused on bullying and the influence that peer relationships can have on the adolescent's willingness to take their own lives, as well as the lives of others in their school settings (Steinberg et al., 2006; Klomek, Marrocco, Kleinman, Schonfeld, & Gould, 2008).

Thoughts about death and suicide become more common as children move through early adolescence (Pfeffer, 1997). Since having suicidal thoughts is a predecessor to taking action to attempt suicide, thoughts, if disclosed to others, can serve as warning signs that provide an opportunity for intervention. Because the meaning of thoughts about death and suicide during early adolescence is not always clear, it is difficult for parents, teachers, and care providers to accurately determine the degree of an adolescent's suicidal risk and, in turn, to plan an appropriate response that will assure safety. The response of parents and professionals must balance taking action to ensure safety with encouraging the young person to develop skills to cope more effectively with stress. While studies have shown that past history of suicidal ideation or behavior are the strongest predictors of recurrence or persistence (Dervic, Brent, & Oquendo, 2008), these findings are drawn predominantly from clinical samples of youth who have come to the attention of mental health professionals. Little is known about the frequency of thoughts of death or suicidal ideation among young adolescents within the population at large. More comprehensive population-based research on the frequency, type, and persistence of thoughts of death and suicide in young adolescents would help to guide parents, teachers, and care providers in their efforts to identify individuals at risk and to intervene effectively to temper the emotional intensity of young adolescents' experiences.

This paper uses data from a longitudinal study of the development of depression in a community-based sample to examine the prevalence of thoughts of death, hopelessness, and suicide among young adolescents in the general population. Four research questions are addressed:

1. What is the prevalence of thoughts of death and suicide among young adolescents in the general population?
2. How persistent are thoughts of death and suicide over the early adolescent years?
3. How do patterns of thoughts of death and suicide differ by gender, race, ethnicity, and social class?
4. Are some thoughts of death and suicide a cause for concern, while others are more normative?

This research will help to inform questions about the frequency of occurrence of suicidal thoughts and thoughts of death and of what responses to thoughts and patterns of thoughts about death and suicide may be warranted.

Method

Design and Sample

The Developmental Pathways Project (DPP) is a community-based epidemiological study. The study was approved by the University of Washington Human Subjects Division and was conducted in two stages. Stage 1 involved universal classroom-based screening of sixth grade students for depressive and conduct problems. Stage 2 was a longitudinal study in which in-home assessments were conducted at 6-month intervals with a stratified random sample of children screened in Stage 1 and a parent or guardian. Data analyzed for the current paper were derived from the first four longitudinal study assessments.

The Stage 1 sampling frame included students who were incoming sixth graders enrolled in four public schools in an urban school district in the Pacific Northwest from 2001–2004. Schools were selected that together represented the varied geographic areas within the district and the demographic diversity of enrolled students.

Students were eligible to participate in the study if they were able to understand written or spoken English at a third-grade level, as determined by the classroom teacher. Of the 2,978 students in the Stage 1 sampling frame, 58 (1.9%) were ineligible, including 50 students with moderate or severe developmental disabilities and 8 with minimal English proficiency. The screening questionnaire was administered in the classroom and included the Mood and Feelings Questionnaire (MFQ) (Angold & Costello, 1987) and externalizing items from the Youth Self-Report (YSR) (Achenbach, 1991). Of the 2,920 students eligible to participate in Stage 1, a total of 2,187 students (74.9%) were screened. Non-participating students included 628 (21.8%) for whom parents did not give permission and 91 (3.1%) who themselves declined to participate. Stage 1 participants did not differ significantly from non-participants on the basis of gender, race, or Hispanic origin.

For the purpose of selecting a stratified random sample for longitudinal study, all children who were screened in Stage 1 were assigned to one of four groups: high depressive and high conduct problem score (CM), high depressive and low conduct problem score (DP), low depressive and high conduct problem score (CP), and low depressive and low conduct problem score (NE), using a cutoff of .5 SD above the screening sample mean for the MFQ and the YSR externalizing scales. Eligibility for longitudinal study participation was determined on the basis of residence in the local geographic area at the time of study recruitment and the ability of both the student and an adult caregiver to undergo lengthy English-language interviews tapping personal information. To enhance the likelihood of observing psychopathology and related outcomes over the course of middle school, children whose screening scores were high on depressive and/or conduct problem dimensions were over-sampled for participation in the longitudinal study. A target number of children randomly selected from the four cells in a ratio

of approximately 1 CM : 1 DP : 1 CP : 2 NE were recruited. Since in the general school population, the ratio is close to 1 CM: 1 DP : 1 CP: 6 NE, this sample selection approach yielded an over-representation of children in the CM, DP, and CP groups relative to their representation in the general population.

Of 913 families who were randomly selected over the four years of recruitment, 521 (64.6%) agreed to participate in the longitudinal study; 25.2% declined participation, and we were unable to contact or schedule with 10.2%. Random selection from within each category was used to replace the 35% of screened, eligible, and selected children/parents who declined or were for other reasons not recruited. Recruitment into the four psychopathology risk cells from among the total who were randomly selected ranged from 62 to 66%; the proportions recruited did not differ significantly across cells (Chi-square = .90, df=3, p=.83).

With respect to suicidal ideation, the longitudinal study sample was a high risk group. Therefore, to provide general population estimates of the prevalence of suicidal thoughts among young adolescents, each individual in the longitudinal study was assigned a two-component weight to compensate for differences between the screening sample (which was representative of the children enrolled in public school) and the longitudinal sample (that had an overrepresentation of children at risk for depression and conduct problems). Weighted scores were used in all analyses so that prevalence estimates derived from the sample reflected estimates that would have been obtained in an unselected sample of sixth grade public school students.

In-person baseline interviews were conducted within 3 months of screening, and in-person follow-up interviews were conducted at 6, 12, and 18 months after the baseline interview. The final interview was conducted when adolescents were beginning the eighth grade. Of the participants originally enrolled in DPP, 86 to 90% were retained in each follow-up interview, including over 80% in each psychopathology risk category.

Longitudinal study participants were 521 school-age children, in the sixth grade at the time of the initial interview (Mean age = 12.02, SD = .43). There were 272 (52.2%) boys and 249 (47.8%) girls; 148 (28.4%) were African American; 97 (18.6%) were Asian American (this group includes children whose families are of Asian and Pacific Islander origin); 21 (4.0%) were Native American; and 255 (48.9%) were European American. Of the study sample, 53 (10.2%) were of Hispanic origin. Participating families spanned a wide range of lower and middle income levels, with 26.7% of families having a total household annual income of under \$25,000, and 30.9% of families having a household income of over \$75,000. Mean socioeconomic status (Hollingshead, 1975) for the full sample was 39.13 (SD = 14.13).

Measures

Demographic information on gender was ascertained from school records. Race, ethnicity, and information on caretaker education and occupation were obtained from the caregiver in the baseline interview. The occurrence of suicidal thoughts was derived from the MFQ administered at each of the four longitudinal study interviews. The MFQ is a self-report measure of depression designed for the age range of 8 to 18. The scale has 33 items that comprise both the full range of DSM diagnostic criteria for depressive disorders, as well as additional items reflecting common affective, cognitive, and vegetative features of childhood depression (Costello & Angold, 1988). Previous validation studies have demonstrated high content and criterion validity, showing concordance with depressive diagnoses derived from standardized diagnostic interviews (Wood, Kroll, Moore, & Harrington, 1995; Kent, Vostanis, & Feehan, 1997; Daviss et al., 2006). Cronbach's alpha coefficients for the MFQ total score in this sample ranged from .89 to .91 over the four time points.

One of the central goals of the current paper was to distinguish normative adolescent thoughts about death and dying from thoughts about suicide that were of greater cause for concern. Thus, we were interested in exploring differences in the meaning of individual MFQ ideation-related items. Five items that tapped thoughts about death, hopelessness, and suicide were selected by a group of child psychologists and psychiatrists for an ideation composite: “I thought there was nothing good for me in the future”; “I thought life wasn’t worth living”; “I thought about death and dying”; “I thought my family was better off without me”; and “I thought about killing myself”. Response options for these items were: “not true”; “sometimes true”; and “true” in the past two weeks and were coded 0, 1, or 2. Although a goal was to study responses to specific items, since there were no prior validation studies of the MFQ ideation items, we examined the psychometric properties of an ideation composite score based on the sum of the five items. Cronbach’s alphas for the ideation composite ranged from .65 to .77 across time points. Confirmatory factor analyses (CFA) were fit using EQS (EQS 6.1; Bentler, 2005). A one-factor model fit the data adequately at each of the four time points (Time 1: $\chi^2 = 17.07$, $df = 5$, $p < .01$; CFI = .89; RMSEA = .07. Time 2: $\chi^2 = 22.09$, $df = 5$, $p < .01$; CFI = .82; RMSEA = .09. Time 3: $\chi^2 = 1.37$, $df = 5$, $p < .92$; CFI = 1.0; RMSEA = .00. Time 4: $\chi^2 = 2.69$, $df = 5$, $p < .75$; CFI = 1.0; RMSEA = .00). Constraining factor loadings across time points did not significantly affect model fit indicating factor stability. Thus, there appeared to be moderate cohesiveness between the five-items selected. Because of the internal consistency and factor structure of the ideation composite, we considered modeling using a continuous ideation measure. However, the distribution of the composite scores in the study sample showed extreme positive skew (skew indices ranged from 2.9 to 3.5 across time points). Because of this skew, it would have been inappropriate to model composite scores as a continuous ideation measure. We proceeded with statistical analyses that incorporated the items separately.

Analyses

A series of analytic approaches were used to characterize the sample in terms of cross-sectional and longitudinal ideation patterns, and to determine factors that might be associated with persistent ideation. First, we described the frequency of endorsement of each of the five ideation items at each of the four study assessments.

Second, Latent Class Analysis (LCA) was used to identify subgroups of adolescents with distinctive patterns of death and suicidal ideation item endorsement. The five items were entered independently in the LCA, since the moderate internal consistency coefficients indicated that the items were not particularly redundant, and since from the clinician’s viewpoint, endorsement of the different items would invoke quite different interpretations, from reflecting developmentally normative thoughts and feelings to reflecting more serious risk of self-harm. LCA empirically derives classes of youth by clustering together individuals with similar item endorsement patterns. We were particularly interested in assessing whether or not LCA would identify a class of youth who were experiencing a distinctively higher probability of ideation item endorsement. By performing LCA on the five MFQ items at each of the four time points, we could also identify youth who persisted as high endorsers across the early adolescent years.

Based on the MFQ ideation items, Latent GOLD (Vermunt & Magidson, 2005) was used to perform separate LCA models (1-class to 4-class models) from each data collection point. The five MFQ suicide ideation items were dichotomized prior to entering into the LCA analyses (0 (never true), 1 (sometimes true) or (true)). Best fitting models were identified through the use of fit statistics, with primary emphasis given to the BIC (Bayesian Information Criteria). The BIC is a function of the log likelihood (LL) that takes into account sample size, with the lowest BIC indicating the best fitting model (Magidson & Vermunt, 2004). The Akaike Information Criteria (AIC), which is a function of LL that does not take sample size into

consideration, has been provided for comparison. When selecting the best fitting models, parsimony, sample size, and theory were also considered.

After the best fitting models were determined, the prevalence and relative prevalence of endorsement of each ideation item in ideation classes were calculated, and the persistence of class membership across four time points was established.

Finally, logistic regression analyses were performed to determine whether socio-demographic characteristics (gender, race, ethnicity, socioeconomic status) of adolescents were associated with ideation class membership.

Results

Prevalence of thoughts of death and suicide

The frequencies of endorsement of thoughts of death and suicide are reported in Table 1. Between one in six and one in four adolescents endorsed one or more ideation items at a given assessment. Over the course of 18 months, 60% of adolescents endorsed at least one of the five ideation items at one or more assessment. For all items, frequency of endorsement declined over the 18-month period. The most frequently endorsed item at each of the four time points was “thoughts about death and dying”; with a prevalence of 9 to 14%. “Thoughts of killing myself” was the least frequently endorsed item, reported by <1 to 3% of the sample. Six percent reported thoughts of killing themselves at least one time over the 18-month period.

Emergence of ideation classes

LCA fit statistics from each time point are presented in Table 2. The BIC provided support for 2-class models. The model with the lowest (smallest) BIC value represents the model that best fits the data. Classification error, parsimony, and prior theory were also considered during the model selection process. The largest class in each of the 2-class models at each time point represented a group who experienced a low probability of endorsing ideation items (with prevalence ranging from 94.2 (T1) to 86.4% (T4)). The second class represented a smaller group (with prevalence ranging from 5.8 (T1) to 13.6% (T4)) who experienced a moderate to high probability of item endorsement. Non-parametric Mann-Whitney U tests revealed highly significant between-class differences in ideation composite scores.

A visual depiction of the 2-class model displaying the frequency of endorsement of each item at each time point is presented in Figure 1. It is important to note from these graphs that among youth in both the LOW and HIGH IDEATION classes, the prevalence of endorsement varied across items and across interviews. For example, in the HIGH IDEATION class at each interview between 50 and 70% endorsed “nothing good for me in the future”, “life not worth living”, and/or “family would be better off without me.” In this class, across the four time points, 10 to 30% endorsed “thoughts of killing myself.” The “thought about death and dying” item was also endorsed by approximately 10% of the members of the LOW IDEATION class at each time point. In the LOW IDEATION class this was the item that was endorsed with the highest frequency. At no time did a member of the LOW IDEATION class endorse the “thought about killing myself” item. The prevalence of item endorsement in the HIGH IDEATION group, relative to the LOW IDEATION group, varied by item. In the baseline interview, for example, the relative prevalence estimates all exceeded 2.0, the confidence intervals were quite narrow, and all estimates reflected statistically significant between-class differences at the $p < .001$ level. However, the relative prevalence estimates varied from 2.3 (95% CI = 1.7–3.3) for “thought my family was better off without me” to over 12.37 (95% CI = 8.9–17.2) for “thought about killing myself.”

Table 3 shows the number of adolescents who experienced each of the 16 possible patterns of class membership across the four time points. As seen in the table, the majority of participants (75%) belonged to the LOW IDEATION class at each of the four time points. Only 10 individuals (<2%) belonged to the HIGH IDEATION class at three or more time points.

Demographic factors related to ideation class membership

Table 4 provides results for the unadjusted and adjusted logistic regression analyses comparing the adolescents who were in the LOW IDEATION class at each time point with those who were in the HIGH IDEATION class at least once with respect to gender, race, ethnicity, and household income. According to unadjusted estimates, both African American and Asian American participants were two times more likely to belong to the HIGH IDEATION group (i.e., to be classified in the group experiencing a higher probability of endorsement of thoughts of death or suicide) compared to European American participants. The strength of this association, as well as the statistical significance, remained after adjustment for gender, income, and Hispanic origin. According to the unadjusted analysis, the lowest two income categories also demonstrated nearly a two fold increase in the odds of membership in the HIGH IDEATION group; however these results diminished to a point of non-significance when gender, race, and Hispanic origin were included in the logistic model. There were no significant gender differences in membership between the LOW and HIGH IDEATION groups.

Description of the small subgroup of adolescents with persistent ideation

The 10 adolescents who consistently reported thoughts of death or suicide in three or four of the four assessments included three (30%) boys and seven (70%) girls. Four (40%) of these adolescents were European American, four (40%) were African American, and two (20%) were Asian American. Four (40%) of the families had a total household annual income of under \$25,000, and three (30%) had a household income of over \$75,000.

Discussion

This descriptive study presents new information on the occurrence and patterns of thoughts of death and suicide in a community sample of young adolescents. Across the middle school years, two distinct groups of adolescents were identified: those reporting moderate to high occurrence of ideation and those reporting low occurrence of ideation. Three quarters of adolescents reported low ideation at four longitudinal assessments, while fewer than two percent were in the high ideation group at three or four assessments made over an 18-month period. Individual items varied considerably in their frequency of endorsement. About 1 in 20 adolescents reported that they had thoughts of killing themselves at one or more assessment. More common were thoughts of death and dying, reported at one or more assessments by 15% of the sample. While thoughts of suicide were endorsed only by adolescents in the moderate to high occurrence class, thoughts of death and dying were reported by members of both ideation classes.

Consistency between current study findings and prior research

The prevalence estimates for ideation from this study are consistent with those of Garrison et al.'s prior longitudinal study (1991). The prior and current studies used similar methodological approaches: both focused on early adolescence, and both studies extracted a subset of items from a depression screening measure to characterize suicidal thoughts, although the two studies used different analytic approaches to stratify adolescent samples into ideation groups. As with the current study, the prior study found a small but not insignificant proportion of adolescents (5.5%) with high levels of suicidal thoughts. Furthermore, the results of the earlier study suggested that during early adolescence having some suicidal thoughts was not uncommon and not as concerning as having many thoughts. The current study corroborates the finding from

the prior study that African American adolescents were more likely than European Americans to report thoughts of death and suicide. This finding is also consistent with the documented increase in the occurrence of suicide and suicidal ideation among African American youth, from 1991 to 2003, a time during which suicide among European American youth declined or remained steady (Joe, 2006). The current study included a sizable representation of Asian American adolescents, who were also more likely than European American adolescents to report thoughts of death and suicide. In a large scale study of 10 to 19-year-olds, Asian/Pacific Island youth were shown to have higher rates of suicide attempts than European American counterparts (Goldston et al., 2008). A recent review showed suicidal behavior to be associated with depression and high conflict with parents in Asian American youth (Groves, Stanley, & Sher, 2007). Garrison et al.'s finding of gender differences in suicidal thoughts was not replicated in the current study. Possible explanation for the variability in gender findings include cohort effects (20 years between data collection for the two studies) or differences in the "valence" of ideation assessed, with the current study including more items at the lower end of severity.

The nationwide 2007 Youth Risk Behavior Surveillance (YRBS) (CDC, 2008) did not report on suicidal thoughts, but gave estimates of the proportion of 9th to 12th graders in the U.S. who reported having seriously considered suicide in the past twelve months. The proportion of older adolescents who endorsed this item was over 14.5% (CDC, 2008). Among eighth graders who participated in Washington State's Healthy Youth Survey (WSHYS) (DOH, 2007), 11.3% reported that they considered attempting suicide in the past year.

Differences between the YRBS and WSHYS estimates (14.5% and 11.3%) and the prevalence estimates from the current study and the Garrison et al. (1991) study ($\pm 10\%$ and 5.5%) must be interpreted in light of differences in age of subjects, measurement approaches, and time frame of the questions. Study design features and sample characteristics need to be carefully evaluated when fitting together the fragments of information available from the literature to create an accurate and coherent depiction of suicidal phenomena over the course of development. We plan to continue to study suicidal phenomena in this community sample. We will soon have the opportunity to characterize subgroups of youth according to longitudinal patterns by incorporating information from six longitudinal assessments (through the ninth grade) in a growth curve analysis. It is possible that a class of youth will emerge whose ideation increases over the course of adolescent development. A post-hoc analysis of our data where we examined trends in composite ideation scores for the two classes over the course of time provides some support for this conjecture. While mean composite scores for adolescents who fell into the LOW IDEATION group decreased from .25 to .14 over repeated assessments, mean composite scores for adolescents who fell into the HIGH IDEATION group increased from under 1.0 at Time 1 to over 3.0 at Times 3 and 4. Although with the analytic approach used in this study, group membership changed from assessment to assessment, the post-hoc findings give an indication that over the course of time an "ideation escalation group" may appear.

Our findings reveal that persistent suicidal ideation is uncommon in early adolescence. Most (two-thirds) of those who reported moderate to high ideation at any assessment reported did so at only one assessment. A very small proportion of young adolescents persistently report suicidal thoughts. A recent longitudinal study of Swiss youth showed that although in late adolescence only persistent suicidal ideation was predictive of psychopathology and poor psychosocial functioning in young adulthood, while during preadolescence even transient suicidal ideation was associated with poor young adult outcomes (Steinhausen & Metzke, 2004). Such findings suggest that even transient ideation at a young age might serve as a sign that attention is warranted to prevent future adversity, if not to address current risk.

While other studies (CDC, 2006) have reported increasing rates of suicidal ideation as youth move through adolescence, in this study rates of endorsement declined over time. This finding reflects in part differences between cross-sectional studies conducted on different individuals at different ages at one time and longitudinal studies conducted on the same people at different ages over the course of time. The repeated measures design of the current study increases risk for regression to the mean and testing effects as youth respond to the same questionnaire over time. Furthermore, as described above, as part of our safety protocol we conducted brief follow-up interviews with referral to care as needed for all youth who endorsed thoughts of death and dying or suicide. These brief interventions as well as the collateral care and discussions within families that may have followed could have had an effect on persistence of suicidal thoughts or willingness to report them over time.

Meaning of different ideation items

Clinicians and others are often presented with fragments of information from adolescents that might be suggestive of suicide risk. For example, they might hear that a child feels that her/his life is not worthwhile or that s/he was recently contemplating what it would be like to be dead. It can be challenging to determine the meaning of statements such as these with regard to whether suicide risk is present and whether steps to reduce suicide risk are warranted.

The clinical impression that different items have different meanings was corroborated by psychometric analyses showing that although the five MFQ items used in this study to depict thoughts of death and suicidal ideation had fairly high internal consistency, some degree of independence among the items was revealed. Additional work is needed to refine the wording of screening questions and to establish the predictive validity of potential risk indicators.

An opportunity to examine variability in the meaning of items was provided through implementation of a safety protocol, in which the meaning of positive responses to the “thoughts of death and dying” item could be evaluated. Brief follow-up assessments were conducted with any longitudinal study participant who endorsed thoughts of death or dying or suicidal thoughts. Examination of responses to the question, “What was going on at the time?” for the 47 adolescents who endorsed having “thoughts of death and dying” in the fourth assessment revealed that most of these thoughts were related to their experiencing the deaths of people close to them or to their curiosity about the phenomenon of dying. A small-scale qualitative analysis suggested that the meaning of the thoughts differed for adolescents in the LOW and HIGH IDEATION groups, with those in the HIGH IDEATION group more likely to report that thoughts of death or dying coincided with stressful situations with family members or friends and with thoughts of harming themselves. Thus the same item had different meanings for different adolescents. This finding underscores the problem of differentiating between developmentally normative responses and signs of danger and the problem of assuming consistent meaning to the same question asked of a group of adolescents and the need to follow-up on positive responses to determine what they mean to the individual adolescent.

Study strengths and limitations

The strengths of the current study are that information about suicidal ideation was obtained at multiple time points in a racially diverse population sample of young adolescents, thus extending our understanding of an important public health problem beyond the selected group of adolescents who seek clinical attention and beyond cross-sectional glimpses of different adolescents at different ages. Making repeated assessments on a single sample over a specific 18-month period during the course of early adolescent development, rather than having a single cross-sectional assessment of adolescents at different ages, allowed us to evaluate persistence of suicidal ideation over time. Larger surveys are typically constrained in the number of items

that can address any single construct, while this study was able to investigate a number of possible signs of suicidal risk. Finally, the current study utilized statistical methods that appropriately addressed non-normally distributed data. Because screening adolescents for emotional health problems is becoming a more common practice in school and primary care settings, it is valuable to know what can be gleaned about suicide risk from responses to a depression screening questionnaire.

Study limitations include that a previously validated suicide risk measure was not utilized. Caution should be exercised with regard to generalizing from the study findings on the characteristics of adolescents with persistent suicidal ideation, since the number of such subjects in the study was only 10. Examination of persistent ideation in a larger sample of adolescents is warranted. Although the study included a non-random sample of adolescents selected from among those who were initially screened, weighting was used so that inferences could be made to the general population of public school students. Findings are likely generalizable to other populations of public middle school students living in urban areas that have considerable racial and ethnic diversity.

Study implications for prevention and intervention

The findings of this study have implications for suicide assessment. They suggest that for adolescents, thoughts of death may in some cases be normative, while in others they may be a sign for concern. It is therefore important for parents, teachers, and clinicians who hear such statements to ascertain the context in which they arise. Has a beloved grandmother died recently? Is the phenomenon of mortality of intellectual interest? Is the adolescent struggling to cope with stressful circumstances at home or with peers? For about 1 in 20 adolescents, thoughts that there is little reason to live persist and may be accompanied by consideration of suicide. Thus asking once may not suffice; periodic check-ins are warranted to ascertain whether formal intervention is required to reduce suicide risk. Hopefully, this study can be of help to clinicians and others in evaluating the meaning of thoughts of death, hopelessness, despair, and suicide endorsed during depression screening.

Although the American Medical Association and the American Academy of Pediatrics have recommended that adolescents undergo annual screening to identify suicide risk, most suicidal risk goes undetected in primary care settings (Shain, 2007). A study of adolescent suicide attempters found that fewer than 20 percent were actually asked about suicidal behavior by their physicians at prior appointments (Slap, Vorters, Khalid, Margulies, & Forke, 1992; Frankenfield et al., 2000). Conducting universal suicide screening in school settings is more controversial due to the facts that yield will generally be lower in general population compared to clinical samples and that resources to provide follow-up for those who screen positive may be less available in schools than in clinical settings. To increase yield in school settings, broader emotional health screening to identify youth in distress may be more cost-effective than suicide screening alone (Vander Stoep et al., 2005; Kuo, Vander Stoep, McCauley, Herting, & Kernic, in press). Yield can also be improved by targeting high risk populations, high risk developmental moments (e.g., school transitions), or situations in which tragedies have taken a toll on the community. Because of the likelihood of a high proportion of false positives, whenever screening is conducted, a second tier of evaluation is needed, in addition to having supports available for those who are truly at risk of suicide. Universal screening is not a panacea. Studies have shown that when screening questionnaires are administered, a percentage of suicidal youth will screen negative (Shaffer et al., 2004). To identify these youth, teachers, primary care providers, and others should know how to recognize signs of serious emotional distress.

While the answers to the questions addressed in this study can be of practical use in that they support adults becoming more discerning and thoughtful in communications with young

adolescents, additional research is needed. Future studies should be designed to identify thought patterns that have utility in predicting subsequent suicidal behaviors. Of interest also are associations between mental health status, particularly depression and impulsivity, and suicidal ideation and behavior in young adolescents. Such research will promote better understanding and inform more appropriate clinical and public health responses aimed at preventing adolescent suicide.

Acknowledgments

This study was funded by a Young Investigator Award from the American Foundation for Suicide Prevention and by R01-MH63711 from the National Institutes of Mental Health and Drug Abuse. The authors wish to thank the Seattle children and parents who participated in the Developmental Pathways Project.

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Figure 1.

Table 1

Weighted Prevalence of Endorsement of Suicidal Ideation Items

Percent Endorsing the Item as “Sometimes True” or “True”						
MFQ Item	Early 6 th grade	Late 6 th grade	Early 7 th grade	Late 7 th grade	Endorsed this item at any time point	
I thought about death and dying	13.6%	12.8%	9.1%	9.5%	32.9%	
I thought there was nothing good for me in the future	12.6%	11.0%	6.1%	5.3%	26.2%	
I thought my family was better off without me	11.4%	9.9%	6.1%	5.1%	23.8%	
I thought life wasn't worth living	7.6%	7.4%	4.6%	3.0%	18.7%	
I thought about killing myself	3.2%	1.9%	1.3%	.6%	6.0%	
Any of these five items	25.3%	23.5%	16.8%	17.1%	60.5%	

Table 2

Fit Statistics for Latent Class Analyses

	LL	BIC(LL)	AIC(LL)	Npar	L ²	BIC(L ²)	AIC(L ²)	df	p-value	Class.Err.
Early 6th grade										
1-class	-783.6	1598.5	1577.2	5	324.8	68.3	242.8	41	p<.001	0.00
2-class	-645.1	1358.9	1312.1	11	47.7	-171.3	-22.3	35	0.074	0.03
3-class	-631.5	1369.4	1297.1	17	20.7	-160.7	-37.3	29	0.87	0.04
4-class	-624.1	1392.1	1294.2	23	5.8	-138.1	-40.2	23	1	0.05
Late 6th grade										
1-class	-716.6	1464.5	1443.3	5	305.7	143.1	253.7	26	p<.001	0.00
2-class	-581.7	1232.3	1185.4	11	35.9	-89.2	-4.1	20	0.016	0.02
3-class	-572.0	1250.3	1178.0	17	16.5	-71.1	-11.5	14	0.29	0.02
4-class	-570.1	1284.1	1186.2	23	12.7	-37.3	-3.3	8	0.12	0.37
Early 7th grade										
1-class	-508.4	1048.1	1026.8	5	218.2	-226.0	76.2	71	p<.001	0.00
2-class	-412.6	894.1	847.2	11	26.6	-380.0	-103.4	65	1	0.03
3-class	-408.0	922.3	849.9	17	17.3	-351.8	-100.7	59	1	0.03
4-class	-407.8	959.5	861.6	23	16.9	-314.6	-89.1	53	1	0.44
Late 7th grade										
1-class	-442.9	917.1	895.8	5	108.8	-241.5	-3.2	56	p<.001	0.00
2-class	-396.7	862.2	815.3	11	16.4	-296.4	-83.6	50	1	0.02
3-class	-394.5	895.4	823.1	17	12.1	-263.2	-75.9	44	1	0.18
4-class	-393.0	929.8	831.9	23	8.9	-228.8	-67.1	38	1	0.41

Table 3

Prevalence of Persistence in Suicidal Ideation Class Membership

CLASS PATTERN				
Early 6 th grade	Late 6 th grade	Early 7 th grade	Late 7 th grade	N Prevalence (Percent)
LOW	LOW	LOW	LOW	390 74.86%
IDEATION	LOW	LOW	LOW	38 7.29%
LOW	IDEATION	LOW	LOW	22 4.22%
LOW	LOW	IDEATION	LOW	13 2.50%
LOW	LOW	LOW	IDEATION	13 2.50%
IDEATION	IDEATION	LOW	LOW	9 1.73%
IDEATION	LOW	IDEATION	LOW	9 1.73%
IDEATION	LOW	LOW	IDEATION	2 0.38%
LOW	IDEATION	IDEATION	LOW	6 1.15%
LOW	IDEATION	LOW	IDEATION	7 1.34%
LOW	LOW	IDEATION	IDEATION	2 0.38%
LOW	IDEATION	IDEATION	IDEATION	2 0.38%
IDEATION	LOW	IDEATION	IDEATION	0 0.00%
IDEATION	IDEATION	LOW	IDEATION	1 0.19%
IDEATION	IDEATION	IDEATION	LOW	4 0.77%
IDEATION	IDEATION	IDEATION	IDEATION	3 0.58%

Table 4

Odds of IDEATION Class Membership by Socio-demographic Characteristics

	N	Crude (Unadjusted)			Adjusted*		
		OR	(95%CI)	p-value	OR	(95%CI)	p-value
Total # in follow-up	521						
Gender							
Male (ref)	272	1.0	-	-	1.0	-	-
Female	249	1.1	(0.8, 1.7)	0.493	1.1	(0.7, 1.6)	0.674
Race							
European American (ref)	255	1.0	-	-	1.0	-	-
African American	148	2.2	(1.4, 3.5)	0.001	2.0	(1.1, 3.4)	0.015
Asian American	97	2.0	(1.2, 3.5)	0.009	1.9	(1.1, 3.3)	0.023
Native American	21	2.3	(0.9, 5.9)	0.095	2.1	(0.7, 6.4)	0.193
Hispanic							
No (ref)	468	1.0	-	-	1.0	-	-
Yes	53	1.1	(0.6, 2.1)	0.822	1.0	(0.5, 2.1)	0.971
Household Income							
\$75,000 + (ref)	161	1.0	-	-	1.0	-	-
\$50,000 – \$74,999	100	1.1	(0.6, 2.0)	0.826	0.9	(0.5, 1.8)	0.826
\$20,000 – \$49,999	156	1.7	(1.0, 2.8)	0.048	1.2	(0.7, 2.2)	0.444
\$0 – \$19,999	104	1.8	(1.0, 3.2)	0.044	1.2	(0.6, 2.3)	0.634

* Adjusted for all listed socio-demographic variables.