Age Variability in the Association Between Heavy Episodic Drinking and Adolescent Suicide Attempts: Findings From a Large-Scale, School-Based Screening Program

ROBERT H. ASELTINE, JR., PH.D., ELIZABETH A. SCHILLING, PH.D., AMY JAMES, PH.D., JAIME L. GLANOVSKY, M.S., AND DOUGLAS JACOBS, M.D.

ABSTRACT

Objective: Alcohol use is a risk factor for suicidal behavior among adolescents, but it is not clear whether this association is consistent during the adolescent period. This study examined the age-specific associations between heavy episodic drinking (HED) and self-reported suicide attempts in a large and diverse sample of adolescents. **Method:** Screening data from 32,217 students, between the ages of 11 and 19 years, in 225 schools were analyzed. Logistic regression analyses estimating the impact of HED on self-reported suicide attempts in the past year were performed. **Results:** Heavy episodic drinking was significantly associated with self-reported suicide attempts (odds ratio 1.78, $p < .05$) controlling for depressive symptoms. However, there was substantial age variability in this association, with the association between HED and self-reported attempts stronger among younger adolescents. Among youths aged 13 years and younger, those who reported an episode of HED during the past year were roughly 2.6 times more likely to report an attempt than those who did not report HED in the past year, in contrast to 1.2 times among youths aged 18 years and older. **Conclusions:** Heavy episodic drinking is a clear risk factor for suicidal behavior among younger adolescents, beyond the risk conveyed by depressive symptoms. Further research investigating the bases for increased suicide risk among younger adolescents engaging in HED is warranted. Results provide support to AACAP's practice parameters calling for attention to substance abuse in the assessment of suicide risk and suggest that routine screening for HED by physicians may improve the detection of adolescent suicide risk, particularly among younger adolescents. *J. Am. Acad. Child Adolesc. Psychiatry*, 2009; 48(3):262–270. **Key Words:** suicide, suicide attempts, alcohol use, heavy episodic drinking.

Suicide among young people is one of the most serious public health problems facing the United States. The suicide rate for youths aged 10 to 19 years tripled between 1950 and 1990, with suicide becoming the third leading cause of death in this age group.[1,2] Although adolescent deaths by suicide have declined by approximately 35% since the mid-1990s, the most recent data collected by the Centers for Disease Control and Prevention revealed a dramatic spike in rates among older adolescents in 2004 and 2005.[3–5]

Alcohol use among adolescents, a major health concern in its own right,[6–8] also seems to constitute a serious risk factor for suicidal behavior. A number of studies have reported elevated blood alcohol levels among youths who had committed suicide.[9,10] Community and epidemiological studies have also found a strong association between alcohol use and suicidal ideation and self-reported suicide attempts among adolescents.[11–14] Heavy drinking may be causally related to suicidal behavior because of the increased impulsivity and aggression associated with acute alcohol use or withdrawal symptoms that occur

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Drs. Aseltine, Schilling, and James are with the Division of Behavioral Sciences and Community Health and the Institute for Public Health Research, University of Connecticut Health Center; Ms. Glanovsky is with the Department of Statistics, University of Connecticut and the Institute for Public Health Research, University of Connecticut Health Center; Dr. Jacobs is with Harvard Medical School.

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Correspondence to Robert Aseltine, Jr., Ph.D., Division of Behavioral Sciences and Community Health, University of Connecticut Health Center, 263 Farmington Avenue, MC 3910, Farmington, CT 06030; e-mail: aseltine@uchc.edu.

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after extended periods of chronic use.[15–17] Both the American Academy of Child and Adolescent Psychiatry (AACAP) and the American Psychiatric Association have identified substance abuse as a top risk factor for adolescent suicide attempts and have recommended that all adolescents exhibiting suicidal ideation and behaviors should be assessed for substance use to identify those at greatest risk for suicide.[18,19]

Although the association between alcohol use and suicidal behavior seems to be strong, it is not clear whether this association is consistent across the adolescent years. Dramatic changes in drinking behavior are observed during this period, with rates of both alcohol use and heavy episodic (HED) or "binge" drinking rising rapidly throughout the teen years.[20] Increasing age is also associated with a greatly elevated risk for suicide among adolescents. Recent data indicate that whereas the suicide rate among younger adolescents is increasing rapidly, rates of suicide among those aged 15 to 19 years remain six times as high as those for youths aged 10 to 14 years.[21]

Despite the substantial evidence of age variability in both alcohol use and suicidal behavior, evidence of meaningful covariation of these problems by age is sparse and inconsistent. Although not directly testing for age differences in the association between drinking and suicidal behavior, two recent school-based studies have found evidence suggesting that alcohol use may be a more potent risk factor for suicide among younger adolescents.[22,23] In contrast, findings from a psychological autopsy study retrospectively examining risk factors for adolescent suicide found that substance abuse conveyed a higher risk for suicide among older adolescents compared with younger adolescents.[24] The present study seeks to address this gap by examining age variability in the association between HED and self-reported suicide attempts in a large sample of high school students screened as part of their participation in a school-based suicide prevention program.

METHOD

Participants

Data for this study were collected from students participating in the Signs of Suicide (SOS) program during the 2001–2002 school year. Signs of Suicide is a school-based prevention program developed by Screening for Mental Health, a nonprofit organization in Wellesley, Massachusetts. Signs of Suicide incorporates two prominent suicide prevention strategies into a single program, combining a curriculum that aims to raise awareness of suicide and its related issues with a brief screening for depression and other risk factors associated with suicidal behavior.[25] The goal of the program is to provide didactic instruction and feedback via self-screening that enables youths to identify symptoms of depression in themselves and their peers and prompts them to seek help from a trusted adult. Teachers and counselors at participating schools were provided with guidelines outlining appropriate ways to address the problems of youths who were identified as depressed or suicidal, which included the use of suicide assessments, outpatient referrals, and access to emergency services. Data for the present study consisted of screening forms from 32,217 students attending 225 (38%) of the 594 schools in the United States registering for and implementing the SOS program during the 2001–2002 school year.[26] Data collected during the 2000–2001 school year indicated that 34% of schools implementing the SOS program conducted screenings on the entire student body, whereas 66% conducted screenings on select classes or grades.

Table 1 presents demographic characteristics of this sample relative to national data obtained from the U.S. Census and the CDC.[27–29] Comparison of these data suggests that this sample closely approximates the national distribution of adolescents in the United States. Small differences in racial composition were observed, with the screening sample containing fewer blacks and Hispanic youths relative to the U.S. population as a whole, and fewer people who would be classified as "other" race/ethnicity. In addition, the screening sample was younger than the national distribution. Although the prevalence of episodes of HED in the sample was virtually identical to that observed nationally in the CDC's Youth Risk Behavior Survey (YRBS), the rate of self-reported suicide attempts in the study population was substantially lower than that observed nationally in the YRBS. This may be attributable to the younger age range of the screening sample.

Because this study involved a secondary analysis of anonymous data collected as part of the screening program, it was declared exempt from human subjects' approval by the institutional review board of the University of Connecticut Health Center.

Measures

All data for this study were obtained from the student screening form. This form was completed anonymously by students during class time, scored privately by students themselves, and returned to the teacher or school counselor administering the program. Self-reported suicidal behavior and depressive symptoms were assessed with component items from the Columbia Depression Scale (CDS), a brief screening scale derived from the Diagnostic Interview Schedule for Children Version IV.[30,31] Past year suicide attempts were assessed in responses to a single question: "Have you tried to kill yourself in the last year? (yes or no)" Depressive symptoms were measured using the 19 CDS items assessing common symptoms such as sadness, anhedonia, and irritability; items including thoughts about suicide or suicidal behavior were not included in the measure of depressive symptoms to avoid confounding with suicide attempts. Student responses to all items reflected the presence or absence of symptoms for the past year; the final scale consisted of the sum of the number of "yes" responses. The correlation between the full 22-item CDS and the truncated 19-item CDS omitting the suicide questions approached unity (Pearson $r = 0.992$). *Heavy episodic drinking* was defined as having had five or more drinks in a row on one occasion and was assessed with the following question: "In the past year, has there been a time when you had five or more alcoholic drinks in a row? (By "drinks" we mean any kind of beer, wine, or liquor?" (yes or no).[32,33] Finally, student's age, race/ethnicity, and sex was also obtained. Respondents