

Attachment Organization in Suicide Prevention Research

Preliminary Findings and Future Directions in a Sample of Inpatient Adolescents

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Abstract. *Background:* Identifying risk factors for suicide-related thoughts and behaviors (SRTB) is essential among adolescents in whom SRTB remain a leading cause of death. Although many risk factors have already been identified, influential theories now suggest that the domain of interpersonal relationships may play a critical role in the emergence of SRTB. Because attachment has long been seen as the foundation of interpersonal functioning, we suggest that attachment insecurity warrants attention as a risk factor for SRTB. *Aims:* This study sought to explore relations between attachment organization and suicidal ideation, suicide attempts, and self-harm in an inpatient adolescent sample, controlling for demographic and psychopathological covariates. *Method:* We recruited 194 adolescents from an inpatient unit and assigned them to one of four attachment groups (secure, preoccupied, dismissing, or disorganized attachment). Interview and self-report measures were used to create four variables reflecting the presence or absence of suicidal ideation in the last year, single lifetime suicide attempt, multiple lifetime suicide attempts, and lifetime self-harm. *Results:* Chi-square and regression analyses did not reveal significant relations between attachment organization and SRTB, although findings did confirm previously established relations between psychopathology and SRTB, such that internalizing disorder was associated with increased self-harm, suicide ideation, and suicide attempt and externalizing disorder was associated with increased self-harm. *Conclusion:* The severity of this sample and methodological differences from previous studies may explain the nonsignificant findings. Nonsignificant findings may indicate that the relation between attachment organization and SRTB is moderated by other factors that should be explored in future research.

Keywords: attachment, suicide, self-harm, adolescent, security

It is critical to prevention efforts that research identifies new risk factors for suicide-related thoughts and behaviors (SRTB) in adolescents because of the continued prevalence of these behaviors in youth despite widespread assessment of established risk factors. Prior research has already identified several important risk factors for SRTB in adolescents. For instance, Roberts, Roberts, and Xing (2010) identified marijuana use and caregiver suicide attempts as important predictors of suicide attempts in their community sample of adolescents. A study by Borowsky, Ireland, and Resnick (2001) of a similar sample identified several other important risk factors, such as previous suicide attempts, previous abuse, substance use (marijuana and alcohol), and school problems. In addition, Lewinsohn, Rhode, and Seeley (1994) showed that previous suicide attempts, current suicidal ideation, current depression, exposure to attempts, low self-esteem, and birth to an adolescent mother were the strongest predictors of future suicide attempts. With regard to risk for self-harm, Nock (2010) reports that a childhood history of abuse (Klonsky & Moyer, 2008), interpersonal problems including poor verbal and problem-solving skills (Hilt, Cha, Nolen-Hoek-

sema, 2008; Nock & Mendes, 2008; Photos & Nock, 2006), and peer victimization and marginalization (Hilt et al., 2008; Young, Sweeting, & West, 2006) increase the risk. Additionally, research suggests that demographic factors (Centers for Disease Control and Prevention, 2008), emotion regulation (Perez, Venta, Garnaat, & Sharp, 2012; Simeon & Favazza, 2001), and a wide range of psychopathology (Brown, Comtois, & Linehan, 2002; Claes, Vandereycken, & Vertommen, 2001; Foley, Goldston, Costello, & Angold, 2006; Goldston et al., 2009; Haw, Houston, Townsend, & Hawton, 2002; Sharp et al., 2012; Zlotnick, Mattia, & Zimmerman, 1999) are important risk factors as well. Still, suicide remains a leading cause of death among adolescents (Xu, Kochanek, Murphy, & Tejada-Vera, 2010) and self-injury continues to affect 13–23% of adolescents in the general population and 40–60% of those in clinical settings (Darche, 1990; DiClemente, Ponton, & Hartley, 1991; Jacobson & Gould, 2007), highlighting the importance of further research regarding potential risk factors.

Recently, theoretical models of SRTB have started emphasizing the importance of the interpersonal context as a

key domain of assessment and intervention (Joiner, 2005; Nock, 2008). Existing research supports a relation between interpersonal factors and SRTB. For instance, many studies (reviewed by Van Orden et al., 2008) link loneliness, living alone, and being unwed to suicide attempts. Further, Bostik and Everall (2006) link SRTB with familial difficulties including frequent criticism, poor communication, and perceived lack of support. Suicidal adolescents, in particular, appear to have many interpersonal problems extending to general social isolation (Bearman & Moody, 2004), peer rejection, and low social support among friends (Prinstein, Boergers, Spirito, Little, & Grapentine, 2000).

The pervasive difficulties with interpersonal functioning noted among adolescents who endorse SRTB suggest that perhaps attachment organization, a major developmental factor in interpersonal functioning (Berlin, Cassidy, & Appleyard, 2008), is an important consideration in SRTB prevention research. Attachment theory suggests that the emotional and physical needs of a child, and whether or not they are consistently met, create an internal working model of the self as deserving of care and of others as reliable caregivers (known as attachment security) or not (known as attachment insecurity; Bowlby, 1969, 1973). In this way, early experiences with caregivers set the stage for interpersonal functioning across the lifespan and may set a child on a trajectory of interpersonal impairments leading toward SRTB in adolescence. Therefore, attachment is a promising area of SRTB research and stands to be a highly important risk factor, particularly because it can be identified (along with interpersonal correlates) long before the emergence of SRTB.

Several studies have already identified a link between attachment insecurity and SRTB in adolescents. For instance, Violato and Arato (2004) demonstrated that insecure attachment in childhood was related to suicidality in adolescence, and Adam, Sheldon-Keller, and West (1996) showed that preoccupied and disorganized attachment was associated with suicidal behavior among adolescents in psychiatric treatment. Among undergraduates, a history of suicide ideation or attempts was associated with low attachment security (de Jong, 1992), and preoccupied and dismissing attachments predicted suicidality (Zeyrek, Gençöz, Bergman, & Lester, 2009). A number of studies have also examined proxies of attachment in conjunction with SRTB. For instance, Dale, Power, Kane, Stewart, and Murray (2010) showed a relation between perceived parental bonding and risk of repeated suicidal behavior, and Maimon, Browning, and Brooks-Gunn (2010) identified family attachment as a protective factor against adolescent suicide attempts. Additionally, separation from a parental figure has been identified as a strong predictor of suicide attempts among African American adolescents (Lyon, Benoit, O'Donnell, Getson, Silber, & Walsh, 2000). These studies along with several others (e.g., Bostik & Everall, 2006, 2007; Wright, Briggs, & Behringer, 2005) have drawn a clear link between attachment and SRTB. However, this link has not yet been established for a wide variety of SRTB (e.g., self-harm), using interviews developed for youth, or in severe psychiatric samples (e.g., purely inpatient groups). Against this background, the present study

sought to determine how attachment organization related to a range of SRTB in a sample of inpatient adolescents characterized as treatment refractory. Specifically, we explored which attachment classifications (secure, dismissing, preoccupied, and disorganized, assigned separately for each caregiver) were associated with suicidal ideation during the last year, a single lifetime suicide attempt, multiple lifetime suicide attempts, and lifetime self-harm. We also included assessments of psychopathology and collected data on age, sex, and ethnicity in order to control for relations between these factors and key study variables. Attachment organization was assessed with a valid and developmentally appropriate measure, the Child Attachment Interview.

Previous research with adolescent samples was used as the basis for making hypotheses in this study. We expected that a preoccupied attachment classification would be associated with suicide ideation, as found in previous research (Adam et al., 1996; Lessard & Moretti, 1998). Moreover, we expected that disorganized attachment would be associated with increased risk of suicide attempts because of previous work tying a disorganized classification to suicide in adolescents (Adam et al., 1996). Finally, we expected that dismissing and secure attachment classifications would not be associated with SRTB in adolescents, as seen in another study with an adolescent sample (Adam et al., 1996).

Method

Participants

Informed consent from parents was collected first, and, if granted, assent was obtained from 194 adolescents in an inpatient unit. The inpatient unit usually serves adolescents with severe treatment-refractory behavior and psychiatric and substance disorders. At admission, 38.7% of adolescents met diagnostic criteria for major depressive disorder, 24.7% for obsessive compulsive disorder, and 22.2% for oppositional defiant disorder (these are the three most common disorders although many more are represented). Exclusion criteria included diagnosis of any psychotic disorder or mental retardation. Inclusion criteria included age between 12 and 17 years and English fluency. 59.3% of the sample was female and the average age was 16.0 years ($SD = 1.4$). The sample was ethnically diverse and the breakdown was as follows: 90.2% white, 3.1% Hispanic, 2.1% Asian, 2.1% bi- or multiracial, 0.5% black, and 2.0% who identified themselves as "other."

Measures

Attachment

The Child Attachment Interview (CAI; Target, Fonagy, Shmueli-Goetz, Data, & Schneider, 2007) is an interview-based measure assessing attachment organization

through mental representations of caregivers (i.e., attachment figures) and the subject's relation to them. To that end, the interviewer asks the adolescent to describe each attachment relation using three words for each caregiver and then probes further for what happens when the attachment figure is angry and in what ways the child wishes to be like the attachment figure. Further, the interviewer elicits information about the perceived availability of attachment figures and the child's valuing of attachment experiences by asking questions regarding illness, loss, abuse, and separation. The interview is conducted in private and videotaped to aid in assigning an attachment classification later on. The videotaped interview is coded on the basis of 11 scales: emotional openness, balance of positive and negative reference to attachment figures, use of examples, preoccupied anger (separate for mother and father), idealization (separate for mother and father), dismissal (separate for mother and father), resolution of conflicts, and overall coherence. These subscale scores are then used to assign adolescents to one attachment classification from secure, preoccupied, and dismissing for each caregiver, in addition to noting disorganization. All authors were trained in the administration and coding of this measure by the measure's authors and completed a 4-day training to become certified coders. Adequate validity for this measure was demonstrated by the authors in a sample of children aged 8–12 years (Shmueli-Goetz, Target, Fonagy, & Datta, 2008). Although the CAI was initially developed for that age range, it has been used with some adolescent samples (e.g., Humfress, O'Connor, Slaughter, Target, & Fonagy, 2002; Scott, Briskman, Woolgar, Humayun, & O'Connor, 2011) and currently seems to represent the most developmentally appropriate interview measure for adolescents as well. Indeed, the CAI has recently demonstrated adequate validity when compared with various self-report measures of attachment and psychopathology among inpatient adolescents (Venta, Shmueli-Goetz, & Sharp, in press).

Suicide-Related Thoughts and Behaviors

SRTB were assessed with the NIMH Diagnostic Interview Schedule for Children-IV (C-DISC; Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000) and included assessing for the presence or absence of suicidal ideation during the past year, a single lifetime suicide attempt, and multiple lifetime suicide attempts. Self-harm was assessed using the Deliberate Self-Harm Inventory (DSHI; Gratz, 2001), a 17-item self-report measure defining self-harm as "deliberate, direct destruction or alteration of body tissue without conscious suicidal attempt" (Gratz, 2001, p. 255). In this study, a dichotomous variable was created by separating participants who endorsed any item (indicating that they had ever engaged in deliberate self-harm) from those who did not (as done by Gratz, 2001).

Psychopathology

The C-DISC was also used to assess and control for psychiatric disorders that have been shown to relate to SRTB.

Only current "positive diagnoses" that met all DSM-IV criteria were considered and all were grouped into diagnostic sections (i.e., internalizing and externalizing) in order to limit the number of confounding variables considered.

Procedures

This study was approved by the appropriate institutional review board. All adolescents admitted to an inpatient psychiatric unit were approached on the day of admission about participating in this study. Informed consent from the parents was collected first and, if granted, assent from the adolescent was obtained in person. Adolescents were then consecutively assessed by doctoral-level clinical psychology students, licensed clinicians, and/or trained clinical research assistants. Diagnostic interviews were conducted independently and in private according to the standard procedures of the C-DISC. The CAI, a semi-structured interview, was also conducted independently and in private and followed the procedures of administration and coding presented by the measure's authors. All adolescents were assessed within the first 2 weeks following admission. The average length of stay in this program is 4–6 weeks.

Results

The aim of this study was to determine whether attachment organization was associated with SRTB, controlling for demographic and psychopathological covariates. On the basis of the CAI, approximately 30.4% of adolescents were coded as secure, 38.1% as dismissing, 14.4% as preoccupied, and 17.0% as disorganized with their mothers (and the distribution was approximately equal for paternal attachment). Further, 37.1% of the sample endorsed having made a suicide attempt during their lifetime, 17.53% endorsed having made multiple attempts during their lifetime, 46.4% endorsed suicide ideation during the past year, and 64.43% endorsed engaging in self-harm during their lifetime (adolescents could be assigned to more than one category simultaneously). In order to identify covariates, bivariate analyses identifying relations between key study variables were conducted. Relations between SRTB, demographics, and psychopathology are presented in Table 1 and revealed that adolescents with an internalizing diagnosis were more likely to endorse a lifetime suicide attempt, suicide ideation during the last year, and lifetime self-harm and that adolescents with an externalizing diagnosis and females were more likely to endorse lifetime self-harm. Group differences in demographics and psychopathology with regard to attachment organization are presented in Table 2, and revealed a significant association with externalizing disorder.

On the basis of these bivariate relations, internalizing and externalizing disorders, as well as female sex, were included as covariates in subsequent analyses. First, chi-square analyses comparing adolescents with and without

Table 1. Differences in demographics and psychopathology with regard to suicide variables

	Attempt (<i>n</i> = 72) <i>M</i> (<i>SD</i>) or %	No attempt (<i>n</i> = 122) <i>M</i> (<i>SD</i>) or %	<i>t</i>	χ^2
Age	16.01 (1.38)	15.95 (1.42)	-0.32	-
Female sex	62.50%	57.38%	-	0.49
Ethnicity	-	-	-	6.60
Internalizing	87.50%	75.41%	-	4.12*
Externalizing	44.44%	40.16%	-	0.34
	Multiple attempts (<i>n</i> = 34) <i>M</i> (<i>SD</i>) or %	Single attempt (<i>n</i> = 38) <i>M</i> (<i>SD</i>) or %	<i>t</i>	χ^2
Age	15.75 (1.45)	16.18 (1.30)	1.33	-
Female sex	58.82%	65.79%	-	0.37
Ethnicity	-	-	-	9.22
Internalizing	88.24%	86.84%	-	0.03
Externalizing	38.24%	47.37%	-	0.61
	Suicide ideation (<i>n</i> = 90) <i>M</i> (<i>SD</i>) or %	No ideation (<i>n</i> = 104) <i>M</i> (<i>SD</i>) or %	<i>t</i>	χ^2
Age	15.95 (1.40)	15.99 (1.41)	0.20	-
Female sex	64.44%	54.81%	-	1.86
Ethnicity	-	-	-	7.09
Internalizing	93.33%	68.27%	-	18.87***
Externalizing	47.78%	35.54%	-	2.51
	Self-harm (<i>n</i> = 125) <i>M</i> (<i>SD</i>) or %	No self-harm (<i>n</i> = 69) <i>M</i> (<i>SD</i>) or %	<i>t</i>	χ^2
Age	15.93 (1.38)	16.06 (1.44)	0.63	-
Female sex	68.80%	42.03%	-	13.20***
Ethnicity	-	-	-	5.53
Internalizing	88.80%	63.77%	-	17.34***
Externalizing	49.60%	27.40%	-	8.90**

Notes: * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 2. Differences in demographics and psychopathology with regard to attachment status

Maternal	Secure	Dismissing	Preoccupied	Disorganized	χ^2
Female sex	54.2%	59.5%	71.4%	57.6%	2.37
Ethnicity	-	-	-	-	12.88
Internalizing	74.6%	81.1%	82.1%	84.8%	1.70
Externalizing	32.2%	37.8%	46.4%	63.6%	9.43*
Paternal	Secure	Dismissing	Preoccupied	Disorganized	χ^2
Female sex	58.6%	59.7%	60.7%	57.6%	0.08
Ethnicity	-	-	-	-	16.59
Internalizing	77.6%	80.6%	78.6%	84.8%	0.75
Externalizing	29.3%	38.9%	50.0%	63.6%	11.21*

Notes: Numbers in the body of the table refer to the percentage of adolescents in each attachment group that satisfied the condition listed in the first column. For example, 54.24% of adolescents who were assigned to the secure group regarding maternal attachment were female. The χ^2 values refer to the difference between attachment groups according to the variable listed in the first column. * $p < .05$

Table 3. Relations between each suicide-related thought or behavior and attachment classification

Maternal	Secure	Dismissing	Preoccupied	Disorganized	χ^2
Suicide attempt	35.6%	37.8%	35.7%	39.4%	0.17
Suicide ideation	39.0%	48.6%	46.4%	54.5%	2.34
Multiple attempt	47.6%	48.3%	44.4%	46.2%	0.05
Self-harm	57.6%	66.2%	57.1%	78.8%	4.91
Paternal	Secure	Dismissing	Preoccupied	Disorganized	χ^2
Suicide attempt	32.8%	40.3%	39.3%	39.4%	0.88
Suicide ideation	39.7%	47.2%	50.0%	54.5%	2.10
Multiple attempt	47.4%	50.0%	40.0%	46.2%	0.31
Self-harm	55.2%	63.9%	64.3%	78.8%	5.09

Notes: Numbers in the body of the table refer to the percentage of adolescents in each attachment group that satisfied the condition listed in the first column. For example, 35.6% of adolescents who were assigned to the secure group regarding maternal attachment had made a suicide attempt. χ^2 computed comparing adolescents with and without the relevant suicide-related thought or behavior on the basis of attachment classification.

the relevant SRTB on the basis of attachment classification were conducted (see Table 3) and showed no significant relations between SRTB and attachment organization. When attachment organization was used as a predictor variable in a series of binary logistic regression analyses in which SRTB served as the outcome variables and the aforementioned covariates were controlled for, no significant relations between attachment organization and any SRTB were noted.

Given the null findings using the four-way classification, chi-square analyses were also conducted comparing secure and insecure (i.e., preoccupied, dismissing, or disorganized) adolescents on the basis of all SRTB variables. Again, results were nonsignificant, indicating no relations between attachment organization and the presence or absence of SRTB. Finally, independent sample *t*-tests were used to compare adolescents with and without each SRTB on the dimensional scales of the CAI and no significant differences were noted.

Discussion

The aim of the present study was to explore whether attachment organization was associated with suicide ideation during the past year, single and multiple lifetime suicide attempts, and lifetime self-harm, in light of evidence suggesting that attachment insecurity may be a valuable predictor of SRTB. This study expands existing research identifying attachment insecurity as a correlate of and risk factor for suicide ideation in adolescents by exploring a wide range of SRTB (i.e., single attempts, multiple attempts, suicide ideation, and self-harm), using interviews developed for youth, and recruiting a severe psychiatric sample in which SRTB is a serious problem and attachment insecurity is common. Analyses revealed no relation between attachment organization and SRTB in our sample. The relation between psychopathology and SRTB identi-

fied in previous research, however, was confirmed, such that internalizing disorder was associated with increased lifetime self-harm, suicide ideation during the past year, and lifetime suicide attempt and externalizing disorder was associated with increased lifetime self-harm. In sum, this study did not identify attachment organization as a correlate of SRTB, as expected, but did replicate previous findings regarding the importance of psychopathology as a correlate of SRTB.

The absence of any significant relations between attachment organization and SRTB stands in contrast to existing studies that tie SRTB to preoccupied attachment and disorganized attachment in adolescents (e.g., Adam et al., 1996). One possible explanation for this discrepancy is that approaches to attachment classification differ across studies. For instance, Adam and colleagues (1996) treated disorganization as a subclassification, whereas disorganization was treated as a primary classification in the present study. Furthermore, the distribution of attachment organization in the present sample differs from that reported by Adam et al. (1996), despite samples of comparable age, perhaps because Adam and colleagues (1996) used the Adult Attachment Interview.

Also, the present study explored a severe sample of inpatient adolescents and therefore represents an extreme end of the spectrum. For instance, the lowest rate of suicide attempt in our sample (in the secure group) was still 35.6%, suggesting a very high base-rate of SRTB in this sample, which may have obscured relations that emerged in less severe samples. Similarly, the assessment of SRTB in the present study, while addressing a variety of behaviors, did not assess key features of SRTB such as frequency, intensity, intention, or purpose of the behavior. Therefore, the present study collapses potentially diverse SRTB into categories and may have in turn muddled existing relations with attachment organization, contributing to the absence of significant relations.

Nonsignificant findings reported here suggest that the link between attachment organization and SRTB may be

moderated by other factors. For instance, recent attachment research has suggested that attachment organization, as an internal working model (Bowlby, 1973), functions like a cognitive schema to filter social information processing (Dykas & Cassidy, 2011; Sharp, Fonagy, & Allen, 2012), which in turn may account for negative outcomes (including SRTB). This work suggests that a slew of additional variables, such as those related to social information processing, are crucial to understanding the relation between attachment security and outcomes and that the absence of moderator variables in this study may explain the absence of significant findings.

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Received April 25, 2012

Revision received July 15, 2013

Accepted August 6, 2013

Published online November 13, 2013

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