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Predictors of Multiple Suicide Attempts among Suicidal Black Adolescents

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Abstract

Psychopathology, social support, and interpersonal orientation were studied in relation to suicide attempt status in acutely suicidal, psychiatrically hospitalized Black adolescents and a matched sample of White adolescents. In the total sample, multiple attempters were differentiated by lower perceived support. Within the Black youth subsample, social comparison and positive stimulation from others differentiated multiple attempters from single attempters/ideators. Only suicidal ideation predicted multiple attempts among White youth and only higher interpersonal orientation predicted multiple suicide attempts within Black adolescents.

Suicidal behavior and death by suicide continue to be significant health problems among adolescents in the United States. Based on the 2005 *Youth Risk Behavior Survey* of high school students, more than 8% of adolescents have attempted suicide within a 1-year period (Eaton et al., 2006). Emphasizing the variation in prevalence rates by gender and race, this survey reported that the attempted suicide rate was 5.2% for Black males, 9.8% for Black females, 5.2% for White males, and 9.3% for White females. Furthermore, such behaviors are a predictor of death by suicide (Brent, Baugher, Bridge, Chen, & Chiapetta, 1999), which in 2004 was the second leading cause of death among adolescents aged 13 to 17 years (Centers for Disease Control and Prevention [CDC], 2006).

FACTORS ASSOCIATED WITH SUICIDE ATTEMPTS

The strongest predictor of an adolescent suicide attempt is a previous attempt (Lewinsohn, Rohde, & Seeley, 1996). Suicidal ideation as well as mood, anxiety, substance use, and

conduct/behavior disorders are also associated with suicide attempts among adolescents (Gould, Greenberg, Velting, & Shaffer, 2003). Despite the fact that psychiatric malady is central to an understanding of adolescent suicide attempts, research suggests that relationship breakdowns and interpersonal issues are common precipitants to adolescent suicide attempts (Beautrais, Joyce, & Mulder, 1997). Furthermore, low levels of social and family support differentiate suicide attempting adolescent inpatients from non-attempters (Morano, Cisler, & Lemerond, 1993), even after accounting for depression severity (King, Hovey, Brand, & Ghaziuddin, 1997). Adolescents who display suicidal behavior posthospitalization are also more likely to report poor family functioning than those who show no further suicidal behavior (King et al., 1995).

Parallel risk factors have been documented specifically for Black adolescents. Suicidal ideation, alcohol and drug abuse (Lyon et al., 2000), and depression (Ialongo et al., 2004) have been associated with suicide attempts in this population. Research among inner-city Black adolescents has shown that adolescents who had fewer than two supportive adults were three times more likely to report attempting suicide than adolescents who reported having two or more supportive adults (Price, Dake, & Kucharewski, 2001). O'Donnell, O'Donnell, Wardlaw, and Stueve (2004) found that family closeness was associated with decreased likelihood of suicide attempts among Black adolescents.

Fewer studies have focused on differentiating multiple suicide attempters from other suicidal youth. Goldston and colleagues (1998) found affective disorders were more prevalent among multiple attempters than first-time attempters and nonsuicidal youth. Other research has demonstrated a higher level of depression among psychiatrically hospitalized suicidal adolescents who reattempted suicide than among ideators (Spirito, Valeri, Boegers, & Donaldson, 2003). Esposito, Spirito, Boegers, and Donaldson (2003) found that multiple attempting inpatient adolescents, compared to single attempters, were significantly more likely to meet diagnostic criteria for a mood or disruptive behavior disorder. Additionally, multiple attempters reported significantly higher levels of depressive symptoms, affect dysregulation, major self-mutilation, and hopelessness than did single attempters.

Research has also demonstrated relationships between multiple attempts and interpersonal factors. Spirito and colleagues (2003) found that reattempters reported that their families had poorer general functioning and communication skills than families of youth who did not reattempt suicide. This pattern, however, was gender-specific and only held for girls. To our knowledge, there are no studies of multiple attempts among Black adolescents.

THE PRESENT STUDY

Few empirical studies have examined suicide phenomenology within Black samples or across varying racial contexts (Joe & Kaplan, 2001). Although Blacks are often represented in study samples—ranging from 8% of the sample (King et al., 1997) to 18% (Goldston et al., 1998)—data are often not reported for subgroups defined by race, because they are generally too small to allow for meaningful data analysis. Though researchers acknowledge Black and White youth experience different psychological and emotional stressors, few

examine whether or how pathways to suicidal behavior differ between these groups (Watt & Sharp, 2002).

In this study, we examined psycho-pathology, social support, and interpersonal orientation in relation to multiple suicide attempt status in acutely suicidal, psychiatrically hospitalized Black adolescents and a matched sample of White adolescents. A matched design enabled examination of the possible moderating effect of race on factors related to multiple attempt status. It was hypothesized that multiple attempters—across and within the racial subsamples—would show lower levels of social support and higher levels of psychopathology than single attempters/ideators. It was further hypothesized that lower levels of social support combined with a higher interpersonal orientation would predict membership in the multiple attempters group. This hypothesis is rooted in the theory put forth by Thomas Joiner (2006), which suggests that suicidality is partially predicated on a sense of “thwarted belongingness”; the desire to be associated with others (i.e., high interpersonal orientation) but having little fulfillment of that desire (low social support).

METHOD

Participants

Adolescent participants were drawn from a university medical center hospital and a private hospital in the midwestern region of the United States. Participants were 122 adolescents psychiatrically hospitalized because of severe suicidal ideation (having a specific plan for suicide or unrelenting suicidal ideation) or a recent suicide attempt. They were drawn from two consecutive intervention trials for suicidal adolescents (Study 1: 1998–2001; Study 2: 2002–2005) in order to obtain a sufficient sample of African American adolescents. In Study 1 (King et al., 2006), all of the participants had (1) made a suicide attempt or expressed severe suicidal ideation, and (2) obtained a score of 20 or 30 on the Self-Harm subscale of the Child and Adolescent Functional Assessment Scale (Hodges & Wong, 1996). This study was a preliminary clinical trial to test the efficacy of the Youth-Nominated Support Team–Version 1 (YST–1; King et al., 2006); for further information regarding the YST–1 sample, see King et al. (2006). In Study 2 (Youth-Nominated Support Team–Version 2), inclusion criteria included (1) a suicide attempt, or (2) unrelenting suicide ideation or a plan for suicide within the four weeks preceding psychiatric hospitalization (as reported by the adolescent or parent on suicidality items of the Diagnostic Interview Schedule for Children–IV; Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000). Forty-three percent of eligible adolescents were recruited for YST–2. Chi-square analyses indicated no demographic differences between those who did and did not consent.

The mean age of the overall sample was 15.3 years ($SD = 1.39$); 69.7% were female. Multiple attempters comprised 34.4% of the overall sample, 31.1% of the White subsample, and 37.7% of the Black subsample. Chi-square indicated that there was no difference between the Black and White adolescents in regard to the percentage of multiple attempters in each group ($\chi^2(1) = 0.58, p = .446$). However, a significantly greater percentage of multiple attempters were female compared to non-multiple attempters (85.7% vs. 61.3%, respectively; $\chi^2(1) = 7.80, p = .005$). Data regarding the age, percentage that is female, and the percentage that is a multiple attempter for each race subgroup are given in Table 1.

Matching of Samples

A total of 61 Black adolescents participated in the YST-1 and two study samples. For each Black adolescent, a White adolescent who was the same sex, age, and income level was selected from the same sample. The adolescents were matched within each sample, first for sex, then age, and then income level. If there was not an exact match for age or income, age was prioritized such that an adolescent who was the same sex and age was chosen and income was matched at the closest level that was not higher than that of the Black adolescent. There was, however, one Black male adolescent that could not be matched closely on age or income with a White adolescent; therefore, he was matched on age and income with a White female.

Measures

Self-report, parent report, and interview measures were used to assess a broad range of psychopathology in addition to demographics and psychosocial functioning.

The Beck Hopelessness Scale (BHS; Beck, Weissman, Lester, & Trexler, 1974) is a self-report measure used in both studies that has been shown to have good internal consistency (with a KR-20 coefficient of .86) (Steer, Kumar, & Beck, 1993a), concurrent validity (indicated by a positive correlation with depression [$r = .53$], and a negative correlation with reasons for living [$r = -.65$]) among adolescent psychiatric inpatients (Steer, Kumar, & Beck, 1993b).

The Suicidal Ideation Questionnaire-Junior (SIQ-JR; Reynolds, 1988) is a 15-item self-report questionnaire assessing the frequency of suicidal thoughts. Higher total scores indicate higher severity of suicidal ideation. Total scores on the SIQ-JR have shown high internal consistency ($r_{\alpha} = .91$) and test-retest reliability ($r_{tt} = .91$) among a sample of predominately Black and Hispanic inner-city adolescents (Reynolds & Mazza, 1999). Total scores of psychiatrically hospitalized adolescents have been found to be significant predictors of suicidal thoughts and attempts 6-months posthospitalization (King et al., 1997).

The Youth Self-Report (YSR; Achenbach, 1991) is a 112-item scale that assesses a broad range of psychopathology. It has two broadband scales (internalizing and externalizing) that have demonstrated good construct validity and correlations with related self-report measures (Thurber & Hollingsworth, 1992). For the YST-2 study, internal consistency within the sample from which these subjects were selected was .89 for the internalizing scale and .86 for the externalizing scale. These data are not available for YST-1.

Suicide attempt items from the Diagnostic Interview Schedule for Children-IV (DISC-IV, Shaffer et al., 2000) were used to code suicide attempts in the past year and the adolescent's lifetime. Multiple attempt status was assigned to those adolescents who reported more than one suicide attempt.

The Interpersonal Orientation Scale (IOS; Hill, 1987) is a 26-item self-report measure designed to assess motivation toward interpersonal affiliation. It has demonstrated both convergent and discriminant validity as well as moderate test-retest reliability among college students. The IOS contains four subscales, supported by factor analysis, that address

different, specific reasons for interpersonal affiliation (Hill, 1987): Social comparison (seeking information about the self from others), emotional support (sympathy), positive stimulation (enjoyable affective and cognitive stimulation), and attention (desire for attention and praise). Internal consistency for the total score in the sample from which these data were drawn is .94. The internal consistencies for the sub-scales are as follows: social comparison (.68), emotional support (.88), positive stimulation (.88), and attention (.83). The IOS data are available only from Study 2.

The Perceived Emotional/Personal Support Scale (PEPSS; Slavin, 1991) asks the respondent to name nine members of his or her social network (three friends, three family members, and three non-familial adults) and rate the supportiveness of each person in four areas. Research has demonstrated adequate test-retest reliability and internal consistency for all three of the subscales, in addition to good concurrent and predictive validity for the friend and family member subscales. Cronbach's alpha for each subscale is as follows: .87 for family support, .88 for adult support, and .93 for friend support (Slavin, 1991).

Procedures

All data were collected during patients' hospitalization. IRB approval was obtained for the study, and parent/guardian written informed consent and adolescent assent were obtained for each participant. Data were collected by independent evaluators who were trained for reliability and consistency in interview administration.

Data Analysis

A series of 2×2 factorial multivariate (MANOVA) and univariate (UNIANOVA) analyses of variance were conducted to examine main and interactive effects of race and attempt status for psychopathology variables, social support variables, and interpersonal orientation. Multiple attempt status was coded as a dichotomous "yes/no" variable for all analyses, thus comparisons are between adolescents with a history of multiple attempts (MA) and single attempters/ideators (SA/I). To decrease the likelihood of a Type 1 error from alpha inflation, only ANOVA with a p value below .025 were considered significant.

RESULTS

Race, Suicide Attempt Status, and Psychopathology

Means and standard deviations for study variables are presented in Table 2. There were significant differences by race for SIQ-Jr., $F(1, 116) = 11.68, p = .001$, and BHS scores, $F(1, 105) = 8.45, p = .004$. For both variables, White adolescents had higher scores, indicating more severe hopelessness and suicidal ideation than the Black adolescents. No significant effects of race were found for the YSR Internalizing or Externalizing scales. There were no significant attempt status effects (multiple attempters versus others) on the psychopathology measures (suicidal ideation, hopelessness, internalizing or externalizing pathology).

There was a significant race by attempt status interaction effect for the SIQ-Jr., $F(1, 116) = 6.02, p = .016$. SIQ-Jr. scores for the MA group in the subsample of White adolescents were

higher than in the SA/I group in that same subsample, $F(1, 59) = 10.39, p = .002$. There was not an attempt status effect within the Black adolescent subsample, $F(1, 56) = 0.14, p = .706$. There were no other race/attempt status interactive effects for any of the other psychopathology variables.

Race, Suicide Attempt Status, and Social Support/Interpersonal Orientation

The main effect of attempt status for the PEPSS social support variables was significant, $F(3, 90) = 3.78, p = .013$. MA youth had significantly lower perceived family, $F(1, 95) = 11.03, p = .001$; non-family adult, $F(1, 95) = 10.63, p = .002$; and friend support, $F(1, 95) = 8.67, p = .004$, than SA/I.

There was no significant attempt status effect for total interpersonal orientation score, $F(1, 60) = 1.61, p = .210$. There was no main effect of race on the PEPSS social support variables (family support, non-family adult support, friend support, $F(3, 90) = 0.25, p = .860$, or for the total interpersonal orientation score, $F(1, 60) = 0.21, p = .606$.

The race by attempt status interaction was significant for the total interpersonal orientation scale score, $F(1, 60) = 8.00, p = .006$. Examining attempt status differences within race revealed that Black MA adolescents had significantly higher interpersonal orientation than Black SA/I adolescents, $F(1, 29) = 10.32, p = .003$. There were no attempt status differences in the White adolescent group, $F(1, 30) = 1.04, p = .317$. The race by attempt status interaction was nonsignificant for perceived support variables, $F(3, 90) = 1.58, p = .199$.

To more fully explore the findings regarding interpersonal orientation, a MANOVA was conducted containing the four subscales of the IOS. Overall, there was no significant effect of race, but there was a significant overall effect of attempt status, $F(4, 54) = 3.13, p = .022$. MA adolescents had significantly higher Social Comparison subscale scores than SA/I adolescents, $F(1, 60) = 6.19, p = .016$. There were no other attempt status differences for the other three subscales.

The overall race by attempt status interaction effect for the IOS subscales trended toward significance at the $p < .05$ level, $F(4, 54) = 2.52, p = .052$. Because pilot exploration of this finding could assist interpretation of the IOS total score result, the individual level tests are presented. The interaction between race and attempt status was significant for three of the four subscales: Emotional Support, $F(1, 60) = 5.20, p = .026$; Positive Stimulation, $F(1, 60) = 8.52, p = .005$; and Social Comparison, $F(1, 60) = 5.65, p = .007$. The test of the Attention subscale was nonsignificant, $F(1, 60) = 3.75, p = .058$.

For the Emotional Support subscale, within race group tests showed no differences between MA and SA/I for either Black or White adolescents. For the Positive Stimulation subscale, there was no significant difference in scores between MA and SA/I groups for White adolescents, but among Black adolescents, MA adolescents had significantly higher scores on this subscale than SA/I, $F(1, 29) = 12.74, p = .001$. For the Social Comparison subscale, as with the previous, there was no attempt status difference for White adolescents; however, among Black adolescents, MA had significantly higher Social Comparison scores than SA/I,

$F(1, 29) = 21.95, p = .000$. These findings indicate that the tendency to seek feedback about one's self from others and the need for positive interactions with others are key variables differentiating Black multiple attempters from Black single attempters and ideators, but also that it does not have the same relationship with attempt status for White adolescents.

Interpersonal Orientation and Social Support as Predictors of Multiple Suicide Attempts

Because Black adolescents are the primary focus of this study and interpersonal orientation was only significantly different between MA and SA/I groups within the Black adolescent subsample, binary logistic regression analysis was only conducted within the Black adolescent subsample (with multiple attempt status as a dichotomous "yes/no" variable). The purpose of this analysis was to test the hypothesis that high interpersonal orientation and low social support in combination would differentiate adolescents with a history of multiple suicide attempts from other suicidal youth. The predictors were the z-scores for the IOS total score, the summary score of the PEPSS social support variables (the sum of all three subscales), and the interaction between the two.

The z-scores for the IOS total and PEPSS total scores were highly correlated ($r = .33, p = .010$). The model containing only these two variables correctly classified 65.5% of the sample as either MA or SA/I and accounted for significantly more variance than the null model, $\chi^2(2) = 9.00, p = .011$. The IOS z-score was a significant predictor of being a multiple attempter ($OR = 3.75, 95\% \text{ C.I.} = 1.28, 11.00$). PEPSS was not a significant predictor of multiple attempt status. The interaction between these two variables was added at the second step of the regression. This step did not add significant predictive value to the model, and the interaction term was not a significant predictor of attempt status, meaning that discrepancies between level of interpersonal orientation and social support did not predict multiple suicide attempt status as was hypothesized. According to these results, the best predictor of multiple suicide attempts among Black adolescents in this sample was interpersonal orientation.

DISCUSSION

The variables related to multiple suicide attempts in matched samples of Black and White suicidal adolescents were examined. The finding that White adolescents report significantly higher levels of hopelessness and suicidal ideation are in line with previous literature that suggests that Black inpatient adolescents are less likely to report suicidal thoughts and affective disturbance than White adolescents (Politano, Nelson, & Evans, 1986). This may indicate that Black adolescents are presenting with the same suicidal behaviors as Whites, but with a different psychiatric profile. Research has shown that there are differences in patterns of diagnosis among hospitalized adolescents: Black adolescents were more likely to be diagnosed with externalizing psychopathology than White adolescents and White adolescents were more likely to receive diagnoses of internalizing pathology than Blacks (DelBello, Lopez-Larson, Soutullo, & Strakowski, 2001).

Additionally, perceived social support from families and friends, known protective factors, differentiated multiple attempters from other suicidal adolescents in the overall sample. But it is of particular importance that different associations with multiple attempt status were

identified within Black and White subsamples. Higher levels of interpersonal orientation predicted multiple attempt status among the Black adolescents; in contrast, only suicidal ideation differentiated multiple attempters from single attempters/ideators among White adolescents. The finding that suicidal ideation was a significant predictor in the White sample is consistent with prior research among samples of primarily White adolescents, which found that suicidal ideation predisposes adolescents to later suicide attempts (Brent, Perper, Moritz, & Allman, 1993; Lewinsohn et al., 1996). However, the findings regarding interpersonal orientation are new to the field and require careful consideration and further research. This is particularly the case because interpersonal orientation did not interact with social support in a way that allowed for a stronger prediction of multiple attempt status, in keeping with the notion of thwarted belongingness.

The four Interpersonal Orientation subscales enabled examination of the specific aspects of interpersonal orientation that were associated with multiple suicide attempts among Black adolescents. Results indicated that the desire for the positive stimulation that others provide and the tendency to compare one's self to others were important. These findings lend themselves to the possibility that, regardless of the size of the social network, if the adolescent does not feel a certain amount of gratification from that environment, or finds his or her comparison to others to be problematic or distressing (possibly the youth deems him- or herself inadequate in a meaningful way), these feelings can lead to repeated attempts at suicide. Specifically among Black adolescents, these findings speak to the importance of including interpersonal components in interventions targeted at reducing suicidal behaviors. Adding dialectical/behavioral, interpersonal, and or social skills components to suicide interventions may accomplish this.

This study had several limitations. The relatively small size of the Black subsample limited statistical power and precluded analyses involving additional covariates such as gender or age. Additionally, there may be some differences between multiple attempters and nonattempters that we could not identify based on the composition of the suicidal groups in this study (single attempters and ideators were included in the same group) or the available data (e.g., data for interpersonal orientation were only available for Study 1). Also, the sample is drawn from an inpatient unit in one specific region in the United States, which possibly limits the generalizability of the findings. Further, the participation rates in the two larger studies were both approximately 45% of eligible youth. Added to that, the data are all self-report. The use of parent- and clinician-report data would offer more perspective and possible insight into the mechanisms at play in the sample. Finally, given the fact that this sample was comprised of inpatient adolescents, it is likely that the severity of the problems experienced by these adolescents makes it hard to parse out some relationships that may be apparent in community samples. However, the focus of this study is on understanding multiple suicide attempters, which is a population that is reasonably studied in a clinical setting. Moreover, Black inpatients are an understudied population and these data do add significantly to the scientific literature.

CONCLUSION

We explored the factors associated with multiple suicide attempts among Black adolescents. It was found that interpersonal orientation, specifically seeking out others for the purpose of getting feedback about one's self and needing the positive stimulation that others provide, differentiated adolescents with a history of multiple suicide attempts from those without such a history. The findings have implications for future research as well as clinical intervention. Clinical interventions targeted at suicidal Black adolescents that attend to the internal inter-personal workings and external social environment of adolescents may prove most effective at reducing subsequent suicide attempts for this population.

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TABLE 1

Demographic Variables by Race

	Black Adolescents	White Adolescents
% Female	68.9	70.5
Age [Mean (<i>SD</i>)]	15.3 (1.37)	15.2 (1.42)
% Multiple Attempter	37.7	31.1

TABLE 2

Descriptive Statistics for Study Variables by Race and Attempt Status

Multiple attempter?	Black adolescents						White adolescents							
	No (n = 23)		Yes (n = 38)		Overall		No (n = 19)		Yes (n = 42)		Overall			
	Mean	(SD)	Mean	(SD)	Mean	(SD)	N	Mean	(SD)	Mean	(SD)	Mean	(SD)	N
Suicidal ideation	38.97	(25.01)	36.48	(22.13)	38.05	(23.82)	57	43.27	(22.94)	62.63	(18.47)	49.40	(23.31)	60
Hopelessness	6.50	(5.65)	6.90	(6.64)	6.66	(6.00)	53	8.94	(6.25)	11.67	(6.16)	9.87	(6.30)	53
YSR Internalizing	27.47	(12.52)	29.96	(12.03)	28.41	(12.29)	61	26.95	(10.90)	33.47	(9.79)	28.98	(10.92)	61
YSR Externalizing	21.45	(10.02)	23.22	(10.49)	22.11	(10.15)	61	21.45	(9.48)	23.16	(9.83)	21.98	(9.54)	61
PEPSS														
Family Support	7.32	(5.08)	4.86	(4.19)	6.39	(4.82)	48	7.21	(4.76)	3.52	(1.75)	6.16	(4.27)	48
Adult Support	6.31	(4.70)	4.62	(4.00)	5.64	(4.47)	48	6.82	(4.66)	2.66	(2.49)	5.48	(4.53)	48
Friend Support	7.77	(5.41)	6.03	(4.43)	7.17	(5.11)	48	8.42	(5.49)	4.06	(2.94)	7.32	(5.31)	48
IOS Total	2.72	(.83)	3.65	(.74)	3.15	(0.91)	30	3.48	(.94)	3.13	(.99)	3.30	(0.97)	31
Emotional Support	3.17	(1.10)	3.72	(.81)	3.43	(1.00)	30	3.68	(1.09)	2.99	(1.20)	3.32	(1.18)	31
Positive Stimulation	2.65	(.93)	3.75	(.72)	3.16	(.99)	30	3.47	(1.01)	3.13	(1.11)	3.30	(1.06)	31
Attention	2.68	(1.21)	3.54	(1.02)	3.08	(1.19)	30	3.46	(1.07)	3.18	(1.27)	3.31	(1.67)	31
Social Comparison	2.36	(.52)	3.51	(.81)	2.90	(.88)	30	3.28	(1.07)	3.21	(.92)	3.24	(.98)	31