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Adolescent Attachment Security, Family Functioning, and Suicide Attempts

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Abstract

Theories of suicidal behavior suggest that the desire to die can arise from disruption of interpersonal relationships. Suicide research has typically studied this from the individual's perspective of the quality/frequency of their social interactions; however, the field of attachment may offer another perspective on understanding an individual's social patterns and suicide risk. This study examined attachment along with broader family functioning (family adaptability and cohesion) among 236 adolescent psychiatric inpatients with ($n = 111$) and without ($n = 125$) histories of suicide attempts. On average, adolescents were 14 years of age and Hispanic (69%). Compared to those without suicide attempts, adolescent attempters had lower self-reported maternal and paternal attachment and lower familial adaptability and cohesion. When comparing all 3 types of attachment simultaneously in the logistic regression model predicting suicide attempt status, paternal attachment was the only significant predictor. Suicide attempt group was also significantly predicted by self-rated Cohesion and Adaptability; neither of the parent ratings of family functioning were significant predictors. These findings are consistent with the predictions of the Interpersonal Theory of Suicide about social functioning and support the efforts to develop attachment-based interventions as a novel route towards suicide prevention.

Keywords

attachment; family functioning; suicide attempt; adolescence; psychiatric patient

Introduction

Disruption of relationships and social bonds are suggested to be one of the main causes of suicidal thoughts and behaviors. The desire for suicide or the manifestation of suicide attempts has been described as arising from exposure to adverse childhood trauma (e.g., abuse) and household dysfunction (e.g., parental substance abuse; Felitti et al., 1998), the lack of social integration (Durkheim, 1897), unmet social integration (Shneidman, 1987), or absence of reciprocal, caring relationships (Joiner, 2005; Van Orden, Witt, Cukrowicz, Braithwaite, Selby, & Joiner, 2010). The literature on suicidality (i.e. suicidal ideations and/or attempts) has primarily measured these social processes from the perspective of perceptions of social support, belongingness, and/or interpersonal conflict (You, Van Orden, & Conner, 2011). This overlooks a large developmental literature on attachment security

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and how attachment may account for outcomes involving social interactions. As such, attachment security may offer an alternative perspective on social dynamics and suicide attempts.

Attachment theory posits that early experiences with caretakers translate into internal representations of relationships that may influence many domains of life (Bowlby, 1969, 1980, 1988). These internal working models serve to regulate, interpret, and predict attachment behaviors, thoughts, and feelings about the self and others across multiple relationships. In this way, the internal working model serves as a guide to understanding and interpreting relationships across the lifespan (i.e. friendship or romantic interest; Ainsworth, Blehar, Waters, Wall, 1978; Bowlby, 1969, 1980, 1988; Brennan, Clark, & Shaver, 1998; Bretherton & Munholland, 1999; Cassidy, 2008).

Bowlby (1969, 1980, & 1988) stated that these “working models” of self, other, and the world combine to create different attachment patterns that are used to determine a person’s interactions with the world. These patterns were first measured categorically with respect to infant-parent relationships (e.g., secure, anxious/ambivalent, avoidant, disorganized; Ainsworth et al., 1978; Main & Hesse, 1990; Main & Solomon, 1990) and continued to be applied to other age groups by using the Adult Attachment Interview (AAI; autonomous/secure, dismissing, preoccupied, unresolved-disorganized; George, Kaplan, & Main, 1985).

Another approach that has been used in recent literature is the dimensional method which originally was used with respect to the study of adult romantic relationships (i.e., avoidance and anxiety; Fraley & Waller, 1998). The dimensional and categorical methods of measuring attachment security are distinct from one another (Roisman et al., 2007; Steele, Steele, & Murphy, 2009) however, both methods have found that having negative representations of oneself, the world, and others can interfere with the ability to relate to and interact with others and ultimately lead to emotional distress and stress (Bowlby 1969, 1980, & 1988; Malekpour, 2007; Rees, 2007). Individuals who have an insecure attachment style tend to have difficulty being in relationships, are uncomfortable depending on other people, have higher rates of depression, and have fears of abandonment (Allen, Porter, McFarland, McElhaney, & Marsh, 2007; Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987). Each pattern or style of attachment has its own unique strategies for dealing and coping with stressful life circumstances (Ainsworth et al., 1978; Bowlby, 1969, 1980, 1988; Brennan et al., 1998) and this may lead to differences in the expression of suicide attempts.

Support for a link between attachment security and suicide attempts and/or ideation has been consistent across the few studies to investigate this possibility. To our knowledge, 10 studies have tested for this possibility during the past 20 years and all have found statistically significant associations with suicide attempts and/or ideation. Adams, Sheldon-Keller, and West (1996) looked at the association among attachment security and suicidal behavior among a mixed sample of individuals with severe suicidal ideation and attempts using the Adult Attachment Interview. They found that individuals in the suicidal group were predominantly classified as preoccupied/unresolved-disorganized and that the majority of individuals were exposed to attachment-related trauma (e.g., abuse; Adams et al., 1996).

When measuring attachment dimensionally, researchers have found that attachment insecurity (high anxious and/or avoidant attachment) is higher among those with histories of suicide attempts (Lizardi et al., 2011), is predictive of suicidal group status (e.g., attempts or ideation; De Jong, 1992; Lessard & Moretti, 1998; Stepp et al., 2008), is associated with current suicidal ideation (DiFilippo & Overholser, 2000), and a higher probability of expression of future suicide attempts (Grunebaum et al., 2010; Zeyrek et al., 2009).

There are several proposed explanations of why attachment insecurity may be related to suicide attempts. Insecure attachment patterns or styles may increase vulnerability or decrease resiliency to suicide attempts, or act simultaneously on both of these processes. Vulnerability to suicide attempts may be increased if insecure attachment disrupts social bonds resulting in problems with self-esteem and depressed mood (Lizardi et al., 2011). Resiliency from acting on suicidal thoughts may be diminished if insecure attachment styles limit the utilization of social support networks that are helpful in buffering an individual's response to stressful life events (Grunebaum et al., 2010). Given the consistency of significant outcomes, attachment appears to be a promising and relatively untapped avenue for pursuing suicide prevention research.

Despite generally congruent findings of the association of attachment and suicide attempts and/or ideation, this literature has varied widely in its measurement approach. As can be seen in Table 1, this area of research has great diversity in terms of instruments used to measure attachment security, the characteristics of the participants, the type of suicidal behavior (thoughts or behaviors), and the manner in which these associations are compared. Because of the unsystematic nature of this literature as a whole, there are many opportunities to advance the field.

One area of further inquiry is on the link among attachment security and suicide attempts. One limitation of the existent literature has been the tendency to mix suicidal thoughts with suicide attempts in tests of attachment. The mixture of interpretations about suicidal thoughts versus attempts threaten generalizability of findings, and experts within the suicide field have called for more clear delineation of what aspects (thoughts versus behaviors) are being tested (Silverman, Berman, Sanddal, O'Carroll, & Joiner, 2007). As we know of, within the attachment literature, tests of suicide attempts have only been conducted with adult aged samples (see Lizardi et al., 2011; Stepp et al., 2008).

Studying adolescent attachment security and suicide attempts is important from both an epidemiological and attachment theory perspective. Adolescents attempt suicide at much higher rates than adults (CDC, 2010; Goldsmith, Pellmar, Kleinman, & Bunney, 2002; McIntosh & Drapeau, 2012; for review, Bridge, Goldstein, & Brent, 2006), and the attachment hierarchy is changing during adolescence with peer attachment relationships being uniquely influential (Allen & Land, 1999). Direct comparison of large groups of adolescents with and without suicide attempts that takes into account peer as well as parental attachment would advance this literature.

A second question arising from the existing attachment literature on suicide attempts regards its mechanism of action. One study reported interpersonal conflict as a potential mechanism by which attachment insecurity may increase the likelihood of suicide attempts and non-suicidal self-injury (Stepp et al., 2008). This focus on interpersonal conflict begins to provide some basis for how attachment insecurity acts on suicide risk and this intriguing finding deserves further exploration. Among adolescents, it may be pertinent to explore attachment insecurity and suicide attempts within the broader context of family functioning and peer relationships. Family adaptability (role flexibility) and cohesion (emotional bonds) are broader aspects of family functioning and have proven useful for understanding other areas of mental health, such as addiction (e.g. Finzi-Dottan, Cohen, Iwaniec, Sapir, & Weizman, 2003; Teichman & Basha, 1996), and could potential help in understanding the association among suicide attempts and attachment security. Also, research concerning this topic has primarily focused on parental attachment, but with the increasing importance of peers during adolescence, it might be expected that peer attachment may become more strongly related to suicide attempts than parental attachment during this period (Allen & Land, 1999).

The purpose of this study was to extend the literature testing the link among attachment security and suicide attempts in an adolescent sample. We focused on suicide attempts specifically for a number of reasons: (1) completed suicide is the third leading cause of death among adolescents and understanding the risks associated with suicide and the protective factors that may decrease this behavior is important; (2) it is important to isolate those individuals who have actually engaged in suicide attempts as ideation, thoughts of suicide, alone is more common among adolescents and may be less amenable to study in the absence of such behaviors; (3) results from studies that have focused on suicidal thoughts or mixed samples (thoughts and behaviors in one group) may not be applicable to samples consisting of suicide attempters only; (4) suicide attempts have been associated with completed suicide more often than suicidal thoughts (Bridge, Goldstein, Brent, 2006); and finally, (5) the economic cost of suicide attempts to the society as a whole is large (Yang & Lester, 2007).

This study is also unique in its test of different attachment figures and the association with family functioning among adolescent psychiatric patients with and without histories of suicide attempts. It was expected that adolescents who had a history of suicide attempts would have more insecure attachment styles and lower family adaptability and cohesion than those without attempts. Further, we were interested in exploring whether these associations differed by attachment figure (maternal, paternal, and peer) or by reporter (self vs. parent report of family adaptability and cohesion). Previous research has reported divergent outcomes among parent and child reports concerning family functioning (Feinberg, Neiderhiser, Howe, & Hetherington, 2001) and psychopathology (De Los Reyes & Kazdin, 2005, 2006). Therefore, to adequately characterize an association with suicide attempts it may be necessary to obtain more than one perspective on family functioning.

Methods

Participants

Adolescents (ages 12 – 17 years) who had received inpatient psychiatric care were recruited from the San Antonio, Texas area. The sample was identified both from monitoring admissions to local inpatient treatment facilities and from respondents of advertisements for "Teens who have received inpatient psychiatric care." Upon initial telephone contact, a description of the study purpose, procedures, and risks/benefits were described to the adolescent's parent/guardian. Interested parties completed a screening interview to learn about the adolescent's general medical/psychiatric condition and about any characteristics that might interfere with their ability to complete the study procedures (e.g. central nervous disorder, inability to read, etc).

Potential participants were invited for an onsite interview and testing session. All data collection occurred in a laboratory setting after the adolescent was discharged from their inpatient stay. During this appointment, adolescents and their parents participated in the informed consent process. Then, general health and psychiatric diagnoses were assessed using the Kiddie-Schedule for Affective Disorders and Schizophrenia for School Age Children-Present and Lifetime Version (K-SADS-PL; Kaufman et al., 1997) and intellectual ability was measured with the Wechsler Abbreviated Scale of Intelligence (WASI; Psychological Corporation, 1999). A board-certified child and adolescent psychiatrist reviewed each case's clinical symptoms and made the final determination on all psychiatric diagnoses.

Of the 262 adolescents who were screened, 26 were excluded for low intellectual functioning (IQ scores less than 70 and comprehension problems during test administration; $n = 25$) and/or for a history of medical problems affecting central nervous system

functioning (e.g. seizure disorder or head injury; $n = 1$). In addition to the excluded cases, there were other individual missing data points including: missing attachment ratings because of lack of attachment figure (Maternal $n = 5$; Paternal $n = 38$; or Peer $n = 4$) and missing Adaptability and Cohesion ratings (Parent rating $n = 3$, Adolescent rating $n = 1$).

Group Classification—As a part of the screening procedures, adolescents were interviewed using the Suicidal Behaviors Questionnaire – 14 which assesses, among other things, history of self-injurious behavior (Addis & Linehan, 1989). Based on their responses to these interview questions, adolescent participants were classified into one of two groups: **Attempt** – adolescents with at least one previous episode of intentional self-injury with some intent to die (suicide attempt); and **No Attempt** – adolescents without previous intentional self-injury. The purpose of this study was to compare attachment, family adaptability and cohesion between these two groups.

Assessment

Attachment—Attachment to parents and close friends was assessed using the Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987). The IPPA is composed of three, 25-item forms for the separate assessment of attachment to mother, to father, and to peers. Adolescents were asked to rate on a 5-point Likert Scale how much the statement is true about the person of reference (0 = "Almost Never or Never True" to 4 = "Almost Always or Always True"). The statements refer to three topic areas: communication, trust, and alienation. Examples of statements include: "My mother respects my feelings," "When we discuss things, my father cares about my point of view," "I feel my friends are good friends." All items were summed together with alienation scores reverse coded to yield three separate scores: maternal attachment, paternal attachment, and peer attachment. Higher scores indicated that the adolescent had a more secure attachment to the person of reference. The IPPA has shown high test-retest reliability and validity in multiple adolescent samples (Armsden & Greenberg, 1987; Armsden, McCauley, Greenberg, Burke, & Mitchell, 1990; Papini, Roggmann, & Anderson, 1991).

Adaptability and Cohesion—Family adaptability and cohesion were measured from both the parent's and adolescent's perspective using the Family Adaptability and Cohesion Evaluation Scale-II (FACES-II; Olson, Portner, Bell, 1982). FACES-II is a 30-item questionnaire with two subscales: Adaptability and Cohesion. The Adaptability scale measures the family system's ability to change its power structure, relationship roles and rules in response to problems and/or stress. The Cohesion scale measures the emotional bonding the family members have towards one another. Adolescents and parents were asked to rate on a 5-point Likert Scale how much the statements described their immediate family members (1 = "Almost Never" to 5 = "Almost Always"), with higher scores reflecting greater family adaptability and cohesion. Test-retest reliability for the two scales have been reported to be very high in previous research and the internal consistency ranges from moderate to high (Joanning, 1985). While we had no hypothesis of how reporter (self versus parent) might influence outcomes, we did expect self reported scores for Adaptability and Cohesion to be lower as has been reported in previous research comparing children and parents (Blaske, Borduin, Henggeler, Mann, 1989; Sullivan, Judd, Axelson, & Miklowitz, 2012).

Data Analyses

The two groups of adolescents were compared using t-tests for continuous variables and chi-square for categorical variables. The associations among attachment, Adaptability and Cohesion were tested separately by group using Pearson's product moment correlations (two-tailed) and the significance of the difference between adolescent and parent

correlations was tested using Fisher's z' transformation (Fisher, 1915, 1921). To explore the unique association between attachment security, Family Adaptability, Family Cohesion, and suicide attempts, several multiple logistic regression equations were tested. All analyses were conducted in IBM SPSS Statistics version 19.

Results

Demographic Characteristics

Adolescent psychiatric patients with (Attempt, $n = 111$) or without (No Attempt, $n = 125$) a history of suicide attempt(s) were compared on measures of demographic characteristics (Table 2). These adolescents were on average 14 and a half years of age and of average intelligence. The predominant race was White and the majority of the adolescents were of Hispanic ethnicity. The Attempt group was composed of a higher proportion of girls than the No Attempt group. Overall, the average number of psychiatric diagnoses was two (median = 2.00). The Attempt group was more likely to have psychiatric diagnoses of Major Depression and Anxiety Disorder compared to the No Attempt group, while the No Attempt group had a higher proportion with Disruptive Behavior Disorder. There were no significant group differences in age, intelligence, race, ethnicity, or rates of diagnoses of ADHD, Bipolar, Substance Use, Psychotic, or Other Disorders.

Examining the characteristics of the suicidal behavior, the majority (82%) of those in the Attempt group had more than one suicide attempt (Median = 6.00). Many in the Attempt group continued to have ongoing suicide risk: 58% of those reported that they continued to have access to lethal means; 18% had a current plan for a suicide attempt at the time of testing; 20% believed that committing suicide may solve their current problems they were facing; and 22% believed that suicide may be a "good way out" if the quality of their life never changed or were to get worse.

Suicide Attempts, Attachment, Adaptability and Cohesion

Ratings of attachment security, Adaptability, and Cohesion differed by history of suicide attempts (Table 2). When examining specific attachment figures, both maternal and paternal attachment were rated significantly lower by adolescents with a history of suicide attempts than those without. There were no significant group differences in peer attachment and, across both groups, peer attachment was rated significantly higher than either maternal ($t_{228} = 5.92, p < 0.001$) or paternal ($t_{196} = 9.87, p < 0.001$) attachment. When comparing all three types of attachment simultaneously in a logistic regression model, paternal attachment was the only significant predictor of suicide attempt status ($\beta_{\text{Paternal}} = -0.014, p = .01$; $\beta_{\text{Maternal}} = -0.004, p = .53$; $\beta_{\text{Peer}} = -0.003, p = .69$).

There were no significant group differences in parent-rated Adaptability and Cohesion. Across both groups, self-ratings were significantly lower than parent-ratings (Adaptability $t_{232} = 7.73, p < 0.001$; Cohesion $t_{232} = 11.95, p < 0.001$). Self-ratings of Cohesion and Adaptability were also found to be significant predictors of suicide attempt status ($\beta_{\text{Cohesion}} = -0.055, p < .001$; $\beta_{\text{Adaptability}} = -0.037, p = .017$), while parent-ratings were not ($\beta_{\text{Cohesion}} = 0.010, p = .57$; $\beta_{\text{Adaptability}} = 0.013, p = .49$).

Association of Attachment with Adaptability and Cohesion

The magnitude of the associations between attachment, Adaptability, and Cohesion differed by attachment figure, group, and rater (see Table 4). Overall, there were significant correlations between self and parent-reported Adaptability and Cohesion, and all of these variables were correlated with maternal attachment. There were also significant correlations

for paternal attachment with self-reported Adaptability and Cohesion only. There were no significant correlations with peer attachment among the variables of interest.

Comparisons of the magnitude of these correlations by group resulted in the following outcomes: (1) self-rated Adaptability was more robustly related to maternal attachment for the Attempter group than the No Attempt group (z -score = -1.91 , $p = 0.03$); and (2) self-rated Cohesion was more robustly related to paternal attachment for the No Attempt group than the Attempter group (z -score = 1.62 , $p = 0.05$).

The group differences in the associations with Adaptability and Cohesion interacted with rater (i.e. self vs. parent reports of family function). Among the Attempt group: (1) self-rated Adaptability ($z = 2.80$, $p = 0.002$) and Cohesion ($z = 2.27$, $p = 0.01$) were more robustly related to maternal attachment than were the parent-ratings; and (2) paternal attachment was more robustly related to self- rather than parent-rated Adaptability ($z = 1.78$, $p = 0.04$). Among those in the No Attempt group: (1) self-rated Adaptability ($z = 1.78$, $p = 0.04$) and Cohesion ($z = 2.71$, $p = 0.003$) were more robustly related to maternal attachment than were parent-ratings; and (2) paternal attachment was more robustly related to self- rather than parent-rated Cohesion ($z = 1.76$, $p = 0.04$).

Discussion

The purpose of this study was to examine the association of attachment security and family adaptability and cohesion among an adolescent psychiatric inpatient sample with and without histories of suicide attempts. Adolescents with a history of suicide attempts rated themselves as having significantly lower maternal and paternal attachment, as well as lower familial adaptability and cohesion than patients without suicide attempts. Peer attachment and parent's rated family adaptability and cohesion did not differ by history of suicide attempts. When predicting group status, paternal attachment and self-reported Adaptability and Cohesion determined if adolescents fell in the attempt group vs. the non-attempt group.

Attachment theory would suggest that insecure attachment reflects early childhood experiences where the parent is not responsive to the child's needs and/or emotional available. Over time, these experiences could result in feeling socially disconnected and unsupported. These feelings of social disconnection are similar to one of the main risk factors identified in the Interpersonal Theory of Suicide (Joiner, 2005; Van Orden, Witt, Cukrowicz, Braithwaite, Selby, & Joiner, 2010). Feelings of loneliness, lack of reciprocal care from loved ones, and thwarted belongingness according to this theory give rise to a desire to die (Joiner, 2005; Van Orden et al., 2010). "Thwarted belongingness" is a psychological state where the need to feel wanted and connected to others is not met and has typically been measured in terms of how an individual feels about their interactions with others or the frequency/proximity of these interactions (Joiner, 2005; Van Orden et al., 2010). Attachment security is very similar to this concept as it begins with proximity seeking between an infant and caregiver and these interactions set the foundation for how individuals interact and behavior in relationships throughout the lifespan (Ainsworth et al., 1978; Bowlby, 1969, 1980, 1988).

Researchers interested in this relatively recent concept of thwarted belongingness may benefit from exploring attachment theory. For instance, the acute sense of social disconnection described by thwarted belongingness may in fact be a relatively stable "working model" that the individual learned from early experiences and is likely to apply to social relationships now and in the future. This would suggest that insecure attachment is likely to act as an ongoing source of risk for suicide attempts. However, therapies like Attachment-Based Family Therapy (ABFT: Diamond et al., 2010) that treat insecure

attachment hold promise for reducing this risk. ABFT acts to restore more secure attachment by helping families identify their need for greater closeness and improving parenting practices that allow the adolescent to experience trusting prosocial interactions with parents (Shpigel, Diamond, & Diamond, 2012).

Not only do adolescents with suicide attempts endorse insecure parental attachment, they rate their families as less adaptable and cohesive than adolescents without attempts. The flexibility of the family to meet challenges (adaptability) and emotional bonds of the family members (cohesion) were rated as lower by adolescents with attempts and these ratings were significantly related to parental attachment. These outcomes are consistent with previous literature focusing on family functioning in suicidal or depressed samples (Asarnow, 1992; Kashani, Lourdes, Luchene, & Reid, 1998; Kwok, 2011), however past literature has not taken into account attachment security and how it is related to these specific family functioning variables. Literature that has focused on family functioning has primarily concentrated on parental psychopathology, family history of suicidality, and exposure to physical and sexual abuse (Brent, 1995; Fergusson & Lynskey, 1995; Kashani et al., 1998; Wagner, Silverman, & Martin, 2003).

In contrast to adolescent ratings, parent-rated adaptability and cohesion did not differ by suicide attempt status. There are several potential explanations for this difference by rater. Adolescents may be under endorsing adaptability and cohesion or parents may be over endorsing these measures of family functioning (i.e. response bias). Alternatively, both raters may be accurately reporting, but they may differ in their expectations or perspective of family adaptability and cohesion. Whichever is the case, we found that it was the adolescents' perspectives of adaptability and cohesion that were related to suicide attempt history. This is consistent with previous literature that has shown adolescents' perceptions of their family are related to their rates of suicidal ideation, attempts, and overall psychological well-being (Asarnow, 1992; Asarnow et al., 1987; Kashani et al., 1998). Also, in both the family and mental health literatures, researchers have shown that there are discrepancies amongst reporters (parent vs. child or parent vs. observer vs. child) when revealing information concerning family functioning (Feinberg, Neiderhiser, Howe, & Hetherington, 2001) and psychopathology (De Los Reyes & Kazdin, 2005, 2006). Adolescent suicidality may be more related to how the adolescent perceives the family dynamics, than their parents' perspective of these processes.

While insecure parental attachment appears to be related to a history of suicide, the relationship with peer attachment is less clear. We found no difference in adolescent ratings of peer attachment between those with or without suicide attempts, as have two previous studies of suicide attempts in college students and preadolescents (de Jong, 1992; Salzinger et al., 2007). Another study, however, did report peer attachment significantly predicted depressive symptoms and suicidal ideation, but suicide attempts were not reported (DiFilippo & Overholser, 2000).

One reason for the lack of a consistent association of peer attachment with suicide attempts may be due to the quality of the peers themselves and the relationships that the adolescents have with their peers. Adolescents who have friends who have attempted suicide, no matter the relationship quality, are at a higher rate for attempting suicide themselves and that those who have attempted suicide tend to have problems with their peer relationships overall (Evans, Hawton, Rodham, 2004). Peer attachment may be protective when peers promote healthy behaviors but a risk factor if they promote or engage in risky behaviors (Salzinger et al., 2007). Overall, the current reported ratings for peer attachment were lower than in other studies that have explored these variables in control samples (de Jong, 1992; Noom, Dekovic, & Meeus, 1999; Puissant, Gauthier, & Van Oirbeek, 2011), however, the scores

for this sample are within the range reported in the IPPA reference article (16 to 92 for parental attachment and 19 to 82 for peer attachment; Armsden & Greenberg, 1987).

When interpreting these present outcomes, some limitations should be considered. First, this was a cross-sectional, observational study which does not allow for causal inferences to be drawn about the associations among attachment security, family adaptability and cohesion, and suicide attempts or the interactions that may occur over time. Second, this study lacked a healthy control group, who might have had different patterns of attachment, adaptability and cohesion, along with lower rates of suicide attempts. The current study intentionally focus on recruiting an adolescent psychiatric sample in order to obtain a higher base-rate of suicide attempts than has been observed in previous studies exploring the association among these variables (Adam et al., 1996; Fergusson, Woodward, & Horwood, 2000; Maimon & Kuhl, 2008). Third, the measures used in this study were somewhat limited in scope by focusing only on attachment security, and family adaptability and cohesion.

Future research may find it useful to use interview measures of attachment (e.g., The Attachment Interview for Childhood and Adolescence (Ammaniti, van IJzendoorn, Speranza, & Tambelli, 2000) or Adult Attachment Interview (George et al., 1985)) or to use broader self-report measures of attachment that assess avoidance and anxiety (e.g., Experience In Close Relationships Scale (Brennan et al., 1998)) which have been deemed the optimal method for assessing attachment via self-report (Fraley & Waller, 1998). Also, other measures of family functioning, such as familial support and suicide history of parents, would be important to include. Measures that explore exposure to childhood trauma or household dysfunction would also allow for future studies to investigate this association in more detail as it has been reported in previous studies that adverse childhood experiences and household dysfunction have been linked to suicide attempts and other leading causes of death (Adams et al., 1996; Felitti et al., 1998). Since peers are an important part of an adolescent's life (Allen & Land, 1999; Bolger, Patterson, & Kupersmidt, 1998; Gauze, Bukowski, Aquan-Assee, & Sippola, 1996; Wentzel, Barry, & Caldwell, 2004), exploring the peer relationship quality, peers' mental health status, and other aspects of the peer relationship are of interest in developing this line of research.

Given the current outcomes, quality of family attachment and functioning holds promise as an avenue for reducing adolescent suicidal behavior overall. The role of the family in preventing suicidal behavior is important and fostering cohesion, familial support, and attachment security could lead to positive outcomes for children and adolescents struggling with suicidal thoughts and behaviors (Prabhu et al., 2010). There have been recent developments in interventions focusing on strengthening family bonds and attachment relationships (i.e., Attachment-Based Family Therapy, Diamond et al., 2010). These types of interventions hold promise in reducing suicide risk by improving attachment as a protective mechanism.

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Table 1**Studies of Adult and Adolescent Attachment and Suicidal Thoughts or Behaviors**

Studies including adults			
Citation	Attachment Measure	Sample	Outcome
de Jong, 1992	Inventory of Parent and Peer Attachment (Armsden and Greenberg, 1987)	Undergraduates classified as: healthy controls, depressed without history of suicidal thoughts or attempts, and those with a history of significant suicidal ideation and/or attempts ($n = 42$ per group)	Suicidal students had less secure maternal and paternal attachment than controls, but were not different from depressed students.
Grunebaum et al., 2010	Adult Attachment Scale (Simpson, 1990)	Psychiatric patients with unipolar depression ($n = 136$; 15 with prospective suicide attempts)	Avoidant attachment predicted prospective suicidal ideation (3-month) and suicide attempts (12-month).
Lizardi et al., 2011	Adult Attachment Scale (Simpson, 1990)	Unipolar or bipolar depressed adult with ($n = 119$) or without ($n = 135$) history of suicide attempts	More suicide attempters had anxious attachment style compared to non-attempters. Anxious attachment significantly predicted group status even after accounting for social adjustment.
Stepp et al., 2008	Consensus ratings based on psychiatric interview	Psychiatric patients and adults from the community with suicide attempts ($n = 48$), nonsuicidal self-injury ($n = 43$) both of these types of self-harm ($n = 61$) or neither ($n = 254$).	Anxious attachment predicted being in a self-harm group relative to no harm group and interpersonal problems mediated these relationships.
Zeyrek et al., 2009	The Relationship Questionnaire (Bartholomew & Horowitz, 1991)	Students at Middle East Technical University Ankara, Turkey ($n = 180$).	Perceived probability of future suicidal behavior was significantly correlated with less secure and more preoccupied attachment style.
Studies including adolescents			
Adam et al., 1996	Adult Attachment Interview (Main & Goldwyn, 1994)	Adolescent psychiatric patients with ($n = 69$) or without ($n = 64$) a history of significant suicidal ideation and/or attempts.	The predominant attachment pattern of the suicidal group was unresolved-disorganized and preoccupied attachment
DiFilippo & Overholser, 2000	Inventory of Parent and Peer Attachment (Armsden and Greenberg, 1987)	Adolescent psychiatric inpatients ($n = 59$).	Maternal and peer attachment were significant predictors of suicidal ideation.
Lessard & Moretti, 1998	Semi-structured interview based on Bartholomew (1990) framework	Adolescent psychiatric patients with ($n = 68$) or without ($n = 36$) suicidal ideation	Suicide ideators more likely to be classified with predominantly fearful or preoccupied attachment than non-ideators. Suicidal ideation scores correlated with dismissing and fearful attachment styles.
Fergusson, et al., 2000	Inventory of Parent and Peer Attachment (Armsden and Greenberg, 1987)	Adolescents ($n = 965$; 72 with suicide attempts) from the birth cohort in the Christchurch Health and Development Study	Adolescents who reported suicidal ideation or suicide attempts had insecure parent-child attachment. Parental attachment at age 15 predicted suicidal ideation and suicide attempts at 21 years old.
Salzinger, et al., 2007	Inventory of Parent and Peer Attachment (Armsden and Greenberg, 1987)	Preadolescent sample of physically abused schoolchildren ($n = 75$; 15 with suicide attempts) and healthy controls ($n = 75$)	Attachment to parents, but not peers, decreased the risk for suicidal ideation and attempts.

Table 2

Demographic Characteristics of Adolescents with or without Suicide Attempts

Demographic Characteristics	No Attempt Group (n=125)		Attempt Group (n=111)		t	p
	M	SD	M	SD		
Age	14.48	1.69	14.48	1.51	0.12	0.87
Intelligence	91.27	10.91	91.51	11.06	0.16	1.00
	N	%	N	%	X ²	p
Race, White/Non-White	70/55	56/44	71/40	64/36	1.55	0.21
Ethnicity, Hispanic/non-Hispanic	83/39	68/32	80/31	72/28	0.45	0.50
Gender, boys/girls	76/49	61/39	48/63	43/57	7.27	0.007
Psychiatric Diagnostic Category	N	%	N	%	X ²	p
Major Depressive Disorder	31	25	52	47	15.60	<0.001
ADHD ^a	63	50	43	39	1.87	0.17
Disruptive Behavior Disorder ^b	64	51	36	32	6.35	0.01
Anxiety Disorder	12	10	27	24	10.76	0.001
Bipolar Disorder	12	10	8	7	0.26	0.61
Substance Use Disorder	23	18	27	24	1.90	0.17
Psychotic Disorder ^c	9	7	11	10	0.81	0.37
Other Disorder ^d	14	11	14	13	0.27	0.60

^a Attention Deficit/Hyperactive Disorder;^b Disruptive Behavior Disorders include Oppositional Defiant Disorder and Conduct Disorder;^c Psychotic Disorders include Schizophrenia, Schizoaffective Disorder, and Psychotic Disorder NOS;^d Other Disorders include Eating Disorders, Enuresis, Encopresis, Adjustment Disorder, and Tic Disorders

Table 3

Inventory of Parent and Peer Attachment (IPPA) and Family Adaptability and Cohesion Evaluation Scale-II (FACES-II) among Adolescent Patients with and without Suicide Attempts

Variables	No Attempt Group		Attempt Group		<i>t</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Maternal Attachment ¹	89.34	22.54	82.62	23.33	2.23	0.03
Paternal Attachment ²	79.87	24.62	70.67	26.76	2.52	0.01
Peer Attachment ³	97.41	19.66	95.85	16.83	0.65	0.52
Adaptability (adolescent)	26.99	8.31	24.52	9.75	2.10	0.04
Cohesion (adolescent)	33.88	9.83	29.28	9.92	3.57	0.001
Adaptability (parent)	30.88	7.00	30.91	7.90	-0.03	0.98
Cohesion (parent)	40.24	8.82	38.99	8.57	1.09	0.28

¹ n=231 for maternal attachment;

² n = 198 for paternal attachment;

³ n = 232 for peer attachment

Table 4

Correlations of Attachment with Adaptability and Cohesion by Group.

Variables	1	2	3	4	5	6	7
1. Adaptability (adolescent)	-	0.71**	0.23*	0.24**	0.44**	0.42**	0.14
2. Cohesion (adolescent)	0.69**	-	0.29**	0.37**	0.50**	0.43**	0.11
3. Adaptability (parent)	0.31**	0.36**	-	0.60*	0.24**	0.24*	0.05
4. Cohesion (parent)	0.38**	0.48**	0.78**	-	0.20*	0.23*	0.05
5. Maternal Attachment	0.62**	0.64**	0.33**	0.42**	-	0.17	0.17
6. Paternal Attachment	0.34**	0.24*	0.11	0.06	0.17	-	0.04
7. Peer Attachment	0.09	0.04	-0.03	-0.05	0.12	-0.00	-

*
 $p < .05$,**
 $p < .01$.

No Attempt group correlations above and Attempt group correlations below the vertex