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Adolescents' Attitudes About the Role of Mental Illness in Suicide, and Their Association with Suicide Risk

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We examined teenagers' attitudes about the role of mental illness in suicidal behavior and the relationship between these attitudes and suicide risk. Serious suicidal ideation or behavior and associated risk factors (gender, depression, substance problems, and first-hand experience with a suicidal peer) were assessed in 2,419 students at six New York high schools. Less than one fifth of students thought that mental illness was a major contributor to suicide. Suicidal adolescents and those at risk were less likely than their nonsuicidal and low-risk counterparts to associate suicide with mental illness. Our findings contribute to the debate over whether accepting attitudes toward suicide increase suicide risk.

Understanding factors that increase the risk of suicide is key for preventing adolescent suicide. Many research studies have identified risk factors that contribute to suicidal behavior, including social and demographic factors, childhood adversity, personality characteristics, and mental health problems such as depression, substance abuse, and anxiety (Beautrais, 2003; Beautrais, Joyce, & Mulder, 1998; Gould, Greenberg, Velting, & Shaffer, 2003).

There have been fewer studies of adolescents' attitudes about suicide or of the relationship of suicide attitudes to suicide risk. A key function of attitudes is that they serve to provide a quick evaluation of an object in a positive or negative light, which, in turn, can facilitate approach or avoidance of that object (Eagly & Chaiken, 1998; Fazio, 1986). An extensive body of research has examined the relationship between attitudes which combine affective and cognitive components (Rosenberg & Hovland, 1960) and behavior. Early social psychologists like Allport (1935) understood attitudes to influence behavior in a direct and dynamic way. As attitudes research has progressed, researchers have demonstrated that attitudes and behavior can be discrepant; that correlations between attitudes and behavior can be low; and that in experimental situations, behavior can influence attitudes rather than the other way around (Kraus, 1995; Wicker, 1969). A meta-analysis

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of 88 methodologically valid studies of attitude–behavior correlations, however, found that attitudes do significantly predict behaviors, with an average effect size of $r = .38$ (Kraus, 1995). As such, an examination of adolescents' attitudes about suicide may contribute valuable information about their risk of suicidal behavior.

Developers of school-based suicide prevention programs have differed as to the attitudes toward suicide they attempt to promote (Garland, Shaffer, & Whittle, 1989). Of 115 prevention programs active in the United States in the 1980s, the majority presented suicide as an understandable response to extreme stress (the "stress model"), while only a minority of programs presented suicide as a consequence of mental illness (the "medical model"). Proponents of the stress model suggest that emphasizing the link between mental illness and suicide might deter suicidal youth from self-disclosure, whereas proponents of the medical model suggest that highlighting the link between mental illness and suicide might depict suicide as a less attractive and less viable alternative, thereby reducing the risk of imitative suicides (Garland et al., 1989; Shaffer, Garland, Vieland, Underwood, & Busner, 1991). A controlled evaluation of adolescents' reactions to three school-based programs advocating a stress model of suicide found that although most students adhered to the stress model of suicide both before and after the prevention program, program exposure "induced a small but significant increase in the number of teens who indicated that suicide *could* be a possible solution to problems" (Shaffer et al., 1991). The risk of imitative suicides and the possibility of iatrogenic effects of program exposure are serious concerns. Nonetheless, whether programs emphasizing the stress model or the medical model would be more effective at alleviating these risks and preventing adolescent suicide is an empirical question which has not been answered (Garland et al., 1989). In the evaluation described above, students with prior suicide attempts were more likely to endorse the item "I think suicide is a possible solution for someone who has a lot of problems" (Shaffer et al., 1990). This association between suicide risk and an accepting attitude toward suicide raises the further question of whether an accepting attitude toward suicide relates to suicidal behavior as a cause or as an effect (see Renberg & Jacobsson, 2003).

Several studies have examined the relationship between attitudes toward suicide, suicidal ideation and behavior, and gender in a range of cultural contexts. We will focus our review on attitudes consistent with either the stress model or the medical model of suicide, as these are described above. In a study of suicide attitudes in Sweden (Renberg & Jacobsson, 2003), older responders (aged 51–65) were more likely than younger responders to associate suicide with mental illness. Responders reporting suicidal ideation or behavior within the past year were more likely than nonsuicidal responders to believe suicide is something anyone can consider and to believe that interpersonal conflicts can cause suicide attempts. Overall, the study found the most accepting attitudes toward suicide in younger women, the group with the highest rate of attempted (but not completed) suicide. Similarly, a study of attitudes toward suicide among 16- to 20-year-old recruits to the Israeli army found that female recruits were more likely than males, and those with suicidal ideation were more likely than those without, to endorse accepting attitudes toward suicide, including the beliefs that suicide can be justifiable under certain circumstances and that suicide is not necessarily associated with mental illness (Stein, Brom, Elizur, & Witztum, 1998). In a study of attitudes toward hypothetical disclosures by a suicidal friend among Turkish and Swedish high school students, suicidal students in both countries were less likely than nonsuicidal students to perceive a suicidal friend as mentally ill (Eskin, 1999). Swedish students were less likely than Turkish students to perceive the suicidal friend as

mentally ill, in keeping with overall more tolerant and less condemnatory attitudes toward suicide in Sweden than in Turkey. In addition, Swedish adolescents were more likely than Turkish adolescents to disapprove of the friend's disclosure of suicidal thoughts and less likely to say they would confront the suicidal friend or seek help for him or her (Eskin, 1999).

The current study seeks to contribute to our understanding of the relationship between adolescents' attitudes toward suicide and their own risk of suicidal ideation or behavior. Using data from six New York State high schools, we examined the association of teenagers' attitudes about the role of mental illness in contributing to suicide with their self-reported suicidal ideation and behavior, as well as with gender, depression, substance problems, and first-hand experience with a suicidal peer.

METHOD

Sample

This study is nested within a large case-control study that examined the sequelae of a student's suicide in fellow high school students (Gould et al., 2004). High school students aged 13 to 19 years, in six high schools located in Nassau, Suffolk, and Westchester counties of New York, were eligible to participate in this study. Five of these schools were public coeducational and one of them was a parochial all-boys school. The six schools in the present study were the control schools of the parent study and were located within school districts noncontiguous, but within the same or adjacent counties to case schools (where a student had died by suicide). Control schools had no completed suicide by a student or school employee within 4 years of the study. Case schools were not included in this study. The use of control schools gives us an assessment of students' attitudes toward suicide that is generalizable to a general population of schools where there has been no recent suicide.

The study had a 63.4% participation rate, with 2,419 of 3,815 students completing the survey from the fall of 1998 to the spring of 2001. Each school offered the survey once during this period. In the participating sample, the ethnic distribution was 77.7% White, 5.5% African American, 7.4% Hispanic, 3.8% Asian, and 5.7% other; 58% of the students were male, while 42% were female. The mean age of participating students was 15.5 years, and 92% of the students were between the ages of 14 and 17. There were no significant differences between the participants and nonparticipants in gender, grade level, and ethnicity, but it is unknown whether the groups may have differed on other characteristics.

Procedure

To recruit students for the study, the schools utilized an opt-out procedure for parents and active written assent for the students. The schools sent out two mailings to these students' homes, which included information about the survey details, a response form, and a stamped return envelope. These mailings were sent out 4 and 2 weeks prior to the in-school survey administration, which gave parents the opportunity to remove their child from participation. On the day of the in-school survey, schools obtained written assent from the students. The study's procedures abided by the Family Educational Rights and Privacy Act and the Protection of Pupil Rights Amendment and were approved by the institutional review board of the New York State Psychiatric Institute/Columbia University Department of Psychiatry.

Measures

During one class period, students completed a self-administered questionnaire which assessed the student for key psychiatric risks for youth suicide. These risks included depression, substance problems, previous suicidal behavior, and current

suicidal thoughts. The time frame of this assessment was the past 4 weeks (including the day of the survey administration).

Demographic Questionnaire. Age, grade, gender, racial or ethnic background, and household composition were collected.

Depression. The Beck Depression Inventory (BDI-IA; Beck & Steer, 1993) was utilized to assess adolescent depression. Specifically, the BDI items evaluated cognitive, behavioral, affective, and somatic factors of depression. All of the original scale items except for loss of libido were included. For each question response, the scores ranged from 0 (*no symptoms present*) to 3 (*symptoms are severe*); the maximum total score was 60. To dichotomize scores for this study, Beck and Steer's recommended cutoff point of 16 was used. In Beck and Steer's study, this cutoff was suggested to detect depression in normal populations. Additionally, in Strober, Green, and Carlson's (1981) study, this cutoff correctly classified 81% of the study sample of adolescent psychiatric patients with major depressive disorder.

Substance Problems. To assess alcohol and/or drug use among the adolescent students, the Drug Use Screening Inventory (DUSI) was employed (Tarter, 1990; Tarter & Hegedus, 1991; Tarter, Laird, Bukstein, & Kaminer, 1992). Like the BDI, this instrument has also been extensively used with adolescent populations and has previously demonstrated good reliability, good sensitivity, and discriminant validity in other studies (e.g., Kirisci, Tarter, & Hsu, 1994; Tarter & Hegedus, 1991; Tarter, Kirisci, & Mezzich, 1997). Previous studies have shown that the substance use subscale is useful in differentiating individuals who abuse substances from individuals who do not (Kirisci, Mezzich, & Tarter, 1995). The substance use subscale contains 15 items which assess students' use of alcohol and drugs. In addition, the school performance or adjustment scale, another of the 10 DUSI domains, was also used. The school performance or adjustment scale consists of 21 items which evaluate academic performance and school adjustment. Only 3 of the 21 items that were specifically related to alcohol or drugs were included in our study. To calculate a total score, we combined the 15 items from the substance use subscale and the 3 items from the school performance or adjustment score. To dichotomize the scores based on the recommended cutoff points, we used a cutoff point of ≥ 5, which corresponded to 10% of the sample (Kirisci et al., 1995; Tarter, Mezzich, Hsieh, & Parks, 1995).

Serious Suicidal Ideation or Behavior. Students were asked eight questions about suicidal ideation and six questions about suicide attempts. One ideation question was obtained from the BDI, while the rest of the yes or no questions were taken from a depression module of the Diagnostic Interview Schedule for Children version 4 (Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000) and an earlier suicide screening assessment (Shaffer, Scott, & Wilcox, 2004). All of the questions chosen for this study have previously demonstrated good construct validity by their significant association with psychopathology (Gould, King, & Greenwald, 1998; Shaffer et al., 2004). We considered ideation to be serious if thoughts were rated as occurring most days or every day or if the respondent was still thinking about suicide on the day of the survey, had made a specific plan, responded affirmatively to "Have you thought seriously about killing yourself?" or responded with either of the two most serious response options on the BDI suicide item: "I would like to kill myself" or "I would kill myself if I had the chance." A student was categorized as currently having serious suicidal ideation or behavior if he or she met these criteria or had made an attempt (regardless of injury or medical attention) within the past 4 weeks of the survey. All these students, as well as those indicating any less serious suicidal ideation, were seen at the school by a project staff child psychiatrist, psychologist, or social worker to assess imminent risk of the suicidality expressed in the survey.

Suicide Attitudes. The attitude assessment scale consisted of 18 items. This scale

was based on prior work carried out by Shaffer et al. (1991), and the items were previously shown to have good reliability and validity. An exploratory factor analysis was performed to ascertain the number of factors underlying the 18 items (Gould et al., 2004). The factor analysis yielded a three-factor model. The first two factors, maladaptive coping strategies and help-seeking strategies, were the focus of an earlier paper (Gould et al., 2004). The third factor included five statements and had a relatively low internal consistency (0.4). We believe that some of the items which made up this third factor were flawed in their use of complicated logic that may have been hard for adolescents to understand. Specifically, we felt that the items, "Drugs and alcohol can cause depression to become so bad it can lead people to try to hurt or kill themselves," and "People who do risky things, like always driving very fast, may be trying to kill or hurt themselves, and could use some help" may have been difficult for adolescents to answer meaningfully. Therefore, we did not include these items in our analyses. Instead, we used the other three items, which were most closely related to our study's goals. The three statements used in the current study are "Most kids who kill themselves are normal, but they have had a lot of bad things happen to them," "Almost all kids who kill themselves are mentally ill," and "Any kid is capable of killing himself or herself if his or her problems get bad enough." We have examined these three items individually rather than as a scale.

DATA ANALYSIS

The school served as the primary sampling unit, and the student within the school served as the secondary sampling unit. Gould et al. (2004) examined the extent to which within-school clustering existed to determine whether this clustering variable needed to be included in the analysis. The intraclass coefficients were all close to zero (< 0.03), which demonstrated that the sample clusters (schools) had little impact on the correlates (i.e., gender, depression, substance problems, first-hand experience with a suicidal peer, serious suicidal ideation or behavior, attitudes). Thus, mixed linear models or Mantel–Haenszel methods did not have to be used to account for the clustering variable of the school.

A series of bivariate analyses using logistic regression were carried out to determine the significance of differences in suicide attitudes (dependent variables) between high and low suicide risk groups (independent variables). Based on previous research (Gould et al., 2004), the high-risk suicidal groups were characterized as male adolescents and students with depression, substance problems, and first-hand experience with a suicidal peer. For the gender variable, males were coded as 1, and females were coded as 0. For each of the other risk factors, the groups with the risk factor were coded as 1 and the groups without the risk factor were coded as 0. We also employed logistic regression analyses to examine whether differences in suicide attitudes were associated with our primary outcome of serious suicidal ideation or behavior. The analyses were carried out using the Statistical Package for Social Sciences, PASW Statistics Version 18 (Chicago, IL: SPSS Inc., 2009).

RESULTS

About 60.5% of high school students in the sample believed that "Most kids who kill themselves are normal, but they have had a lot of bad things happen to them," and 73.1% of students believed that "Any kid is capable of killing themselves if their problems get bad enough." Only 16.6% of adolescents believed that "Almost all kids who kill themselves are mentally ill."

The relationships between attitudes toward suicide and our primary outcome variable, serious suicidal ideation or behavior, are presented in Table 1. Youth with serious suicidal ideation or behavior (SSI) were more likely than youth without SSI to

TABLE 1
Attitudes Toward Suicide and Serious Suicidal Ideation or Behavior

Percentage of Agreement with Each Statement and Odds Ratio (CI)			
		Serious Suicidal Ideation or Behavior	
	Total (n = 2,419)	With SSI (n = 146)	Without SSI (n = 2,273)
Most kids who kill themselves are normal but they have had a lot of bad things happen to them	60.5%	69.3%	59.9%
		1.5 (1.1, 2.2)*	
Almost all kids who kill themselves are mentally ill	16.6%	8.7%	17.1%
		0.5 (0.3, 0.8)**	
Any kid is capable of killing themselves if their problems get bad enough	73.1%	84.0%	72.4%
		2.0 (1.3, 3.1)**	

CI, 95% confidence interval; *SD*, standard deviation.
*$p < .05$; **$p < .01$.

endorse the attitudes that "Most kids who kill themselves are normal but they have had a lot of bad things happen to them" (OR 1.5, 95% CI = 1.1–2.2, $p < .05$) and "Any kid is capable of killing themselves if their problems get bad enough" (OR 2.0, 95% CI = 1.3–3.1, $p < .01$). Similarly, youth with SSI were less likely to believe that "Almost all kids who kill themselves are mentally ill" (OR 0.5, 95% CI = 0.3–0.8, $p < .01$) than youth without SSI.

The relationships between attitudes toward suicide and various suicide risk factors are presented in Table 2. With regard to gender, adolescent males were more likely than females to endorse the attitude "Almost all kids who kill themselves are mentally ill" (OR 1.9, 95% CI = 1.5–2.4, $p < .001$). Youth with depression were more likely than youth without depression to endorse the attitudes that "Most kids who kill themselves are normal but they have had a lot of bad things happen to them" (OR 1.4, 95% CI = 1.0–1.9, $p < .05$) and "Any kid is capable of killing themselves if their problems get bad enough" (OR 2.2, 95% CI = 1.5–3.2, $p < .001$), and similarly were less likely to believe that "Almost all kids who kill themselves are mentally ill" (OR 0.6, 95% CI = 0.4–1.0, $p < .05$).

Results also indicate that youth with a substance problem were more likely than youth without a substance problem to endorse the attitude that "Any kid is capable of killing themselves if their problems get bad enough" (OR 1.5, 95% CI = 1.0–2.0, $p < .05$). Youth with first-hand experience with a suicidal peer (FHESP) were more likely than youth without FHESP to endorse the attitudes that "Most kids who kill themselves are normal but they have had a lot of bad things happen to them" (OR 1.3, 95% CI = 1.1–1.5, $p < .05$) and "Almost all kids are capable of killing themselves if their problems get bad enough" (OR 1.5, 95% CI = 1.2–1.9, $p < .001$). In addition, youth with FHESP were less likely than youth without FHESP to believe that "Almost all kids who kill themselves are mentally ill" (OR 0.7, 95% CI = 0.6–0.9, $p < .01$).

DISCUSSION

The primary aim of the study was to understand the relationship between adolescents' attitudes toward suicide and serious suicidal ideation or behavior. In our sample of 2,419 high school students in New York State, teens with serious suicidal ideation and/or a prior suicide attempt were more likely than nonsuicidal teens to associate suicide with adverse life experiences and to believe that anyone is capable of suicide and

TABLE 2
Attitudes Toward Suicide and Suicide Risk Factors

	Percentage of Agreement with Each Statement and Odds Ratio (CI)								
		Gender		Depression		Substance Problem		First-Hand Experience with a Suicidal Peer	
	Total (n = 2,419)	Male (n = 1,411)	Female (n = 1,008)	With Depression (n = 232)	Without Depression (n = 2,160)	With SP (n = 234)	Without SP (n = 2,180)	With FHESP (n = 790)	Without FHESP (n = 1,564)
Most kids who kill themselves are normal but they have had a lot of bad things happen to them	60.5%	61.2% 1.1 (0.9, 1.3)	59.6%	67.7% 1.4 (1.0, 1.9)*	60.0%	62.0% 1.1 (0.8, 1.4)	60.5%	64.6% 1.3 (1.1, 1.5)*	59.7%
Almost all kids who kill themselves are mentally ill	16.6%	20.2% 1.9 (1.5, 2.4)***	11.6%	11.6% 0.6 (0.4, 1.0)*	17.2%	16.7% 1.0 (0.7, 1.4)	16.7%	13.8% 0.7 (0.6, 0.9)**	18.4%
Any kid is capable of killing themselves if their problems get bad enough	73.1%	73.8% 1.1 (0.9, 1.3)	72.0%	84.9% 2.2 (1.5, 3.2)***	71.9%	79.5% 1.5 (1.0, 2.0)*	72.5%	79.4% 1.5 (1.2, 1.9)***	72.3%

CI, 95% confidence interval; *SD*, standard deviation.
*$p < .05$; **$p < .01$; ***$p < .001$.

were less likely to associate suicide with mental illness.

Results for students with depression and students with first-hand experience with a suicidal peer followed the same pattern as those for students with serious suicidal ideation or behavior in that they were more likely to associate suicide with adverse life experiences and to believe that anyone is capable of suicide and less likely to associate suicide with mental illness. Students with substance problems were more likely than those without to believe that anyone is capable of suicide, but students with substance problems did not significantly differ from those without in whether they associated suicide with adverse life experiences, on the one hand, or with mental illness, on the other. Girls were significantly less likely than boys to associate suicide with mental illness, but girls and boys did not differ in their association of suicide with adverse life experiences or their belief that anyone is capable of suicide. Overall, less than one fifth of high school students thought that mental illness was a factor in most teen suicides.

Mental illness has been widely recognized as one key modifiable risk factor for suicidal behavior (Fergusson, Woodward, & Horwood, 2000). However, our findings indicate that adolescents tend to discount the role of mental illness in suicidal behavior. This finding is consistent with earlier findings that only 10.8% of Turkish and 14.2% of Swedish high school students believe that people who die by suicide are mentally ill (Eskin, 1995). Moreover, our finding that suicidal adolescents are especially prone to discount the role of mental illness in suicide is consistent with the findings of previous studies showing that suicidal adolescents view suicide as more acceptable and understandable and less deviant than do their nonsuicidal peers (Renberg & Jacobsson, 2003; Stein et al., 1998; Eskin, 1999). Our finding that girls are less likely than boys to associate suicide with mental illness also corroborates some previous studies (Stein et al., 1998; Renberg & Jacobsson, 2003).

Suicidal adolescents' tendency to be more accepting of suicide than their nonsuicidal peers could be mediated by the impact of descriptive norms. *Descriptive norms* are a type of social norm that reflect individuals' beliefs about the prevalence of a behavior (Rimal & Real, 2003). The greater the perceived prevalence of a behavior, the greater the likelihood that individuals will believe that engaging in that behavior is acceptable. Both personal experience with suicidal ideation or behavior and first-hand experience with a suicidal peer could inflate adolescents' perceptions of the prevalence of suicidal ideation or behavior, thus supporting the perceived norm that suicide is a typical response to distress (Insel & Gould, 2008).

Although suicidal and high-risk adolescents are more likely than lower risk adolescents to downplay the role of mental illness in suicide, over 80% of low-risk adolescents also endorsed this same attitude. One explanation may lie in adolescents' lack of understanding or misunderstanding of what mental illness entails. Research has shown depictions of mental illness in the media to be predominantly negative and often inaccurate (Coverdale, Nairn, & Claasen, 2002; Wahl, 1992). Analysis of 600 news items referencing mental illness in the New Zealand news media in 1 month found that mental illness was frequently associated with dangerousness and with violent crime (Coverdale et al., 2002). Generic references such as "mentally ill" or "psychiatric patient" were common. In the rare instances when a specific diagnosis was given, the diagnosis mentioned most frequently was schizophrenia; depression was referenced in only 5% of news items on mental illness. A review of depictions of mental illness in newspapers, popular magazines, film, and television found that violent behavior, bizarre symptoms, and severe psychotic disorders such as schizophrenia are emphasized out of proportion to their actual occurrence, with 70% to 72% of mentally ill television characters represented as violent (Wahl, 1992). Direct quotes from people with mental illnesses and portrayals of successful treatment and

personal recovery are all rare (Stuart, 2006). Research indicates that stigmatizing portrayals of mental illness negatively impact people with mental illnesses, making them reluctant to disclose their illnesses and causing treatment-related problems such as denial of symptoms and failure to seek treatment (Stuart, 2006). Stuart also noted that media socialization begins at an early age, so that children entering school are likely already to have absorbed ideas about how people with mental illnesses are viewed and treated. The prevalence of negative and unrealistic media portrayals of mental illness may contribute to adolescents' reluctance to identify themselves, their suicidal peers, or other suicidal adolescents as mentally ill.

With its capacity to influence popular attitudes, mass media can also play a positive role in preventing suicide. Evidence has shown that media stories about individuals in adverse circumstances who experience suicidal ideation but who adopt coping mechanisms other than suicidal behavior have a protective effect and are negatively associated with subsequent suicide rates (Niederkrotenthaler et al., 2010). This phenomenon is conceptualized as the Papageno effect. Youth suicide prevention programs can capitalize on this effect by presenting stories of formerly distressed or suicidal youth who have used positive coping mechanisms to successfully overcome the problems they faced. Strategies focused on promoting positive norms related to suicide have been shown to be effective. For example, positive messaging by adolescent peer leaders trained in the Sources of Strength curriculum helped enhance students' perceptions that adults can provide help to suicidal students and that seeking help from adults is acceptable (Wyman et al., 2010). The greatest improvements in perceptions that adults can help suicidal youth occurred among students with a history of suicidal ideation. Future studies are needed to assess whether these changes in norms will translate into positive behavior changes such as increased help-seeking, increased use of positive coping mechanisms, and reductions in suicidal behavior (Wyman et al., 2010). However, in light of positive evaluation findings to date, and of the potential risks attendant on teaching students either the stress model or the medical model of the etiology of suicide, a solution-focused, positive messaging approach to school-based youth suicide prevention appears promising.

Our finding that girls were less likely than boys to associate suicide with mental illness breaks the pattern of results obtained in our earlier work using this same sample of high school students (Gould et al., 2004). In our previous study, boys joined high-risk students, including those with serious suicidal ideation or behavior, first-hand experience with a suicidal peer, depression, and substance problems, in being more likely to endorse maladaptive coping strategies such as keeping depressed feelings to oneself or using drugs and alcohol to cope with depression, and in being less likely to endorse help-seeking for a suicidal friend (Gould et al., 2004). In our current study, however, girls rather than boys were found to endorse the attitude about mental illness in suicide that was more common in high-risk students. A possible explanation for this can be found in girls' higher rates of suicidal ideation and attempts (as opposed to completed suicides; Eaton et al., 2012) and in their higher rates of exposure to experiences with suicidal peers (Kalafat & Elias, 1992), which may increase their tendency to perceive suicidality as common and therefore normative. It would be worthwhile in a future study to analyze the relationships between the help-seeking and maladaptive coping behaviors analyzed in our 2004 paper and the attitudes toward suicide analyzed here.

LIMITATIONS

This study has limitations that should be taken into consideration. As our study design was cross-sectional, we were only able to examine associations between adolescents' attitudes and serious suicidal

ideation or behavior and other suicide risk factors. A longitudinal study would be necessary to determine whether accepting attitudes toward suicide precede and facilitate the development of suicidal ideation or behavior, or the other way around. Additionally, as we combined serious suicidal ideation with suicidal behavior, we are not able to examine the potential role of suicide attitudes in the transition from suicidal ideation to behavior. Another limitation was the use of suburban schools with predominantly White adolescent populations, so the results cannot be generalized to urban or more ethnically or socioeconomically diverse student settings, nor could ethnic differences be examined. Due to design considerations of the study in which the present project was nested, it was carried out in suburban counties surrounding New York City instead of in New York City, which has a more ethnically diverse population (Gould et al., 2004). A further limitation of the study was the low participation rate, common to other suicide screening protocols (e.g., Shaffer et al., 2004). There were no significant differences between the participants and nonparticipants in gender, grade level, and ethnicity, but it is unknown whether the groups may have differed on other study measures.

CONCLUSION

Our findings can be used to address the question of whether a stress model, portraying suicide as an understandable response to stress, or a medical model, portraying suicide as a consequence of mental illness, might be more appropriate for dissemination in youth suicide prevention programs. In our sample of 2,419 students at six New York State high schools, suicidal students and students at higher risk of suicide were more likely than nonsuicidal and lower risk students to endorse attitudes consistent with a stress model, rather than a medical model, of suicide. A possible explanation for this association may be found in the impact of experiences with their own and their peers' suicidal ideation or behavior on high-risk students' descriptive norms about the prevalence and acceptability of suicide, supporting their perception of suicidality as something that can happen to anyone. We also found that the vast majority of all students rejected the idea, fundamental to the medical model, that most students who kill themselves are mentally ill. This attitude may be influenced by adolescents' misunderstandings about the nature of mental illness due to the prevalence of negative and inaccurate media portrayals. If this is the case, a different pattern of responses may have been obtained had the item been worded "Almost all kids who kill themselves are depressed." In light of the risk of normalizing suicide on the one hand, and of stigmatizing attitudes toward mental illness on the other, youth suicide prevention programs might best leave aside the complex question of the etiology of suicidal behavior and focus instead on promoting positive messaging regarding the possibility of getting help and the use of positive coping mechanisms by students in distress.

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