Attachment and Suicidality in Adolescents: An Exploration of Mediators and Moderators

DISSERTATION

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By

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ABSTRACT

Suicide among adolescents is an important public health problem in the United States and the world. Adolescents who have attempted or completed suicide experience a number of risk factors including parental psychopathology, depression, and anxiety. One potential critical risk factor, however - insecure attachment - has been surprisingly underexplored in the literature despite the fact that attachment is central to understanding close relationships and relationship difficulties often precipitate suicidality. Attachment security is formed in infancy and is dependent upon the quality of parent/caregiver-child relationship. The quality of these relationships influence the individual’s development of internal working models of relationships. These models serve to regulate, interpret, and predict behaviors, thoughts, and feelings about the self and others across multiple relationships. Individuals with secure attachments demonstrate better functioning in a number of domains, particularly in close relationships.

This research explored the association between adolescent attachment security and suicidality and possible mediators and moderators using data from a case-control study of 80 adolescents, half of whom had attempted suicide in the past year. The mediators that were examined included affective lability (emotional instability) and locus of control (sense of control) while the moderators explored included religiosity and family alliance (familial closeness).
It was expected that controls would be lower on attachment anxiety and avoidance, higher on religiosity and family alliance, lower on affective lability, and report a greater internal locus of control. Furthermore, it was hypothesized that affective lability and locus of control would mediate the association between attachment security and suicidality, such that adolescents with insecure attachment would report greater affective lability and external locus of control, which in turn would predict suicidality. Finally, it was expected that the association between insecurity and suicidality would be moderated (weakened) by high religiosity and high family alliance.

Compared to controls, adolescent suicide attempters were higher on depressive symptoms, \( t(78) = 2.28, p < .05 \), higher on attachment avoidance, \( t(78) = 3.21, p < .05 \), and attachment anxiety, \( t(78) = 2.61, p < .05 \), lower on family alliance, \( t(78) = -3.20, p < .05 \), and had lower levels of religiosity, \( t(78) = -2.41, p < .05 \). For the mediation analysis, no significant indirect effects for either of the proposed mediators were found. For the moderation analysis, an interaction between attachment avoidance and religiosity approached significance \((p < .10)\). It was found that adolescents with moderate to higher levels of religiosity and high attachment avoidance were more likely to be in the attempter group.

The mediation and moderation analyses did not confirm the hypotheses proposed, but attachment avoidance and religiosity did show a trend toward significance and attachment avoidance continued to predict group even after controlling for depressive symptoms. It may be important to explore the concepts of cognitive dissonance and identity formation to gain a better understanding of this interaction. In conclusion, it may
be wise to include depression, attachment security, and religiosity questions on screeners to be used in pediatric and/or family doctor settings in order to prevent suicidality in the adolescent population.
Dedication

This document is dedicated to my husband, grandmother, and dear friends who have stuck with me throughout all of my 9 years of schooling. Without your prayers and love, I know achieving this goal would not have been possible. In addition, I would like to dedicate this dissertation to my mother. Thank you for teaching me that with hard work and dedication, you can reach your goals! I will always love and remember you dearly.

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CHAPTER 1
INTRODUCTION

Suicide is a public health problem here in the United States as well as around the world (Mann et al., 2005; Sourander et al., 2009; World Health Organization [WHO], 2002). In the United States, suicide is the third leading cause of death among older adolescents only to be surpassed by motor vehicle accidents and homicide (Center for Disease Control and Prevention [CDC], 2008; Gould, Greenberg, Velting, & Shaffer, 2003). In the past decades, the rate of suicide among individuals 20 years old or younger has shown a steady decline, but between 2003 and 2004 an increase of 18% occurred representing the largest single year increase in over 15 years for this age group (Bridge, Greenhouse, Weldon, Campo, & Kelleher, 2008). In 2002, suicide claimed the lives of 877,000 individuals around the world (Mann et al., 2005), and in 2006, 1,771 suicides occurred among youth ages 10 to 19 years old in the U.S. (Center for Disease Control and Prevention [CDC], 2007). In 2007, about 15% of adolescents who were in high school reported that they had thoughts of suicide (suicidal ideation) and about 7% indicated that they had attempted suicide within the past year (Eaton et al., 2008).

Gender and age differences do exist when examining adolescent suicide. Older adolescents between 15 to 19 years old have a higher rate of completed suicide than younger adolescents, and boys are more likely to complete suicide than girls. Boys in the
15 to 19 year old age group have a suicide rate 6 times higher than girls in the same age range (Shain, 2007); however, girls are two times more likely to attempt suicide compared to boys and have more suicidal ideation (for a review, see Bridge, Goldstein, & Brent, 2006; Cash & Bridge, 2009).

In the U.S., the rates of completed and attempted suicide are the highest among Native American males and the lowest among African American females (Shaffer, Gould, & Hicks, 1994; Shain, 2007). In the past, White adolescents have had higher rates of completion compared to non-Whites, but this is changing due to the increased rate of suicide among African American males (Bridge, Barbe, & Brent, 2005; Gould et al., 2003). Hispanic adolescents in the U.S. show higher rates of suicide attempts and ideation, but do not show a larger number of completions compared to their Non-Hispanic counterparts (Demetriades et al., 1998; Eaton et al., 2008).

One possible factor that may play a role in an adolescent’s experience with suicidal thoughts, feelings, and behavior is their attachment security. Attachment theory posits that early experiences with caretakers translate into internal representations of relationships that may influence many, if not all, 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 (Bowlby, 1969, 1980, 1988; Bretherton & Munholland, 1999; Cassidy, 2008).
Bowlby (1980) believed that suicidal behavior involved attachment issues surrounding a deceased or neglectful parent. He posited that attempted suicide might be an act of signaling attention from a living, negligent caregiver or an act of penalizing the caregiver for the harm that they have caused the child or adolescent. Therefore, suicidal behavior is viewed as a type of insecure attachment behavior (Wagner, Silverman, & Martin, 2003).

The purpose of this dissertation research was to explore the association between adolescent suicidality and attachment security. This research also explored possible mediators and moderators of the association. The mediators that were explored are affective lability, or mood dysregulation, and locus of control, while the moderators explored were religiosity and family alliance. To date, limited research on attachment security and suicidality among adolescents exists. This research provided an opportunity to address the limitations of the current literature as well as to generate important information relevant to the prevention of suicidality in adolescence.

Specifically, the aims of this dissertation research included: 1) to compare adolescent attempters and controls on attachment anxiety and avoidance, locus of control, affective lability, family alliance, and religiosity, 2) to explore if locus of control and/or affective lability are possible mediators of the association between attachment security and suicidality (Figure 1), and finally, 3) to explore if religiosity and/or family alliance are possible moderators of the association (Figure 2).
Adolescent suicidality

Adolescents who have attempted or completed suicide do so for a number of reasons. The American Academy of Child and Adolescent Psychiatry [AACAP] (2008) states that adolescents may turn to suicide because they are experiencing strong feelings of stress, confusion, self-doubt, pressure to succeed, or others that become too much to handle. The life circumstances adolescents may be experiencing at the time of considering suicide include parental divorce, the formation of a new family with step-siblings and parents, moving to a new community, dysfunctional romantic relationships, the death of a parent by suicide, feeling detached from parents, and much more (Bostik & Everall, 2006; Emanuele, 2009; Kuramoto, Brent, & Wilcox, 2009).

Life circumstances are not the only reasons adolescents attempt suicide. There are also psychological, familial, environmental, and social risk factors adolescents possess or encounter that make them more vulnerable (Baker & Fortune, 2008; Beautrais, Joyce, & Mulder, 1998; Brent et al., 1988; Gould et al., 1998; Klomke et al., 2009; Ryan, Huebner, Diaz, & Sanchez, 2009). In the psychological domain, adolescents who have a psychiatric disorder are more likely to complete or attempt suicide than teens that do not
(Beautrais et al., 1998; Gould et al., 1998). Approximately 80 to 90% of adolescents who complete or attempt suicide have a psychiatric disorder. The most common ailments include mood, anxiety, conduct, and substance abuse disorders (Allebeck & Allgulander, 1990; Brent, 1993; Esposito-Smythers & Spirito, 2004).

In many studies, adolescent suicide and depression have shown an association to each other and depression has been revealed to be the main predictor of suicidal ideation (Brent, 1993; Melhem et al., 2007; Nrugham, Larsson, & Sund, 2008). Approximately 60% of adolescents who have completed suicide suffered from depression at the time of their death (Brent, 1993; Brent, Baugher, Bridge, Chen, & Chiappetta, 1999; Shaffer et al., 1996). Also, adolescents who suffer from Major Depressive Disorder (MDD) are more likely to experience suicidal ideation and to attempt suicide multiple times before young adulthood. Eventually, some will complete suicide (Herba, Ferdinand, van der Ende, & Verhulst, 2007; Kerr, 2008; Reinherz, Tanner, Berger, Beardslee, & Fitzmaurice, 2006).

In some studies, anxiety disorders have also been associated with suicidal behavior (Boden, Fergusson, & Horwood, 2007). In an article written by Borden et al. (2007), the authors state that there has been much debate on how anxiety disorders (i.e., specifically phobia, generalized anxiety disorder, and panic disorders) and suicidal behavior are related. Some studies have found that individuals who suffer from such disorders have an increased risk of experiencing suicidal behavior whereas others have not found a link. In the authors’ research study, they reported the results from a 25-year
longitudinal study that specifically addressed relations between anxiety disorders and suicidal behavior in youth (Boden et al., 2007).

The data used were from the Christchurch Health and Development Study, which is a study of 1,265 children born in mid-1977 in New Zealand (Boden et al., 2007). When the participants were 18, 21, and 25 years old they completed the Composite International Diagnostic Interview (WHO, 1993), which evaluated anxiety disorders. Also at these ages, the participants’ suicidal ideation and behavior were evaluated for prior years; 18 year olds recalled suicidality between 16 and 18 years of age, 21 year olds from 18 to 21 years of age, and 25 year olds from 21 to 25 years of age (Boden et al., 2007). Each participant was asked if they had thought about killing themselves and if so how many times, if they had attempted to kill themselves and if so what method was used, when, and what was the outcome of the attempt. The authors also assessed major depression, substance dependence, conduct or antisocial personality disorder, stressful life events experienced, and employment.

The authors found that in all cases of anxiety disorders there was an increased risk of suicidal ideation and attempts (Boden et al., 2007). Once the authors adjusted for confounding factors (i.e., co-occurring disorders), individuals with anxiety disorders had odds 2.8 times greater for suicidal ideation and 1.9 times greater for suicide attempts compared to individuals without an anxiety disorder (Boden et al., 2007). The authors also found that individuals who had multiple anxiety disorders experienced more pronounced suicidal ideation and behavior than those that did not.
Other risk factors that have been associated with adolescent suicide and fall into the psychological domain include: impulsive aggression, inability to regulate mood, low self-esteem, hopelessness, perfectionism, and previous suicidal behavior (Brent & Mann, 2006; for a review, see Bridge et al., 2006). Impulsive aggression, which is defined as acting toward frustration or irritation with hostility or aggression, has been associated with suicidal behavior and, in some studies, plays a role as a predisposing element (Apter et al., 1995; Beutrais, Joyce, & Mulder, 1999). On many occasions, adolescent suicide attempts have been associated with little, if any, planning. This indicates that many teens who attempt suicide act on impulse, consistent with the notion that impulsive aggression is a key correlate of adolescent suicide (Brent, 1987; Gunnell, Murray, & Hawton, 2000).

Low self-esteem has been associated with current and future adolescent attempts, but the effect is decreased when depression and hopelessness are controlled for in statistical analyses (Fergusson & Lynskey, 1995; Lewinsohn, Rohde, & Seeley, 1994; Overholser, Adams, Lehnert, & Brinkman, 1995). This result also occurs with hopelessness and perfectionism. High levels of hopelessness and perfectionism, especially the adolescent’s perception that others have unrealistic and high expectations of them, have both been associated with suicidality, but after statistically controlling for depression, the effects of these variables are decreased (Goldston et al., 2001; Lewinsohn et al., 1994; Spirito, Overholser, & Hart, 1991).

Adolescents who have attempted or completed suicide also experience risk factors associated with their families. Some of the risk factors include: parental psychopathology, parental suicide history or completed suicide, child abuse experienced
in the family, and attachment (Bostik & Everall, 2006; Brent & Mann, 2006; Nrugham et al., 2008; Stepp et al., 2008; Wright, Briggs, & Behringer, 2005).

Parental psychopathology, especially depression, substance abuse, and antisocial behaviors, have been connected to an increase in suicidality for the next generation (Brent, 1995; Fergusson & Lynskey, 1995; Gould, Fisher, Parides, Flory, & Shaffer, 1996). Parental psychopathology is associated with an increased risk even when adolescent psychopathology is controlled for in statistical analyses (Gould et al., 1996). This finding, however, has not been established in all studies that include this variable so more studies must be done until a final conclusion can be made (for a review, see Bridge et al., 2006).

Parental history of suicidality is also considered to be a significant risk factor for adolescent suicide (Brent & Melhem, 2008; Melhem et al., 2007). In a study conducted by Melhem et al. (2007), 365 children/adolescents of parents who did and did not have a history of suicide were evaluated. The results revealed that adolescents who had attempted suicide were more likely to have a parent that had attempted themselves.

Other studies have found similar results. One study found 22% of their sample of adolescents seen at an emergency room after attempting suicide had at least one family member who had also struggled with suicidal behavior (Tishler, McKenry, & Morgan, 1981). And, more specifically, Pfeffer, Normandin, and Kakuma (1994) found that 50% of the adolescents in their sample, who were all attempters, had mothers who reported a history of suicide attempts themselves. In a review written by Kuramoto et al. (2009), nine recent articles were examined that explored the impact of parental completed suicide
on adolescent suicidality and psychosocial functioning. Of the articles reviewed, three specifically examined suicidal behavior and two of the three found that the experience of parental completed suicide increased the risk that the offspring would experience suicidality as well.

Parental time of death and which parent completed the suicidal act made a difference as well in these research studies (Kuramoto et al., 2009). If the parent completed suicide before the child was 11 years old, the adolescent was at a greater risk for attempting suicide compared to those who lost their parent at a later age. Also, if the adolescent experienced the loss of a mother they were more at risk compared to those who lost a father. Overall, research has indicated that having a first-degree relative who attempted suicide increases the risk of the adolescent attempting him/herself (Hawton, Haw, Houston, & Townsend, 2002; Mann et al., 2005).

In recent years, twin and adoption studies have indicated that there may also be a genetic component to suicidal behavior and that this phenotype could be independently transferred regardless of the presence of a psychiatric disorder (Brent & Mann, 2006). The one study that has shown the strongest evidence for the presence of a genetic factor for suicide was an adoption study conducted by Schulsinger, Ketty, Rosenthal, and Wender (1979) in Denmark. In this study, the authors compared suicide rates among the biological and adoptive relatives of adoptees who committed suicide. The authors found a significantly higher rate of suicide among the biological relatives compared to the adopted relatives and this was regardless of whether the adoptee had a psychiatric disorder (Schulsinge et al., 1979).
In twin studies, higher concordance rates of suicide and suicidal behavior have been shown in monozygotic twins when compared to dizygotic twins. On average, the concordance rate for completed suicide for monozygotic is 14.9% versus 0.7% for dizygotic (Roy & Segal, 2001). In addition, higher concordance rates have been found for suicide attempts among monozygotic twins (Roy, Segal, & Sarchiapone, 1995). In a very large study conducted in Australia, having a monozygotic twin who had attempted suicide indicated a 17.5 increased risk of a suicide attempt for the twin sibling (Statham et al., 1998).

A devastating occurrence children or adolescents may experience that has been strongly associated with attempted and completed suicide is physical and/or sexual abuse (for a review, see Bridge et al., 2006; Cash & Bridge, 2009). In a case-control study, researchers explored how physical abuse in childhood related to adolescent suicidality (Salzinger, Rosario, Feldman, & Ng-Mak, 2007). The sample consisted of 100 children who experienced physical abuse and 100 children who did not. The children were matched on age, gender, race, ethnicity, and socioeconomic status. The children were first enrolled when they were in preadolescence and follow-ups took place when the children were in middle and late adolescence. Of those that originally were interviewed in preadolescence, 153 participated in both follow-ups (Salzinger et al., 2007).

The authors used the New York City Child Maltreatment Register (Stockhammer, Salzinger, Feldman, & Mojia, 2001) to verify physical abuse, and based their assessment of suicidal ideation and attempts on the Youth Risk Behavior Survey (Garrison, McKeown, Valois, & Vincent, 1993). The authors also assessed adolescents’ conflicts
with parents, parental and peer attachment, loneliness, problem behaviors, and stressful life events experienced (Salzinger et al., 2007). The authors found that preadolescent physical abuse was an independent risk factor for adolescent suicidal behavior (Salzinger et al., 2007).

Some other risk factors that have been indicated in the literature to be associated with an increased risk of suicidality in adolescence are: sleep disturbances, living with one biological parent, delinquency, being bullied or bullying others, engaging in sexual intercourse, alcohol and drug use, and insecure attachment styles (Adcock, Nagy, & Simpson, 1991; Brent & Bridge, 2007; Goldstein, Bridge, & Brent, 2008; Klomek et al., 2009). Also indicated in the literature are a number of protective factors that have been shown to decrease the adolescent’s potential to experience suicidality. These include: religiosity, family closeness, proficient problem solving skills, physical activity, peer support, access to clinical care, and low levels of depression and hopelessness (Borowsky, Ireland, & Resnick, 2001; CDC, 2008; O’Donnell, O’Donnell, Wardlaw, & Stueve, 2004; Suicide Prevention Resource Center [SPRC], 2001; Taliaferro, Rienzo, Pigg, Miller, & Dodd, 2009).

**Attachment Security and Suicidality**

*Attachment Theory*

Differences in the early bonds between caretakers and infants lead to the formation of different attachment styles and behaviors. Each style of attachment has its
own unique strategies for dealing with stressful life circumstances (Bowlby, 1969). The first observational technique that was used to observe attachment behaviors and classify children into different categories was created by Mary Ainsworth and is called the Strange Situation (Ainsworth, Blehar, Waters, & Wall, 1978). In this method, caregivers and children experience a number of separations and reunions with and without strangers present and the child’s reactions to these separations and reunions indicate what attachment strategy the child uses in relation to their primary caregiver (Ainsworth et al., 1978). The three attachment categories Ainsworth identified are: secure, anxious/ambivalent, and avoidant (Ainsworth, Bell, & Stayton, 1972; Ainsworth et al., 1978).

In the Strange Situation, securely attached children may or may not cry when the caregiver leaves the child with the stranger. But, as soon as the caregiver comes back to the room, the child shows behaviors that promote proximity such as crawling to the caregiver and lifting their arms up to be picked up (Ainsworth et al., 1972, 1978; Waters et al., 2000; Weinfield, Whaley, & Egeland, 2004).

Children who are classified as having an avoidant attachment tend to show little concern during the Strange Situation when the caregiver is in the room, leaves the room, or comes back. They are more likely than children in the other classifications to avoid their caregivers and continue to play with the toys in the room when the caregiver is present or when the caregiver comes back from a separation. In other words, these children usually do not seek contact or proximity (Ainsworth et al., 1972, 1978; Waters et al., 2000; Weinfield et al., 2004).
Finally, children who are classified as anxious/ambivalent often refuse to explore the toys in the room and stay in very close proximity to their caregiver. When the caregiver leaves, the child may cry uncontrollably and cannot be comforted by the stranger. When the caregiver does come back, the child still cannot be fully comforted by the caregiver and may show resistant behavior (i.e., hit the caregiver) even though s/he wants to be held. These children’s strategies are ambivalent; the child seems not to know what exactly he/she wants from the caregiver and seems angry that the caregiver left (Ainsworth et al., 1972, 1978; Waters et al, 2000; Weinfield et al., 2004).

In recent years, another category of infant attachment was discovered and labeled disorganized/disoriented (Main & Hesse, 1990; Main & Solomon, 1990). Disorganized/disoriented attachment is thought to occur as a result of frightening parental/caregiver behaviors. These behaviors include maltreatment, abuse, or fear-provoking behavior towards the child (Main & Hesse, 1990; Main & Solomon, 1990). The behaviors that are displayed by the parent are thought to be associated with traumatic experiences that occurred in the parent/caregiver’s past. During the reunion of the Strange Situation, children in this category exhibit conflicting and confusing behaviors such as freezing. These behaviors indicate that the child does not have the proper mechanisms necessary to cope with the situation. The child is unable to respond in an “organized way to manage stressors” (Long, 2009, p. 98). Children with different attachment styles have different techniques for managing the separations and reunions that occur in the Strange Situation, but overall, secure children seem to adapt best to the changes (Long, 2009; Stayton & Ainsworth, 1973).
In his work, Bowlby (1982, 1988) stated that attachment in infancy affected later relationships in life and with this concept in mind, Hazan and Shaver (1987) applied attachment to romantic relationships in adulthood. In their research, Hazan and Shaver (1987) found that romantic love could be explained by attachment and yields the same three original classifications as infant attachment (secure, avoidant, anxious/ambivalent). They learned that individuals who were classified as secure found it easy to be in romantic relationships, were comfortable depending on other people, and did not worry about being abandoned by others. Avoidant individuals were not comfortable being close to others, found it hard to trust other people, and their partners wanted them closer than what they were comfortable with (Hazan & Shaver, 1987). And finally, anxious/ambivalent individuals worried a lot about abandonment, felt they always had to verify that their partners loved them, and “want[ed] to merge completely” with their partners (Hazan & Shaver, 1987, p. 515).

After Hazan and Shaver’s (1987) seminal work on romantic attachment, researchers began to gain more interest in this area. Bartholomew and Horowitz (1991) extended Hazan and Shaver’s (1987) research by expanding upon the categories to include the perception of self and perception of other. Bartholomew and Horowitz (1991) believed individuals could see themselves and others in either a positive or negative light. These two dimensions form four quadrants where an adult’s romantic attachment style could lie. If individuals see themselves and others in a positive light, they are classified as secure. If they see themselves and others in a negative light, they are classified as fearful. If they see themselves as negative but others as positive, they are classified as
preoccupied. And finally, if they see themselves as positive but others as negative, they are classified as dismissing (Bartholomew & Horowitz, 1991). Each romantic attachment style has characteristics and strategies that help individuals cope with romantic relationships, but the characteristics and strategies of individuals with a secure style are more adaptive for relationships (Bartholomew & Horowitz, 1991).

More recently, the work of Fraley and Waller (1998) has suggested that attachment is best measured dimensionally rather than categorically. In particular, adult attachment seems to be best represented by two dimensions – avoidance and anxiety. Individuals high on avoidance devalue interpersonal relationships and value their independence, whereas individuals high on anxiety are preoccupied with their relationships and worry that their partners will reject them (Brennan, Clark, & Shaver, 1998). Low levels of both avoidance and anxiety are indicative of greater attachment security.

Attachment and Adolescence

In the adolescence chapter of the Handbook of Attachment: Theory, Research, and Clinical Application, Allen and Land (1999) briefly discussed the transfer of attachment and the change in the hierarchy of attachment that occurs during the adolescent developmental period. In infancy, parents or primary caregivers are at the top of the hierarchy, but as individuals progress through adolescence, their attachment needs are increasingly satisfied by peers (Allen & Land, 1999).
The first step of this transference is proposed to occur in early adolescence, when individuals begin to depend a tremendous amount on their peers and attachment needs are now being met by these peers rather than by caregivers (Allen & Land, 1999). Eventually, the sexual system is engaged and along with the attachment system, moves adolescents into new peer relationships that involve intensity, intimacy, shared interests, and emotions. These relationships are thought to take over the attachment functions of parent-child relationships. However, prior attachment experiences with parents are not lost, but shape the nature of the adolescent’s developing romantic relationships, with insecure attachments being linked to less functional behaviors in romantic relationships overall (Allen & Land, 1999).

However, the links between infant attachment, adolescent attachment, and adult attachment are not necessarily straightforward. Allen and Manning (2007) pointed out that researchers who have examined attachment longitudinally have found mixed results. Some have found that attachment in infancy is associated with attachment in adolescence (Waters et al., 2000), whereas others have found no association whatsoever, but have identified significant life experiences that can account for the discontinuity (Weinfield, Sroufe, & Egeland, 2000). Allen and Manning (2007) suggest that these inconsistencies provide evidence that attachment security in adolescents is not a “direct translation of prior infant attachment relationships” (p. 25). Some have also posited that the attachment system in adolescence evolves to be more complex involving not only attachment behavior, but broadens to include the affective domain as well. Learning how to regulate
affect through social situations can influence an adolescent’s attachment security and this regulation becomes a pivotal task in this developmental stage (Allen & Manning, 2007).

Regardless of the developmental changes that may be taking place in attachment during the adolescent period, there is little doubt that attachment is influential with respect to adolescent adjustment. Recently, studies that have examined adolescent attachment have done so by exploring the association attachment representations have with a multitude of different variables. Some of these variables include subjective well-being (Yang, Wang, Li, Teng, & Ren, 2008), depression (Allen, Porter, McFarland, McElhaney, & Marsh, 2007), and suicidality (de Jong, 1992).

Attachment and Suicidality

The association between attachment and suicidality was explored in this study because research has shown that one of the reasons why adolescents have attempted suicide is a conflict with a parent/caregiver or a breakup with a boyfriend or girlfriend (Shain, 2007; Gould et al., 1996). As Bowlby (1982, 1988) stated, working models of attachment that are formed in infancy affect later relationships in life and if adolescents have an insecure attachment, they may be more at risk and more prone to deal with such stressors in a negative way.

One study that has explored the association between attachment and suicidality in an adult population did so with adults being treated for a major depressive episode at a research clinic (Grunebaum et al., 2009). All participants were assessed three times: once at baseline, three months later, and finally a year later. At the one-year follow-up, the
authors found that avoidant attachment predicted a higher risk for a suicide attempt, whereas anxious attachment did not show an association with the likelihood of a suicide attempt (Grunebaum et al., 2009). When exploring suicidal ideation, avoidant attachment predicted this behavior at the three-month follow-up, but did not do so at the one-year follow-up. Anxious attachment did not predict ideation at either time point. Other studies that have explored attachment in adults in relation to suicidality have found similar results; secure individuals have lower levels of suicidal behavior than individuals with insecure attachment styles (de Jong, 1992; Zeyrek, Gençöz, Bergman, & Lester, 2009).

A study that examined attachment security and suicidality in adolescents was conducted by Adam, Sheldon-Keller and West (1996). Their sample consisted of 69 adolescents who had a history of suicidal behavior and 64 controls. They assessed attachment security by using the Adult Attachment Interview (George, Kaplan, & Main, 1984). Several classifications of attachment security are revealed by using the Adult Attachment Interview. These classifications include: secure/autonomous, which is considered to be the most adaptive classification of attachment, dismissing, which corresponds to the avoidant category in infant attachment, preoccupied, which corresponds to the anxious/ambivalent category in infant attachment, and finally unresolved/disorganized, which tends to correspond with disorganized/disoriented infant attachment (van IJzendoorn, 1995).

The results of the study revealed that those individuals who did have suicidal behaviors were more likely to be classified as unresolved/disorganized. Adolescents who
had an attachment status of both unresolved and preoccupied were more likely to be in the suicidal group compared to those with other attachment statuses (Adam et al., 1996).

In another article, the authors examined the association between attachment and suicidal ideation in an adolescent psychiatric inpatient population (DiFilippo & Overholser, 2000). The attachment measure used was the Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987) and this measure assesses attachment to mothers, fathers, and to peers. The authors found that attachment to mothers accounted for a large portion of the variance in the level of suicidal ideation. Adolescents with secure attachments were less likely to experience high levels of suicidal ideation. Peer attachment, on the other hand, was found to be associated with suicidal ideation, but only for girls (i.e., secure peer attachments were associated with lower suicidal ideation). The authors concluded that the attachment an adolescent has with their mother may play a role in how often an adolescent experiences suicidal thoughts or feelings (DiFilippo & Overholser, 2000).

Another study that explored attachment and suicidality in an adolescent sample did so in a sample from a mental health facility (Lessard & Moretti, 1998). The authors used a psychological intake interview (Bartholomew, 1990) to assess attachment security and used the Youth Self Report of Ontario Child Health Study Scales (Offord et al., 1987) and the Beck Depression Inventory (BDI; Beck et al., 1961) to assess suicidal ideation. The authors found that adolescents who expressed suicidal ideation were classified as either fearful or preoccupied using Bartholomew and Horowitz’s (1991) model. Adolescents who did not endorse suicidal ideation were more likely to be
classified as dismissing or secure. Specifically, adolescents who were classified as fearful were 6.5 times more likely to endorse suicidal ideation when compared to secure or dismissing youth, whereas preoccupied adolescents were 3.8 times more likely to endorse these thoughts or feelings. Comparisons of adolescents who were categorized as preoccupied to those classified as fearful yielded no significant differences in terms of suicidal ideation (Lessard & Moretti, 1998).

The authors explained that the dismissing individuals – though insecure - did not experience suicidal ideation as much as the preoccupied and fearful youth, because unlike them, the dismissing adolescent has a positive sense of self. The negative sense of self that the preoccupied and fearful adolescents have can lead to feelings of despair and thoughts of being unworthy of love. These thoughts and feelings could eventually lead to an adolescent thinking about suicide - and unfortunately, thinking it may be the only way out (Lessard & Moretti, 1998).

A final article explored the association between physical abuse, suicidality, and attachment in a preadolescent population of 200 children with 100 of the children having experienced physical abuse during their childhood. The authors found that preadolescents who had secure attachments with their parents had a decreased risk of suicidality no matter what group they belonged to. Attachment security in this study seemed to play an important role in reducing the risk for suicidal behavior (Salzinger et al., 2007).

Some other studies that have explored the association between attachment in adolescents and suicidality have found similar findings, whereas others have found no connection at all. For instance, one study found that having a strong attachment with
one’s parents lead to a 21% decrease in the risk for suicidal behavior (Maimon & Kuhl, 2008) and other research indicated that securely attached individuals were less likely to have suicidal thoughts and behaviors (Buelow, Schreiber, & Range, 2000; Wright et al., 2005). However, a study that looked at familial, peer, and individual factors found no association between attachment to parents (measured using the IPPA) and suicidal behavior (Nrugham, Larson, & Sund, 2008).

Although the studies that have explored the association between attachment and suicidality in adolescents are all very informative, differences in the results have occurred. These differences could have occurred for a number of reasons. First, a number of the samples that were used to explore the association between attachment and suicidality were composed of adolescents from inpatient or mental health facilities. The current study explored this association in a sample that may be more generalizable to the adolescent population as a whole as the adolescents came from a number of community outpatient mental health clinics rather than the inpatient population or a single location.

Another reason why results may differ among these studies is the measurement used to capture attachment security. Some authors have chosen to use the categorical, self-report method (Lessard & Moretti, 1998), some have used the categorical, interview method (Adam, Sheldon-Keller, & West, 1996), whereas others have used a self-report measure to assess attachment security that includes items tapping attachment to parents and peers (i.e., IPPA; DiFilippo & Overholser, 2000; Nrugham, Larson, & Sund, 2008). In the present study, attachment security will be measured dimensionally, which is now
accepted as the best self-report method to capture attachment in adolescent and adult samples (Fraley & Waller, 1998).

The measure that was used in this study is the Experiences in Close Relationships Scale (ECR; Brennan et al., 1998). This measure has been used in numerous studies since its creation and has shown high reliability (i.e., Cronbach’s alphas at or above .90), and high test-retest coefficients as well (between .50 and .75; Brennan et al., 1998). The ECR also captures other attachment relationships that other measures do not. The ECR asks the adolescent to think about how they feel in close relationships that include those with romantic partners, close friends, and relatives. The previous measures mentioned above tend to focus primarily on attachment with mothers or fathers. As noted by Allen and Land (1999), the attachment hierarchy is changing and relationships with friends and romantic partners may play an important role in shaping attachment security and behaviors in adolescence (Allen & Land, 1999; Hazan & Shaver, 1987). To my knowledge, the present study was the first to use the ECR, a more general assessment of working models of adolescent attachment, to test relations between attachment and suicidality.

Mediators of the association between attachment and suicidality

Locus of Control

Locus of control is a concept that encompasses how individuals feel about the outcomes and reinforcements they have experienced in their lives (Rotter, 1971). There
are two types of locus of control - one being internal and the other external. Individuals who are high on internal locus of control usually believe that the outcomes and reinforcements they receive are from their own abilities and actions, and are mostly under their control (Pearce & Martin, 1993; Rotter, 1971). In contrast, individuals who are high on external locus of control usually believe that the outcomes they experience are not caused by themselves, but actually are attributed to luck, fate, or “powerful others” (Pearce & Martin, 1993, p. 409).

The relationship between locus of control and suicidality has been explored for many years and this research has yielded some interesting results. Researchers have found that those high on external locus of control are more likely to be at risk for suicidal behavior (Beautrais et al., 1999; Evans, Owens, & Marsh, 2005; Pearce & Martin, 1993). In one study, conducted by Pearce and Martin (1993), the authors explored how locus of control related to suicidal behavior among adolescents. The sample consisted of 200 males and 205 females all who attended high school in South Australia. The adolescents completed measures concerning locus of control, having thoughts or feelings about suicide, having a plan for a suicide attempt, deliberate self-harm, and attempting suicide.

After the questionnaires were completed, the authors took the locus of control scores and divided them at the 50th percentile. The adolescents who scored in the lower half were categorized as having an internal locus of control and those who scored in the upper half were categorized as having an external locus of control orientation (Pearce & Martin, 1993). The authors found that those adolescents who were classified as having an external locus of control orientation were two times more likely to report having thoughts
and feelings about suicide and two times more likely to have a plan for a suicide attempt. Also, the results showed that individuals with an external locus of control were six times more likely to report participating in deliberate self-harm (i.e., cutting) and five times more likely to have made a suicide attempt. The authors concluded that adolescents with an external locus of control were more likely to participate in suicidal behaviors and that locus of control could be a variable used for early detection of at-risk youth (Pearce & Martin, 1993).

Another article that explored locus of control and adolescent suicide attempts did so in three groups: those that had attempted suicide and were residing on an inpatient unit, those that had not attempted suicide but resided on the inpatient unit, and those who had not attempted suicide and did not reside on the unit (Topol & Reznikoff, 1982). The authors found that the locus of control measure that they used only discriminated between patients who had attempted suicide and those individuals classified as true controls (did not reside on the unit and had not attempted). In particular, they found that those who had attempted suicide had higher external locus of control compared to the true controls that had higher internal locus of control orientations (Topol & Reznikoff, 1982). They also found that individuals who were higher on external locus of control were also higher in hopelessness, which has been shown to be associated with suicide attempts in adolescents (Beautrais et al., 1999).

Other research has corroborated these findings with external locus of control being directly associated with suicidal behavior in adolescents, young adults, and adult populations (Beautrais et al., 1999; Evans et al., 2005; Lauer, de Man, Marquez, & Ades,
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However, an important question remains – how do individuals develop an external vs. internal locus of control? Yang and Clum (1996) discussed a model describing the mediating role of locus of control in the association between early life experiences and the risk for suicidal behavior. The authors believed early negative life events could lead to suicidal behaviors directly and indirectly through cognitive factors such as external locus of control, low self-esteem, and hopelessness. In essence, their model stated that early negative life events lead to cognitive shortfalls, which then lead to suicidal behavior (Yang & Clum, 1996). However, there are very few studies that have explored locus of control as a mediator of this association (Wright, Borrill, Teers, & Cassidy, 2006).

Attachment theory provides one way of thinking about how negative early events could affect cognitive functioning (Belsky & Pascon Fearon, 2002; Lynch & Cicchetti, 1998). However, research on the association between attachment and locus of control is very limited to date. One article that explored this association did so using data from the National Comorbidity Survey (NCS; Kessler, et al., 1994; Mickelson, Kessler, & Shaver, 1997). The NCS surveyed individuals face-to-face in their homes all around the United States. The individuals surveyed were between the ages of 15 and 54 and the final sample size consisted of 8,098 people. The survey was designed to examine the prevalence and correlates of psychiatric disorders around the US.

From this study, the authors found that individuals classified as insecure, either avoidant or anxious, had lower self-esteem, were rated higher on external locus of control, and rated lower on openness to new experiences. Individuals who were classified
as secure on the other hand were higher on internal locus of control (Mickelson et al., 1997).

Another article that explored the connection between attachment and locus of control did so in imprisoned child sex offenders in Ireland (Marsa et al., 2004). The authors found a strong distinction between the secure and the fearful groups. The fearful group showed higher rates of external locus of control whereas the secure group showed more internal locus of control. Individuals classified as either dismissing or preoccupied showed very similar results to secure individuals; high internal locus of control.

Given the hypothesized links between attachment security and locus of control, and between locus of control and suicidality, the current study explored the mediating role of locus of control among the association between attachment security and suicidal behavior in an adolescent sample. Most of the previous research that has been done has explored the direct association of locus of control and suicidality, and the studies that have explored relations between attachment and locus of control are very limited.

**Affective Lability**

Another variable that may be important for understanding relations between attachment and suicidality is affective lability. Affective lability is defined as “the tendency to experience emotions that quickly fluctuate both in intensity and valence” (Anestis et al., 2009, p. 260). Affective lability has been associated with a number of maladaptive behaviors and disorders including affect dysregulation, bulimia nervosa, impaired decision-making skills, borderline personality disorder, impulsivity and
aggression, substance use and abuse, and suicidal behavior (Anestis et al., 2009; Esposito, Spirito, Boergers, & Donaldson, 2003; Gerson et al., 1996; Jollant et al., 2005; Trull et al., 2008; Wills, Walker, Mendoza, & Ainette, 2006). Unfortunately, existing studies that have explored the association between affective lability and suicidality among adolescents are limited.

In one study conducted by Zlotnick, Donaldson, Spirito, and Pearlstein (1997), the association of affect regulation, which is related to affective lability, and suicide attempts was examined in adolescents who presented at an inpatient treatment unit for care. Of the 62 adolescents that participated in this study, 37 were suicide attempters whereas 25 had thoughts or feelings about suicide (ideators). From their analyses, they found that individuals who had attempted suicide had higher affective dysregulation when compared to adolescents classified as ideators. Those adolescents who had a history of multiple suicide attempts experienced greater affective dysregulation than those who did not have a history. Overall, the authors concluded that attempters may have a reduced ability to manage their internal states and that an attempt may represent a mechanism to reduce these painful emotional experiences (Zlotnick et al., 1997).

Another article that focused on affective dysregulation and adolescent suicidality explored the differences between individuals who had attempted suicide one time versus individuals who had attempted suicide multiple times (Esposito et al., 2003). The authors noted that much of the research that has been conducted on affect and adolescent suicide is limited and often shows inconsistencies. In order to clarify the literature, the authors recruited a large sample of adolescents who were seen at a hospital directly after a suicide
attempt had occurred. Seventy-four of the adolescents reported that the current suicide attempt was the only attempt they had experienced while 47 of the adolescents had a history of at least one prior suicide attempt.

The adolescents who had a history of multiple suicide attempts (MA) were significantly higher on affect dysregulation compared to those who were in the single attempt group (SA). Also, after controlling for depressive symptoms and mood disorder diagnoses, this result still held strong; affective dysregulation was higher in those in the MA group compared to the SA group. The authors concluded that stressful life events may be more likely to be associated with suicidal behavior if vulnerabilities, such as high affect dysregulation, in the affective system are present (Esposito et al., 2003).

The final article that will be discussed observed decision-making in suicide attempters (Jollant et al., 2005). This study did not focus on adolescents, but did specifically explore affective lability and its relationship to decision-making. The authors classified the participants into four groups. One group consisted of controls who did not have any suicidal behavior, another consisted of individuals with mood disorders but no suicidal behavior, and the last two groups had a history of suicide attempts that were either violent (i.e., gunshot wounds) or nonviolent (i.e., drug overdose). The authors found that suicide attempters who had lower affective lability scores possessed better decision-making skills when compared to those with higher scores. The authors concluded that emotional dysregulation in some suicide attempters may lead to poorer decision-making even when they do not have a current diagnosis of an affective disorder (Jollant et al., 2005).
Although affective lability and suicidality appear to be related, the literature does not explain the origins of individual differences in affective lability. The attachment system has been understood as a relational emotion regulation system. Individuals regulate their proximity to a responsive caregiver and this allows them to manage feelings of concern, need, distress, anxiety, or fear (Guttman-Steinmetz & Crowell, 2006). It also has been hypothesized that not only do attachment experiences during infancy influence emotion regulation, they also affect how our brains organize and process emotional experiences. Children who experience rejection from their parents when experiencing distress tend to minimize the meaning of emotions and tend to be classified as avoidant. Having this diminished association with emotions can eventually lead to maladaptive relationships later in life (Guttman-Steinmetz & Crowell, 2006).

Children who are classified as anxious/ambivalent or anxious/resistant, on the other hand, experience inconsistencies in their primary caregiver’s responses to their emotions. In order to gain some sort of response from their caregiver, the child tends to express extreme levels of emotions. Again, if this strategy is consistently present in relationships in the future, it could become problematic (Guttman-Steinmetz & Crowell, 2006).

To date, limited research has explored the associations between affective lability, suicidality, and attachment securtiy. Because of the theory linking attachment and affective lability and research linking affective lability and suicidality (Allen & Manning, 2007; Guttman-Steinmetz & Crowell, 2006), the current study explored whether affective
lability plays a mediating role in the association between attachment security and suicidality.

**Moderators of the association between attachment and suicidality**

*Religiosity*

The relationship between religiosity, spirituality, and mental health has been well established for over 40 years, but historically this relationship has been controversial (Gearing & Lizardi, 2009). In an article written by Koenig (2009), the author states that the relationship between religion and mental health was once believed to be so strong that the first mental health hospitals established were organized by priests. However, in the late 19th century, religiosity and spirituality were believed to be related to hysteria, and those concerned with mental health eliminated religion from their practice altogether. Recently, another shift has occurred and mental health practitioners again believe that religiosity and spirituality play a role in psychological well-being. Now, individuals who want to practice psychiatry are required to take courses that explore religion and mental health in order to gain a better understanding of how religiosity and spirituality can influence mental health (Koenig, 2009).

Mixed results have been revealed concerning the investigation of religion/spirituality and mental health (Rew & Wong, 2006; Wong, Rew, & Slaikeu, 2006). In Koenig’s review article (2009), the relationship between three mental health variables (depression, anxiety, and suicidality) and religiosity and spirituality was
investigated. With respect to depression, the results revealed that being involved with religious organizations helped individuals cope with stressful life events and health problems, which in turn could help lower depression in certain, but not all, populations. One population in which the association between depression and religion was not typical was among adolescent parents. Even though they attended religious services frequently, adolescent parents scored higher on measures of depression (Koenig, 2009).

When the review article explored anxiety, similar findings existed as for depression (Koenig, 2009). In particular, religion appeared to influence coping strategies in individuals, which in turn helped reduce anxiety symptoms. Again, this finding did not hold for all populations, as one study found that women who felt abandoned by their community of faith or felt that God was punishing them with their current condition had a higher rate of anxiety even with a high rate of spirituality (Koenig, 2009).

Suicidality was another mental health variable explored and of the 68 studies that were reviewed, 57 found fewer suicide attempts, completions, and more negative attitudes toward suicide among individuals who were more religious, whereas the other studies found either mixed results or no relationship at all (Koenig, 2009). Koenig (2009) stated that recent research has shown that religious doctrine that is against suicide, the meaning derived from religious beliefs, and having a supportive, caring community may be relevant factors related to the relationship between religiosity/spirituality and suicidality.

In another review article by Wong et al. (2006), the authors explored spirituality and religion in the adolescent population and found that adolescents who put more
importance on religion and prayer were more likely to have higher self-esteem and lower involvement in risky behaviors (i.e., alcohol use). In fact, 18 of the 20 articles that were reviewed found positive associations between mental health and religiosity/spirituality among adolescents. Specifically, adolescents who had higher attendance at religious services, participated in bible study groups, and held concepts of spirituality that are not religious in nature had better mental health compared to others. The authors conclude that the social and behavioral aspects of religiosity and spirituality may be more important to adolescents considering that many changes are occurring in their lives all at the same time and religious institutions “provide a sense of order and belonging” (Wong et al., 2006, p.176).

Another review examined the association between religion and the well-being of adolescents in articles written between 1990 and 1995 (Donahue & Benson, 1995). The areas of well-being studied included prosocial values and behaviors, suicide, self-esteem, sexuality, substance abuse, and others. The literature that specifically reviewed the association between suicide and religion found that the relationship between suicide and religious orientation and commitment was more important than being a member of a specific denomination. When the authors explored their own dataset, they found that attendance and religious activity were both negatively related to suicide, but the correlations were small (Donahue & Benson, 1995).

Other studies that have explored relations between religiosity and suicidality among adolescents have yielded similar findings. One article explored the public and private domains of religiosity and how these domains related to emotional distress and
suicide in the National Longitudinal Study of Adolescent Health (Nonnemaker, McNeely, & Blum, 2003). The authors defined the public domain of religiosity as the amount of time adolescents attended religious services and participated in special activities at religious institutions. The private domain, however, was defined as how important the adolescents believed religion was to them and how often they prayed.

Overall, the authors found that high scores on public religiosity were associated with lower levels of emotional distress, but were not associated with suicidality, whereas private religiosity was negatively associated with suicidal ideation and suicide attempts (Nonnemaker et al., 2003). The authors believed the differences between the domains exist because public religiosity possibly increases the adolescent’s opportunities for social support, but private religiosity is more involved in increasing self-esteem and gives adolescents a sense of self-efficacy, which may be more important in preventing suicidality.

Another article explored the association between suicidal ideation and spirituality in college students (Taliaferro et al., 2009). The authors found that high spiritual well-being, religious well-being, and existential well-being were all negatively associated with suicidal ideation. Also, the authors found that attendance at religious services made a difference - individuals who attended 6 or more times during the past 30 days had lower levels of depression and hopelessness, higher levels of social support, and lower levels of suicidal ideation (Taliaferro et al., 2009).

Finally, a study that explored perceived risk of suicide in both African American and White adolescents explored how orthodoxy, the acceptance of traditional beliefs and
doctrines, intrinsic religiosity, and extrinsic religiosity related to perceived risk of suicide (Greening & Stoppelbein, 2002). After their analyses, orthodoxy was the only religious variable that was related significantly to perceived risk when controlling for other factors such as depression. Orthodoxy, which they defined as believing in religious doctrines that prohibited suicidal acts, was shown in this sample to be very powerful and appeared to lower the adolescents’ perceptions of their risk for suicide (Greening & Stoppelbein, 2002).

Religiosity and spirituality may also play a moderating role when it comes to mental health and well-being. In an article that explored the relationship between depression and physical health in middle and late adulthood, found that religiousness did serve as a moderator between these two variables (Wink, Dillon, & Larsen, 2005). Specifically, in late adulthood individuals who were high on religiousness and had poor physical health were observed to have low levels of depression whereas those with low religiousness and poor physical health were observed to have the highest rates of depression (Wink et al., 2005).

Another article that explored religiosity as a moderator did so in a different context; women’s work and their well-being (Noor, 2008). The results revealed that for younger women, high religiosity buffered the negative relationship between work experience and distress, but this did not occur for older women. The author also explored the relationship between work experience, life satisfaction, and religiosity and found that for younger women religion did protect them from the negative effects of limited work experience on life satisfaction. For older women, on the other hand, religiosity interacted
with work experience such that religiosity only was associated with life satisfaction for women with higher amounts of work experience (Noor, 2008).

All of these studies provide much evidence that religiosity and spirituality should be taken into consideration when exploring the association between attachment and suicidality in the adolescent population. As can be seen, religiosity and spirituality may have both direct and indirect links with mental health, suicidality, and overall well-being. Unfortunately, the moderating effect of religiosity has not been explored in an adolescent population nor has much research been dedicated to religiosity and attachment security. In the current study, religiosity was explored as a moderator of the association between attachment security and suicidality in an adolescent population. It may be possible that the buffering effect religiosity has shown in other research studies (Noor, 2008; Wink et al., 2005) could also be present with this population as well.

**Familial Characteristics**

Another possible moderator that may play a role in the association between attachment security and suicidality is familial characteristics. The direct and indirect associations between familial characteristics and adolescent suicidality have been explored in many research studies. In a review article written by Wagner et al (2003), research studies that explored family communication and problem solving, scapegoating, and attachment to caregivers in youth who have completed suicide, attempted suicide, and had thoughts or feelings about suicide were examined. The results of the 15 research studies that investigated family communication and problem solving found that the
parent-child relationships of adolescents with suicidal symptoms were characterized by poor communication and high conflict (Wagner et al., 2003).

Scapegoating, as defined by the authors refers to parents that “convey messages that one child must bear the burden of blame for the family’s problems” (Wagner et al., 2003, p. 1172). In other words, the child who was the scapegoat experienced more negative treatment and coldness from their parents than other children experienced. In terms of suicidal behavior, adolescents who perceived their relationship with their parents as harsh and less warm were more likely to report higher suicidal ideation compared to their siblings. Also, suicidal adolescents are more likely to be unwanted by their parents and perceived themselves as a burden to their families (Wagner et al., 2003).

Another review article that explored risk factors for adolescent suicide and suicidal behavior found very similar results (Brent, 1995). Family discord, dysfunction, low adaptability and support have all been associated with risk for suicidal behavior. Low support and family disorganization were related to suicidality even after controlling for other variables with known associations with suicide risk (Brent, 1995).

A final article written by Randell, Wang, Herting, and Eggert (2006) explored the direct association between adolescent suicidality risk and family characteristics found similar results as well. The authors specifically explored this association in 1,083 adolescents described as potential high school dropouts by their school districts. The adolescents who participated were divided into 4 groups pertaining to their suicide risk. One group contained adolescents with no suicide risk, another with low risk, another with moderate risk, and the last group was the high-risk group. Adolescents who were grouped
in the lower levels of suicide risk perceived their family support to be high, experienced a high level of availability from their parents when they felt depressed, and had a high level of satisfaction with the support given (Randell et al., 2006).

The articles above suggest that familial characteristics can be directly associated with suicidal behavior in adolescents, but the question still remains if familial characteristics can serve as a moderator - mitigating or exacerbating the links between other risk factors and suicidality. In an article written by Luster and Small (1997), the authors tried to address this question by exploring how parental support and monitoring moderate the association between sexual abuse and problem behaviors in adolescents.

Data for this research, were drawn from a subsample of adolescents from a larger dataset that included 42,568 adolescents enrolled in seventh through twelfth grade. The subsample was composed of 3,241 adolescents who indicated they were experiencing sexual abuse or had a history of sexual abuse. Adolescents in this subsample who experienced high parental monitoring and high parental support had a decreased risk for problematic behavior even when the abuse was currently occurring. The authors concluded that families might play an important role in promoting positive outcomes for adolescents who have experienced sexual abuse (Luster & Small, 1997).

Another article written by Sharaf, Thompson, and Walsh (2009) examined the protective effect that family support may have on suicidal behaviors among adolescents. The authors hypothesized that high family support would strengthen the effect of self-esteem on suicidal behaviors whereas low family support would weaken the association. After analyzing the data, the authors found that family support moderated the association
between self-esteem and suicidal behavior. Because the evidence for moderation existed, the authors tested their hypotheses concerning low vs. high family support. Contrary to their hypothesis, the authors discovered that the effect of self-esteem on diminishing suicidal behavior was strongest among adolescents from the low family support group – not the high family support group. In explaining the contradictory finding, the authors explored the work of Frankl (2006).

Adolescents with unreliable family support tend to form an increased reliance on themselves. With this reliance, the teens learn to solve their problems and approach situations with different alternatives that could potentially provide protective power against suicidal behavior. The reliance and confidence the adolescent has in him/herself serves as a resiliency factor (Frankl, 2006). Sharaf et al. (2009) concluded their article by stating that the interaction between self-esteem and family support is extremely important and should be taken into consideration when exploring adolescent suicidality (Sharaf et al., 2009). Because family characteristics have only been shown as a moderator in limited studies concerning adolescent suicidality, this research will focus on how family alliance may or may not act as a moderator among the association between adolescent suicide and attachment.

**Study aims and hypotheses**

1. Compare adolescent attempters and controls on attachment anxiety and avoidance, locus of control, affective lability, family alliance, and religiosity.
It was hypothesized that controls would have lower rates of avoidance and anxiety, more internal locus of control, lower affective lability, higher rates of religiosity, and higher family alliance when compared to suicide attempters.

2. Explore if locus of control and/or affective lability mediate the association between attachment security and suicidality (Figure 1).

It was hypothesized that the association between attachment security (avoidance and anxiety) and suicidality would be mediated by the adolescent’s locus of control and/or level of affective lability.

3. Explore if religiosity and/or family alliance moderate the association between attachment security and suicidality (Figure 2).

It was also hypothesized that religiosity and family alliance would act as moderators of the association between attachment security (avoidance, anxiety) and suicidality. In essence, it was expected that high levels of religiosity and/or family alliance would act as a buffer or protective factor for individuals higher on attachment anxiety and/or avoidance.
CHAPTER 3

METHOD

Participants and Procedures

The data utilized for this dissertation research came from a pilot study entitled: Laboratory and Psychometric Measures of Impulsivity and Aggression in Adolescents with and without a History of Suicidal Behavior (IAMS). This pilot study had a case-control design and was conducted at Nationwide Children’s Hospital in the Center for Innovation in Pediatric Practice. The total sample size consisted of 40 adolescents who had attempted suicide within the past year and 40 adolescents who had no suicidal behavior. Instruments measuring factors that may increase the risk of a suicide attempt or protect against suicidal behavior were administered to the adolescents and their parents.

Purpose of the IAMS Study

The purpose of the IAMS study was to investigate if differences existed on impulsivity and aggression when comparing adolescents with a recent history of suicidal behavior and those with no suicidal behavior. Impulsivity and aggression were measured through self-report measures as well as laboratory behavior measures. Using both laboratory and self-report measures of impulsivity and aggression to compare adolescent
suicide attempters and non-suicidal controls made this study unique, as the majority of studies exploring this topic rely on self-report measures (Gorlyn, 2005).

The specific aims of the IAMS study were:

1) To compare levels of impulsivity, aggression, and impulsive aggression in suicide attempters and controls using a variety of laboratory and self-report measures. Information was also collected on key risk and protective factors to examine the independent and interactive effects of impulsive aggression on suicidal behavior.

2) To test whether impulsive aggression is associated with characteristics of the suicide attempt (e.g., degree of medical injury resulting from the attempt, degree of planning, suicidal intent, hopelessness, motivation for the attempt).

**Participant Recruitment and Screening**

All adolescents and their parents/legal guardians were recruited from the Community Behavioral Health System at Nationwide Children’s Hospital. The sites of recruitment included: four Close to Home Clinics around the city (East, East Central, Dublin, and Westerville), one school-based service program, one intake call center for Community Behavioral Health, one multi-systemic therapy (MST) program, which assists children and adolescents involved with the court systems, one community support program (CSP) that facilitates the care of children and adolescents not involved with the
courts, and the Center for Child and Family Advocacy (CCFA), which assists families in which violence or child abuse has been detected.

The parents/legal guardians of adolescents between 13 and 18 years old visiting these sites were asked to complete a form that asked four questions about their adolescent’s suicidal behavior and thoughts. The first question inquired if the adolescent had ever had any thoughts about killing him/herself, the second asked if these thoughts occurred in the past six months, the third asked if the adolescent ever tried to kill him/herself, and the final question asked if the attempt occurred in the past year.

Parents/legal guardians who called the intake office to schedule their initial appointment were also asked these questions over the phone and the intake staff filled in the answers on the forms.

The form then asked the parent/legal guardian if they would like the research staff to contact them about a research opportunity. The parent/legal guardian agreed or disagreed, and the completed forms were placed in a folder and picked up by the research team at least once a week from all sites. Those that agreed to be contacted were called by the research staff within a week’s time for screening.

An additional method that the research staff used to recruit adolescents was to contact families who had already participated in other studies conducted by the lab and had agreed to participate in future research. Participants in other studies were asked at their final appointment if they would like the research staff to contact them about a different research opportunity. This inquiry was only made if the family had agreed to be contacted for future research on the consent forms during their baseline appointment. If
the family agreed, the family was contacted, informed about the IAMS study, screened for eligibility, and scheduled for a research appointment if they agreed to participate.

Both controls and adolescent attempters were recruited using these methods of recruitment. Those recruited from the outpatient clinics were screened as a control if the parent/legal guardian answered “no” to all four questions on the referral sheet. To be screened as an attempter, the parent/legal guardian must have answered “yes” to at least the third and fourth questions. Participants recruited from other studies were all classified as suicide attempters as the study that they were recruited from focused only on this type of group.

When the parents/legal guardians were reached on the phone, they were told about the study and further screened for eligibility. Adolescents who were eligible to participate in the IAMS study were between 13 and 18 years old, were in the custody of the person listed on the referral form, were able to comply with the interview procedures, were able to speak English, and did not have a history of mental retardation or an IQ lower than 70. An eligible control did not have any current or past suicidal behavior or thoughts while an eligible attempter had a suicide attempt within the past year with implicit (i.e., knew the method would kill them and wanted to die, but will not admit to a suicide attempt) or explicit (i.e., knew the method would kill them, wanted to die, and state it was an attempt) intent to die. Adolescents who had participated in self-destructive behavior that was purely self-mutilatory (i.e., self-cutting) were not included in the suicide attempt group. Controls and attempters were matched on age (+ or – one year),
race, and gender. For this dissertation research, eligibility was the same as for the IAMS study.

Assessment

Participants and parents/legal guardians were interviewed by the research staff and completed self-report measures during their four-hour research appointment conducted at Nationwide Children's Hospital. All interviews were scheduled at times that were suitable for participants and families (i.e., after school, after work, on weekends) in order to minimize negative impact on other important work, school, or social activities.

At the beginning of the research appointment, the parent/legal guardian and adolescent participated in the informed consent/assent process. At this time, the study was explained to the parent/legal guardian and adolescent, time was allowed for them to ask questions of the research staff, and signatures were obtained so consent/assent was documented and participation could occur.

Once consent and assent were obtained, the general information form was completed by both the parent/legal guardian and adolescent. This form was used to obtain demographic information and additional information concerning living arrangements, income, and insurance. After the general information form was completed, the parent/legal guardian was escorted to another room to complete self-report measures about themselves and their adolescent while the adolescent was interviewed by the research staff in the original room. The interview captured exposure to suicide, suicide history and intent, suicidal ideation, medication use, mental health services received, and more.
When the interview with the adolescent was completed, the parent/legal guardian and adolescent switched places such that the adolescent completed self-report measures and the parent/legal guardian was interviewed by the research staff. As soon as the adolescent completed all of the self-report measures, they began the laboratory behavioral tasks.

The laboratory behavioral tasks are computerized tasks that assessed impulsivity, aggression, and impulsive aggression in the adolescent. The tasks took about two hours to complete. During this time the parents/legal guardians were allowed to relax in the waiting area or were escorted to another room dedicated to parents who have children being seen in the hospital. Once the computerized tasks were completed, the adolescent and parent were thanked and compensated for their time. Dependent upon how the adolescents performed on the computerized tasks, they could earn between $30.00 and $40.00 for participating in the IAMS study. Parents/legal guardians earned $20.00 in cash, a token for parking, and a $20.00 gas card for traveling expenses for participating. The parent/legal guardian and adolescent only completed one research appointment with the research staff.

Crisis Intervention

If the adolescent expressed thoughts or feelings of hurting themselves during the interview, the interview was stopped and the Crisis Team was contacted via telephone. The Crisis Team is a team of licensed clinicians who work for Nationwide Children’s Hospital and are on-call at all times in case a crisis, such as suicidal ideation, occurs.
Before contacting the Crisis Team, the parent/legal guardian is informed of the situation and taken to the room where the adolescent is seated to act as a watchful eye. The research staff then contacts the Crisis Team, lets them know about the situation at hand, and then the adolescent talks to the clinician over the phone. The clinician then talks to the parent while the research staff sits with the adolescent in the other room.

Once the parent/legal guardian has completed their conversation with the clinician, the research staff member speaks with the clinician to determine if the research appointment can continue or not. If the clinician believes it is OK to continue, the research staff will ask the family if they would like to go on. If they agree, the appointment continues. If the clinician states that the appointment should be stopped, the research staff thanks the family, asks them if they would like to be contacted in the near future to finish their appointment, compensates the family for their time, and finally, follows the clinician’s instructions (i.e., take family to emergency room) for further care.

When appointments are stopped due to a crisis, families are contacted in a week’s time to see if they would like to come back to Nationwide Children’s Hospital to finish their appointment. If they agree, an appointment is arranged for a time that is convenient for them. If they disagree, the family is thanked for their time.

During the course of the IAMS study, three adolescents were found to be in crisis and the appointments had to stop. All of the teens and parents had contact with the Crisis Team. One came back at a later date to complete the study appointment, one did not want to continue after they had contact with the Crisis Team, and the last adolescent made plans to come back, but then later called to state she did not want to do so. The two teens
that did not complete the appointments were categorized as eligible, but did not complete their appointments.

**Recruitment Rate**

Overall, 1,744 referrals were collected from all of the recruitment sites for the IAMS study. Of those, 169 of the referrals were deemed an attempter. Of those, 64 attempters disagreed to be contacted and 105 agreed to be contacted. Of those that agreed to be contacted, 20 were deemed ineligible and 85 were eligible.

Of the 85 eligible participants, 11 were unable to be reached after multiple attempts to contact, 15 were recruited after the recruitment goals were reached, and 59 were scheduled for an appointment with the research staff. Of the 59 who were scheduled, 16 were no shows or cancelled their appointments, and three completed the appointment, but were subsequently deemed ineligible. This yielded a final sample of 40 attempters that completed the study and were eligible. The overall recruitment rate for the IAMS study for eligible attempters was 57.14% (those that completed appointments / (eligible and agreed to be contacted – 15 that were recruited after recruitment goal met).

For the controls, a pool of 296 individuals agreed to be contacted and were deemed eligible to participate in a research study with the Bridge Lab. Of those individuals in the pool, 51 adolescents participated in the IAMS study as they matched the attempters on the demographic characteristics (+ or – 1 year in age, gender, and race). Of the 51, nine individuals did not show up for their appointment or cancelled their appointment and two of the controls were deemed ineligible. The overall recruitment rate
for the controls was 78.43% (those that completed their appointment and were eligible/those who scheduled for an appointment and were deemed an eligible control).

**My role in the IAMS study**

My role on the IAMS study has changed throughout the study’s existence. In the beginning of the study, I spoke with Dr. Bridge and asked him if he would be willing to explore attachment security in the attempters and controls that were recruited for the study. I knew this was not the emphasis of the study, but thought it would be an opportunity for future publications and my dissertation research. Dr. Bridge allowed me to incorporate the measure in the study and from there the IRB application was written.

At the time the IRB application was approved, the Bridge lab included one other team member and me. Because of our size, I played a significant role in picking up referrals from recruitment sites, screening families for eligibility, scheduling appointments, conducting the interviews and running laboratory behavioral tasks, and training others on the study procedures. After time had passed, the lab grew and because of my vested interest I decided it would be best to change my role on the study from project coordinator to research associate. In order to remain unbiased, I stopped collecting data approximately one year ago.

During this past year, I have reviewed the data collected from the appointments before it is entered into the database and still remained available to conduct appointments when absolutely necessary. I was also occasionally on call when appointments were conducted over the weekends when other research team members were not available.
Sample Demographics

The whole sample consisted of 20 males and 60 females. Approximately 73% of the whole sample considered themselves White and 26% considered themselves African American. Most adolescents lived with both of their natural parents (32.5%) while the other large portion of the sample lived with their natural mother only (30%). The average age of the adolescents was 15.55 years old with a standard deviation of 1.31. In terms of income, approximately 48% of the sample came from families with an annual income between $15,000 and $50,000 before taxes. For a table of these statistics, please see Table 1.

Measures

For this dissertation research, measures of impulsivity, aggression, and impulsive aggression were not used, and because of this, these laboratory behavioral measures will not be discussed in detail. Measures specific to attachment security, suicidality, and the proposed mediators and moderators are described below. Copies of all measures used for this study are presented in Appendix B, except the BDI-FS due to publishing restrictions.

Experiences in Close Relationships Scale (ECR). This 36-item scale was used to measure the attachment styles of the adolescents in this study. The scale contains two dimensions, anxiety and avoidance, and each consists of 18 items. Respondents used a 7-point Likert scale (1 = disagree strongly to 7 = agree strongly) to rate items concerning how they generally feel in close relationships. Examples from the ECR include: “I prefer not to show others how I feel deep down” (avoidance) and “I worry a fair amount about
losing my close relationship partners” (anxiety; Brennan et al., 1998). This measure has been used in numerous studies since its creation and has shown high reliability (i.e., Cronbach’s alphas at or above .90), and high test-retest coefficients as well (between .50 and .75; Brennan et al., 1998). For this study, the Cronbach’s alpha for the avoidance dimension was .88 and the anxiety dimension had a Cronbach’s alpha of .91. The dimensional scores were used for analysis by taking the mean of the items comprising each dimension (after reverse scoring some items). Lower scores on both dimensions indicate a more secure-like attachment style.

Group. As described above, adolescents were either classified as attempters or controls. Adolescents were classified as attempters if they had attempted suicide within the past year. Controls were those adolescents who had no suicidal behavior. For the group variable, individuals were coded a “1” if they were an attempter and a “0” if they were a control.

Mediators

Locus of Control – Short Version (LOC-SV). This 6-item scale was used to assess the adolescent’s locus of control. The scale was created by including three external and three internal locus of control items from the Rotter Locus of Control Scale (1966). An example of an item that represents external locus of control is: “Many of the unhappy things in people’s lives are partly due to bad luck” and an example that represents internal locus of control is: “When I make plans, I am almost certain that I can make them work.” The adolescents rated each statement on a 5-point Likert scale from 0 =
strongly disagree to 4 = strongly agree. The three internal items are reverse scored and higher scores on the whole scale indicate that adolescents are more externally oriented. The Cronbach’s alpha for this scale is .68 (Lumpkin, 1985). For this study specifically, however, the Cronbach’s alpha was .41. A summary score on this measure was created for each adolescent by averaging their responses to the items.

Children’s Affective Lability Scale (CALS-P). This 20-item scale was used to assess the parent's perception of the degree of affective lability (i.e., emotional reactivity) in the adolescent participants. The scale consists of two factors: angry/depressed and disinhibited/impersistent. The parent or legal guardian was asked to decide on the frequency of certain mood changes over the previous month. Examples from the CALS-P include: “Suddenly starts to cry for little or no apparent reason, more so than other children his/her age” (angry/depressed) and “Has bursts of being overly affectionate for little reason, hugging or kissing people more than you would expect” (disinhibited/impersistent; Gerson et al., 1996). The parent or guardian rated the frequency of these behaviors on a 5-point Likert scale (0 = never or rarely occurs to 4 = one or more times a day). Cronbach’s alpha in a normative sample for the angry/depressed factor was found to be .91 and for the disinhibited/impersistent factor .85 (Gerson et al., 1996).

For this study, the Cronbach’s alpha for the angry/depressed factor was .93 and for the disinhibited/impersistent factor it was .85. A summary score on each scale was created for each adolescent by averaging their parent/guardian’s responses to the relevant items. Subsequent analyses revealed that the angry/depressed factor was positively and
strongly correlated with the disinhibited/impersistent factor \((r = .81, p < .01)\). Because the factors of the CALS-P were so highly correlated the items were combined and a mean score was computed for each adolescent to represent overall affective lability.

**Moderators**

*Religious Orientation Questionnaire (ROQ-A).* This 3-item measure inquired about the adolescent’s religious beliefs, attendance of religious services, and spirituality and was created by Dr. Bridge and myself for the present study. The first question asked the adolescent to rate how important religion was in their life from \(1 = \text{not at all important}\) to \(4 = \text{extremely important}\). The second question, which was scored \(1 = \text{never}\) to \(5 = \text{more than once a week}\), asked the adolescent how many times they attended religious services, and the final question, which was scored \(0 = \text{don’t know}\) to \(4 = \text{often}\), asked how often they sought comfort through religious or spiritual means (i.e., praying or meditation) when they faced problems in their lives. The Cronbach’s alpha for this questionnaire was \(.79\). Items were standardized and then averaged to create the mean score for religiosity. Higher mean scores indicated that the adolescent considered him/herself more religious, attended religious services more frequently, and used spiritual means when facing problems.

*Reasons for Living Inventory for Adolescents (RFL-A).* This inventory is a 32-item measure that assessed reasons why some adolescents choose not to commit suicide. The measure required the adolescent to rate how important each reason was to them for not committing suicide. The inventory has five factors and for this study the factor that
was used is the family alliance factor. The family alliance factor consists of seven items rated 1 = not at all important to 6 = extremely important. Examples include: “Whenever I have a problem, I can turn to my family for support or advice” or “I feel emotionally close to my family” (Osman et al., 1998). Cronbach’s alpha for the entire measure ranged from .82 to .93 in a sample of high schoolers, .89 to .91 for adolescents in a psychiatric unit for other reasons not related to a suicide attempt, and .91 to 93 for adolescents who were in the psychiatric unit for a suicide attempt (Osman et al., 1998). For this study, the Cronbach’s alpha was .94. Average scores across the items were used for analyses.

Control Variables

Beck Depression Inventory – FastScreen for Medical Patients (BDI-FS). This measure was derived from the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) to quickly assess depressive symptoms in individuals in the medical setting. Using the BDI-II in the medical setting created false positives because some of the symptoms associated with medical illnesses could also be associated with depression (i.e., tiredness for diabetics). In order to reduce the false positives that were occurring with the BDI-II, Beck and his colleagues (2000) created the BDI-FS to be used to assess depression symptoms in patients with diagnosed medical or substance abuse problems.

The correlation between the BDI-FS and the BDI-II for both an outpatient population and college student population was a .91 (p < .001). The Cronbach’s alphas for the BDI-FS are high in many types of populations. For family practice patients, Cronbach’s alpha was .85, for internal medicine it was .85, for pediatric patients it was
.88, and for individuals who were hospitalized for medical problems but then referred to a psychiatric consult the Cronbach’s alpha was .86. For this study, the Cronbach’s alpha was .84.

The measure has 7 items and for each item there are four choices that can be selected ranging from zero (low symptom severity) to three (high symptom severity). In this study, adolescents were asked to think about the past 2 weeks and pick the statement that best described the way they had been feeling. An example an item on the measure is: “0 – I do not feel like a failure; 1 – I have failed more than I should have; 2 – as I look back, I see a lot of failures; 3 – I feel I am a total failure as a person” (Beck, Steer, & Brown, 2000). All adolescents were assigned a total score by summing all of the items together. The scores ranged from zero to 21. Total scores from zero to three indicated minimal depression symptoms, four to eight indicated mild depression symptoms, nine to 12 moderate depression symptoms, and 13 to 21 severe depression symptoms. Given that the seventh item concerned suicide risk, it was not included in the total BDI-FS score in the present study. This measure is not included in Appendix B due to publisher restrictions.

Screen for Child Anxiety and Related Emotional Disorders (SCARED) – Short Form. This measure is a 5-item scale that was derived from the original SCARED (Birmaher et al., 1997) that is used to assess anxiety disorders in children and adolescents. After conducting a factor analysis on the original scale’s 41-items, the 5-item measure was created by selecting the items with the highest loading on each of the five factors (Birmaher et al., 1999). The five factors represent the five different types of
anxiety disorders that are measured, which are: school anxiety, social anxiety, generalized anxiety, separation anxiety, and panic/somatic anxiety.

Birmaher et al. (1997) found that the reliability and validity of the 5-item SCARED was very similar to the 41-item SCARED on both the parent and child forms. It is recommended that the 5-item SCARED be used when a large amount of information is being collected from the participants. The authors stated that the 5-item measure can help to alleviate the burden on participants yet still allow the researcher to collect valuable information concerning anxiety disorders (Birmaher et al., 1999).

For each item, the adolescent was asked to read the statement and decide if the statement was 0 “not true or hardly ever true,” 1 “somewhat true or sometimes true,” or 2 “very true or often true.” An example of one of the items that appears on the 5-item SCARED is, “I get really frightened for no reason at all” (Birmaher et al., 1999). The Cronbach’s alpha for this measure in the current study was .57. Total scores were created by summing all items together. These total scores were used in the analyses.

*Family History of Suicide (FSH-P).* This form was used during the interview portion of the research appointment to obtain a brief history of family members who have attempted or completed suicide in the past. This information came from the parent. If the parent indicated that a history of suicidal behavior existed in the family, the research staff member asked who the person was in relation to the adolescent and if it was an attempt or a completion. Individuals were given a score of one if they had a family history and given a score of zero if they did not. As has been indicated by research, having a family history
of suicide is associated with an adolescent attempting him/herself (Brent & Melhem, 2008; Hawton et al., 2002; Mann et al., 2005; Melhem et al., 2007).
CHAPTER 4
DATA ANALYSIS PLAN

T-tests were conducted to compare the two groups of adolescents (attempters and controls) on all variables of interest. As previously stated, it was expected that the controls would be lower on attachment avoidance and anxiety, higher on religiosity and family alliance, lower on affective lability, and report a greater internal locus of control. After t-tests were conducted, the bootstrapping method was used to test whether affective lability and/or locus of control mediated the association between attachment security and suicidality (Figure 1). Two equations were used for this analysis as the macro does not allow more than one independent variable at a time (Preacher & Hayes, 2008). Finally, two hierarchical logistic regression models were tested with religiosity and family alliance as the moderators (Figure 2).

Additional control variables were considered for inclusion for the mediation and moderation analyses. These variables included depression, anxiety, and the adolescent’s family history of suicidal behavior. Because the literature has shown strong links between depression, anxiety, and family history of suicidal acts and the adolescent’s own suicidal behavior, these variables were considered as controls in the analyses (Boden et al., 2007; Bostik & Everall, 2006; Brent & Mann, 2006; Brent & Melhem, 2008; Cash & Bridge, 2009; Hawton et al., 2002; Kuramoto et al., 2009; Mann et al., 2005; Melhem et al., 2006; ...
Mediation Analysis

In recent years, a large amount of literature has emerged concerning the testing of mediation in social science research (Hayes, 2009; Hoyle & Kenny, 1999; MacKinnon et al., 2002; Shrout & Bolger, 2002). Researchers are specifically concerned with the methodology used to test mediation. To date, the most common method used in the literature to test mediation is the causal steps approach proposed by Baron and Kenny (1986).

In the causal steps approach, the researcher must show that a statistically significant association exists between the independent and dependent variable. Once this is established, the paths from the independent variable and mediator and the mediator to the dependent variable are tested for significance. If the path between the independent variable and dependent variable is close to zero once accounting for the paths concerning the mediator, the variable is deemed a mediator of the relationship (Baron & Kenny, 1986; Hayes, 2009).

Even though this method is very popular and easy to implement, it has been criticized by a number of statisticians in the field of social science (Hayes, 2009). One of the issues associated with the Baron and Kenny (1986) causal steps approach is low power (Hayes, 2009; MacKinnon et al., 2002). In other words, the indirect effect may be
present but will not be detected by this approach because it does not have enough power to do so.

Because of the lack of power that has been associated with the causal steps approach, other methods have been created to test the indirect effect through proposed mediators. One method is Sobel’s test (Sobel, 1982; 1986). Sobel’s test determines the significance of the indirect effect of the mediator by testing the hypothesis that there is no difference between the total effect (c), which is the path from the independent variable to the dependent variable, and the product of the paths from the independent variable to the mediator (a) and the mediator to the dependent variable (b). First, the standard error of the ab path must be determined, then the ab path is divided by the standard error, and then the ratio is compared to a standard normal distribution for a given alpha (Sobel, 1982; 1986). For instance, for the locus of control variable, the path from attachment to locus of control is path a, and the path from locus of control to suicidality is path b. The product of path a and b would be divided by the standard error of that path (ab). This would test if locus of control could be considered a mediator of the association between attachment and suicidality.

This formula has been shown to have low bias for sample sizes of at least 50 in a single-mediator model (MacKinnon, Fairchild, & Fritz, 2007). Even with the low bias, there is a concern that surrounds Sobel’s test. The main concern is the requirement that the sampling distribution of the indirect effect, path ab, is normal (Hayes, 2009; Shrout & Bolger, 2002). It has been noted that methods that require normality should not be used because the distribution of the indirect effect is usually asymmetric (Hayes, 2009).
Another method that has been used when exploring mediation and will be used in the present study is bootstrapping. Bootstrapping is a computerized method that generates multiple samples of the original sample with replacement to test the indirect effect of the proposed mediator variable. The bootstrapping method creates \( k \), usually 1000, samples and for each, estimates the a and b paths and then the product of ab. From these resamples, “an inference is made about the size of the indirect effect…by using the \( k \) estimates to generate a confidence interval” (Hayes, 2009, p. 412; MacKinnon, 2008). If zero is not present in the confidence interval, it can be stated that the indirect effect is different from zero and essentially, the null hypothesis can be rejected (Hayes, 2009).

The bootstrapping method of testing the indirect effect does not assume normality of the sample distribution, as does Sobel’s test, and many studies have shown that bootstrapping is one of the more valid and powerful methods for testing intervening variable effects (Hayes, 2009; Holbert & Stephenson, 2003; Williams & MacKinnon, 2008). Bootstrapping also controls for Type I error, has been shown to be successful when using small to moderate sized samples ranging from 20 to 80 cases, and has been recommended as the number one method for testing intervening effects (Hayes, 2009; Shrout & Bolger, 2002). The bootstrapping method was conducted by using a macro written by Preacher and Hayes (2008), which works for SPSS 17.0.

Two equations were used to complete the mediation analysis by implementing the macro created by Preacher and Hayes (2008). Two equations were conducted because the macro only allows for one independent variable at a time. For the first equation, the dependent variable was group, the independent variable was attachment avoidance, the
covariates were the control variables, and the mediators were locus of control and affective lability. For the second equation, everything stayed the same except for the independent variable, which was changed to attachment anxiety.

**Moderation Analysis**

Moderation was tested by using hierarchical logistic regression. Moderation is a statistical concept that occurs when the relationship between two variables depends upon a third variable. “Moderated effects reveal themselves statistically as an interaction between $F$ (focal variable) and $M$ (moderator) in a mathematical model of $Y$ (outcome)” (Hayes & Matthes, 2009, p. 924). In ordinary least squares or logistic regression, moderation is tested by including the product of the independent variable and the moderator as an additional predictor in the equation. When an interaction is found, it is usually probed in order to understand how differences in the moderator (i.e., high vs. low) affect the relationship between the independent variable and dependent variable (Baron & Kenny, 1986; Hayes & Matthes, 2009).

In order to test moderation, products were created between the independent variables, which were attachment anxiety and avoidance, and the moderators, which were religiosity and family alliance. Two equations were computed; one for each proposed moderator. For the first equation, control variables were entered on the first step, followed by religiosity, attachment avoidance, and attachment anxiety on the second step, and finally the products, which were avoidance X religiosity and anxiety X religiosity. For the second equation, control variables were entered on the first step, family alliance,
attachment avoidance, and attachment anxiety on the second step, and finally the products, which were avoidance X family alliance and anxiety X alliance. Significant interaction effects were graphed and probed by utilizing a macro created by Hayes (2009).
CHAPTER 5
RESULTS

Preliminary Analyses

Descriptive statistics including means, standard deviations, and ranges for all study variables are presented in Tables 2 and 3 by group. T-tests and chi-squared tests were conducted to compare the two groups of adolescents (attempters and controls) on age, race, gender, family income, and who the adolescent lived with. Confirming that the matching process was successful, it was found that the adolescents did not differ on age, race, and gender, nor did they differ on family income or who the adolescent lived with.

Further tests compared the two groups of adolescents on the control variables (depression, anxiety, and family history), the independent variables (attachment avoidance and anxiety), the proposed mediators (locus of control and affective lability), and the proposed moderators (family alliance and religiosity). The adolescent attempters and controls did not differ on family history of suicide, whether considering first-degree relatives (i.e., biological mother) or second-degree relatives (i.e., cousin), or anxiety. Anxiety scores for attempters and controls were around 2.37 and were both below the three score cutoff, which discriminates between anxiety, above a score of three, and non-anxiety, below a score of three.
But, compared to adolescents who had not attempted suicide, adolescent suicide attempters had higher depressive symptoms, \( t(78) = 2.28, p < .05 \). Adolescents who were attempters, on average, were considered to have mild depressive symptoms while the control group, on average, had minimal depressive symptoms. In addition, attempters had higher attachment avoidance, \( t(78) = 3.21, p < .05 \), higher attachment anxiety, \( t(78) = 2.61, p < .05 \), reported lower family alliance, \( t(78) = -3.20, p < .05 \), and less religiosity, \( t(78) = -2.41, p < .05 \), than controls. However, attempters and controls did not differ significantly in either aspect of affective lability (disinhibited/impersistent and angry/depressed) or locus of control.

Overall, it seems that the majority of the hypothesized predictions were in the proposed direction. It was proposed that controls would have lower rates of attachment avoidance and anxiety, more internal locus of control, lower affective lability, higher rates of religiosity, and higher family alliance when compared to suicide attempters. It was found that controls did, in fact, have lower rates of avoidance and anxiety, which indicates a more secure attachment style, higher family alliance, and higher rates of religiosity. However, attempters and controls did not differ on their levels of anger/depression, disinhibition/impersistence, as measured by the affective lability scale, or locus of control.

**Correlation Analyses**

Correlations were computed among the main variables of interest (Table 4). Anxiety scores were positively correlated with depressive symptoms \( (r = .46, p < .01) \),
attachment avoidance ($r = .38, p < .01$), and attachment anxiety ($r = .48, p < .01$).

Depressive symptoms were positively correlated with attachment anxiety ($r = .51, p < .01$), and negatively correlated with family alliance ($r = -.26, p < .05$) and religiosity ($r = -.29, p < .05$). This meant that adolescents who experienced anxiety also had a higher likelihood of experiencing depression and higher attachment avoidance and anxiety, which is indicative of an insecure attachment. Those who experienced high depressive symptoms had higher attachment anxiety, lower perceived family alliance, and less religiosity.

Family history of suicide was positively correlated with attachment avoidance ($r = .23, p < .05$) indicating that if an adolescent had a family history of suicide they were more likely to have higher levels of attachment avoidance. Attachment avoidance was positively correlated with attachment anxiety ($r = .41, p < .01$), indicating that if an adolescent had high levels of attachment avoidance they were likely to also have high scores on attachment anxiety. Attachment anxiety, on the other hand, was also positively correlated with locus of control ($r = .38, p < .01$) and negatively correlated with family alliance ($r = -.29, p < .05$). This suggests that adolescents who had higher attachment anxiety also had a higher likelihood of having an external locus of control orientation and lower levels of perceived family alliance.

Locus of control was also negatively correlated with family alliance ($r = -.25, p < .05$), suggesting that adolescents who had external locus of control orientations also had a higher likelihood of having low family alliance. Affective lability was negatively correlated with religiosity ($r = -.24, p < .05$). This would suggest that higher scores on
affective lability were associated with lower religiosity. Last, but not least, family alliance was positively correlated with religiosity ($r = .47, p < .01$), suggesting that adolescents with higher religiosity scores also perceived a stronger family alliance.

Because depression scores differed by group (controls vs. attempters) and anxiety scores did not, and because depression and anxiety were moderately and significantly correlated ($r = .46, p < .01$), leading to concerns regarding multicollinearity (Marsh, Downson, Pietsch, & Walker, 2004; Morris, Sherman, & Mansfield, 1986), only depression and not anxiety scores were controlled for in the mediation and moderation analyses. In addition, as reported above, family history of suicide did not differ for controls versus attempters and thus was also not included as a control for the mediation or moderation analyses. Finally, because of their moderate and significant positive correlation, family alliance and religiosity were tested as moderators in separate equations (to avoid problems associated with multicollinearity).

**Mediation Analysis**

The bootstrapping method was conducted by using a macro written by Preacher and Hayes (2008) to test the indirect effects of the proposed mediators, locus of control and affective lability. This macro is appropriate for both continuous and dichotomous dependent variables (Preacher & Hayes, 2008). Two equations were calculated as the macro only allows one independent variable at a time. When predicting group, 0 = control and 1 = attempter, and controlling for depressive symptoms, none of the proposed mediators were significant predictors. For attachment avoidance as the independent
variable, the 95% confidence interval for affective lability had a lower bound of -.05 and an upper bound of .10. For locus of control, the lower bound was -.22 and the upper bound was .06. Both of the confidence intervals for the proposed mediators contained the number zero indicating no indirect effects existed.

For attachment anxiety, the same results occurred with none of the proposed mediators indicating an indirect effect when controlling for depressive symptoms. The 95% confidence interval for affective lability had a lower bound of -.05 and an upper bound of .14. The confidence interval for locus of control had a lower bound of -.34 and an upper bound of .16. Again, both of the confidence intervals included the number zero indicating no indirect effect existed.

**Moderation Analyses**

Moderation was tested by using hierarchical logistic regression to predict the group variable: 0 = control and 1 = attempter. In both equations, depressive symptoms were controlled for on the first step. Products were created between the proposed moderators, religiosity and family alliance, and the independent variables, attachment avoidance and anxiety. If significant interactions were found, they were graphed and probed by utilizing a macro created by Hayes (2009). After conducting hierarchical logistic regression, it was found that family alliance (Table 5) did not act as a moderator with either attachment avoidance or attachment anxiety, however on the second step of the analysis, attachment avoidance and family alliance did show main effects when predicting group ($\beta = 0.59, p < .05$, $\beta = -0.55, p < .05$, respectively).
When predicting group with religiosity as the moderator (Table 6), a trend was present for the interaction term between attachment avoidance and religiosity ($\beta = 0.66, p < .10$) and a main effect was found for attachment avoidance ($\beta = .84, p < .05$). Because moderator effects are extremely difficult to detect in nonexperimental studies (McClelland & Judd, 1993) and it has been discussed that even moderated effects that explain 1% of the variance in the outcome should be considered important (Evans, 1985), it was determined that probing and graphing the interaction was the next reasonable step.

A simple slopes analysis indicated that the slope of the lines representing moderate and high levels of religiosity (Figure 3) were significantly different from zero ($b = .87, p < .05, b = 1.39, p < .05$, respectively), whereas the slope of the line representing low levels of religiosity was not ($b = .36, p = .25$). From these results, it appeared that those with moderate and high religiosity and high avoidance were more likely to be in the attempter group compared to those with low avoidance and low religiosity. To be exact, the results indicated that the individuals who had moderate to high religiosity and high avoidance were 52% more likely to be in the attempter group compared to others with low levels of avoidance and religiosity.
CHAPTER 6
DISCUSSION

This research aimed to explore the possible mediators and moderators of the association between adolescent attachment security and suicidality. As predicted, adolescent attempters were found to have higher attachment avoidance and anxiety, indicating an insecure attachment, higher depressive symptoms, lower family alliance, and lower religiosity when compared to the control group. This is consistent with the literature that was reviewed. For attachment security specifically, adolescents who had insecure attachment styles were found to have more suicidal behavior and ideation compared to those who had secure attachment styles (Adam et al., 1996; Buelow et al., 2000; DiFilippo & Overholser, 2000; Maimon & Kuhl, 2008; Salzinger et al., 2007; Wright et al., 2005).

In terms of depression, many studies have shown an association between adolescent suicide and depression and depression has been revealed to be the main predictor of suicidal ideation (Brent, 1993; Melhem et al., 2007; Nrugham, Larsson, & Sund, 2008). Approximately 60% of adolescents who have completed suicide suffered from depression at the time of their death (Brent, 1993; Brent et al., 1999; Shaffer et al., 1996). Also, adolescents who suffer from Major Depressive Disorder (MDD) are more likely to experience suicidal ideation and to attempt suicide multiple times before young
adulthood. Eventually, some will complete suicide (Herba et al., 2007; Kerr, 2008; Reinherz et al., 2006).

Low religiosity has also been shown in the literature to be related to suicidality in adolescence. Specifically, a review article by Koenig (2009) found that fewer suicide attempts, completions, and more negative attitudes toward suicide existed among individuals who were more religious. Other studies have also shown this negative association between suicidality and religiosity/spirituality as well in both adult and adolescent populations (Donahue & Benson, 1995; Nonnemaker et al., 2003; Noor, 2008; Taliaferro et al., 2009; Wink et al., 2005; Wong et al., 2006).

Also, family discord, dysfunction, low adaptability and low support have all been associated with suicidal behavior. Low support and family disorganization have been found to be related to suicidality even after controlling for other variables with known associations with suicide risk (Brent, 1995). In another article discussed above, adolescents who were seen to have lower levels of suicide risk perceived their family support to be high, experienced a high level of availability from their parents when they felt depressed, and had a high level of satisfaction with the support given (Randell et al., 2006).

The mediation analysis did not reveal that the association between attachment and suicidality was mediated by locus of control or affective lability. The moderation analysis, however, did show a trend indicating a possible interaction between attachment avoidance and religiosity in relation to suicidality. Also, a main effect for attachment avoidance was found after controlling for depressive symptoms and adding the interaction terms.
For the mediation analyses, I had hypothesized that locus of control and affective lability would in part explain the association between attachment avoidance and anxiety and suicidality. It was hypothesized that locus of control would be a mediator of the relationship between attachment security and suicidality because of the model proposed by Yang and Clum (1996). In this model the authors described the mediating role of locus of control in the association between early life experiences and the risk for suicidal behavior. The authors believed early negative life events could lead to suicidal behaviors directly and indirectly through cognitive factors such as external locus of control, low self-esteem, and hopelessness. In essence, their model stated that early negative life events lead to cognitive shortfalls, which then lead to suicidal behavior (Yang & Clum, 1996). Attachment theory provides one way of thinking about how negative early events could affect cognitive functioning (Belsky & Pascon Fearon, 2002; Lynch & Cicchetti, 1998). In one study specifically, the authors found that individuals classified as insecure, either avoidant or anxious, had lower self-esteem, were rated higher on external locus of control, and rated lower on openness to new experiences. Individuals who were classified as secure on the other hand were higher on internal locus of control (Mickelson et al., 1997).

It was not surprising, however, that the proposed mediators did not show a significant indirect effect in the present study. Levels of locus of control and affective lability did not differ for attempters versus controls. Also, for locus of control specifically, the scale used had a very low Cronbach’s alpha (.41) indicating that the items that were used to assess locus of control were not reliable. It may be possible that using a different scale to measure locus of control, such as the Rotter Locus of Control
Scale (1966) or the Nowicki-Strickland Locus of Control Scale (1973), may show different results.

In terms of affective lability, it may be possible that using a parent self-report measure is not the best way to assess an adolescent’s affective dysregulation. In some of the studies reviewed above, a diagnostic interview was used to measure affective lability (Anestis, 2009; Esposito et al., 2003). This may be a better way to measure affective lability and could lead to different results regarding mediation if used.

Another possibility that could be explored in the future involves affective lability and/or locus of control acting as moderators rather than mediators. In general, the literature has shown that external locus of control and affective dysregulation have been associated with suicidality in adolescents (Beautrais et al., 1999; Esposito et al., 2003; Evans et al., 2005; Pearce & Martin, 1993; Zlotnick et al., 1997). It may be that the level of affective lability and external or internal locus of control has an effect on predicting group when combined with attachment avoidance and anxiety.

For the moderation analyses, I predicted that when low religiosity and/or low family alliance was combined with attachment anxiety or avoidance that the likelihood of being in the attempter group would be higher, and that high religiosity and family alliance would protect adolescents with elevated attachment anxiety and avoidance from experiencing suicidal behavior. I hypothesized that religiosity would play the role as a protective factor because in the literature where religiosity or spirituality has been examined as a moderator (Noor, 2008; Wink et al., 2005), it has shown to protect individuals from negative outcomes. For instance, high religiousness when paired with poor physical health was shown to be associated with lower levels of depression (Wink et
al., 2005) and in another study, high religiosity protected younger women from the negative effects of limited work experience on life satisfaction (Noor, 2008).

To my surprise, I did not find these types of moderating effects. In contrast, I found that individuals who were highly avoidant and who scored moderate to high on the religiosity scale were more likely to be in the attempter group. Attachment anxiety did not appear to interact with the proposed moderators nor was there a significant interaction between attachment avoidance and family alliance.

Another result that should be mentioned concerning the moderation analyses is the main effect found for attachment avoidance when predicting group after controlling for depressive symptoms. Attachment insecurity has been shown to be associated to suicidality in multiple studies (Adam et al., 1996; Buelow et al., 2000; DiFilippo & Overholser, 2000; Lessard & Moretti, 1998; Wright et al., 2005), but few have specifically looked at the dimensions of attachment. This result indicates that adolescents even with controlling for depressive symptoms are still more likely to be in the attempter group if they scored high on attachment avoidance.

As stated above, a trend was found for the avoidance by religiosity interaction. When graphed and probed by the MODPROBE macro (Hayes, 2009), it was found that individuals with high avoidance and moderate to high religiosity were more likely to have attempted suicide. In most of the research that has explored attachment security and suicidality, having an insecure attachment was related to a higher likelihood of participating in suicidal behavior (Adam et al., 1996; Buelow et al., 2000; DiFilippo & Overholser, 2000; Lessard & Moretti, 1998; Wright et al., 2005). The interesting part of the interaction, however, is that moderate to high religiosity was associated with
suicidality when combined with high avoidance; It was not considered to be a protective factor.

After reviewing some additional literature, I believe two concepts may help explain the unanticipated nature of the interaction between attachment avoidance and religiosity. These concepts are cognitive dissonance and identity formation. Cognitive dissonance occurs when two thoughts are psychologically or logically inconsistent with each other (Festinger, 1957). This inconsistency in thought can produce negative emotions that can be expressed as guilt, shame, or hopelessness. Experiencing these negative emotions can lead to individuals using rationalization or changing their beliefs or behavior in order to lessen these negative feelings they are experiencing. With these changes to beliefs or behaviors in place, the negative affect lessens (Festinger, 1957).

To connect this concept to the present study, I propose considering an adolescent who has strong religious beliefs, but also holds other thoughts, feelings or behaviors that may be contradictory to these religious beliefs. With these conflicting thoughts present, cognitive dissonance could occur. For instance, an adolescent who is engaging in sexual activity (i.e., one nightstands or sex without a relationship), but also has strong religious beliefs that sexual activity prior to marriage is wrong, could experience cognitive dissonance. In this case, the adolescent’s religious beliefs do not match the behavior that is taking place, so guilt, shame, hopelessness, and maybe even depression may occur. Also, it has been shown that adolescents who have an avoidant attachment style are more likely to participate in causal sexual encounters more often than their secure counterparts (Brennan & Shaver, 1995; Feeney, Noller, & Patty, 1993; Simpson & Gangestad, 1991). With the avoidant attachment style being more likely to engage in behaviors that are
against the adolescent’s religious beliefs, cognitive dissonance could potentially occur, which again may lead to guilt, shame, hopelessness, and possibly depression.

Festinger (1957) stated that the individual can either change the behavior, in this example, stop participating in sexual behavior, or change their thoughts, which would be their religious beliefs. To some adolescents, religious beliefs may not be modifiable and this could be related to the lack of formation of their own identities. Erik Erikson (1968) stated that adolescents are in the developmental stage called identity vs. identity confusion. In this stage, Erikson (1968) stated that adolescents needed to experience psychological moratorium, which is a time where adolescents experiment with different roles and beliefs, experience role confusion, and start to explore alternative beliefs and commitments before their own identity can be solidified. Adolescents, in this stage, are struggling with the questions of “who am I” and “what do I believe.” Because these religious beliefs have been a part of the lives, it may be hard for them to modify those specific beliefs and because of this, the guilt, shame, hopelessness, and depression may continue to grow because they are still participating in the behaviors they consider to be wrong.

Depression and hopelessness have both been associated with suicidal behavior in many research studies (Brent, 1993; Goldston et al., 2001; Lewinsohn et al., 1994; Melhem et al., 2007; Nrugham et al., 2008; Spirito et al., 1991) so it is reasonable to believe that some of these adolescents struggling with cognitive dissonance and identity formation may participate in suicidal behavior. I believe these concepts of cognitive dissonance and identity formation could potentially explain why adolescents who scored moderate to high on religiosity and high on avoidance were more likely to be in the
suicide attempter group. In terms of future research, assessing cognitive dissonance and identity formation may be promising factors to explore.

**Strengths and Limitations**

One of the major strengths of the study design is the exploration of attachment security and suicidality in an adolescent population. The topic has been explored by some authors (Adam et al., 1996; Buelow et al., 2000; DiFilippo & Overholser, 2000; Lessard & Moretti, 1998; Wright et al., 2005), but many have used the categorical method for exploring attachment. The dimensional method, which is used by the present study, is seen as the best method to explore attachment security and the measure used, the ECR (Brennan et al., 1998), is considered to be one of the best as it captures the two main factors of attachment, which are avoidance and anxiety (Fraley & Waller, 1998). By using the dimensional method, it allowed myself to find that attachment avoidance, not anxiety, may be a stronger predictor of suicidality in adolescents. Because the dimensional method was used, the results could be considered a contribution to the attachment and suicidality literature.

Another strength of this study design was the matching of cases and controls on age, gender, and race. Individuals who have attempted or completed suicide have shown differences in these characteristics, with older individuals having higher rates of attempted and completed suicide, girls having higher attempt rates than boys, and Whites’ completing suicide more frequently than non-Whites (for a review, see Cash & Bridge, 2009). By controlling for these demographic factors, it allowed the differences shown in the analyses to be attributed to group status rather than one of these variables.
The final strength of the present research was the recruitment strategy that was implemented for this study. All of the recruitment sites, which were all around Columbus and the surrounding area, were on board with the research study’s recruitment process and supported the research staff at all times. By recruiting around the city, the sample was diverse making it more representative of the outpatient population of children seen through Nationwide Children’s Hospital.

Even though there were strengths to this design, there were also weaknesses that must be addressed. The first limitation that may be present is selection bias. All of the cases and controls came from the Community Behavioral Health System of Nationwide Children’s Hospital and were all seeking services for behavioral and/or psychological concerns. Teens and parents/legal guardians that turn to other organizations (i.e., Ohio State Medical Center, Netcare, or Buckeye Ranch) were not included in this sample and the findings from this study may not be generalizable or applicable to these adolescents who seek services elsewhere or to adolescents who do not seek services at all.

Another limitation that must be mentioned concerns the timeframe surrounding the suicide attempt. Adolescents classified as attempters had attempted suicide within a year from when the referral form was filled out at the recruitment site. Some adolescents came to the research appointment and had attempted suicide a couple of months ago, while others had attempted almost a year ago. This caused diversity to be present in the time that had passed since the attempt date. Individuals who had attempted more recently may have been more likely to still be experiencing depressive symptoms or other negative outcomes compared to those who attempted suicide almost a year ago.
Unfortunately, the time that had passed since the attempt was not controlled for in this study.

In case-control studies, selecting the appropriate control group is extremely important and can be hard to do. In the IAMS study, the cases and controls came from the same population and were both seeking services for behavioral and/or psychological concerns. There is a possibility that the controls recruited from these sites had suicidal behavior, but were not reporting it on the referral forms or during the research appointments. Controls with present ideation or suicidal behavior would not represent “true” controls, and the research team would never know unless the adolescent or parent/legal guardian informed them of these suicidal thoughts, feelings, or behaviors. With this in mind, the word of the adolescent and parent on the referral form determined whether the adolescent was a control. This could potentially have affected the results of the present study if an adolescent was classified as a control but actually had thoughts or feelings of suicide.

Another limitation that must be mentioned about the case-control design involves temporality and the matching process. Because this study had a case-control study design and not a cohort or longitudinal design, it is uncertain if the risk factors or exposures came before the suicide attempt or after the suicide attempt (Aschengrau & Seage, 2008; Lilienfeld & Stolley, 1994). Also, even though matching allows for greater compatibility between the cases and controls, it also limits the generalizability of the study’s findings to other samples of teens (Aschengrau & Seage, 2008; Lilienfeld & Stolley, 1994).

Finally, the last limitation that must be mentioned is sample size. The sample used for the present research included 80 adolescents, which is considered to be a small
sample. Having a small sample size may lead to limited power to detect significant effects, in particular for the mediation and moderation analyses. Also, with a small sample finding significant results may be due to sampling error (Hollenbeck, DeRue, & Mannor, 2006; Maxwell, 2004; Schmidt, 1996).

Implications and Future Research

This research highlighted some key findings that may lead to future research endeavors. The independent t-tests revealed that adolescents who attempted suicide were more likely to have higher attachment avoidance and anxiety, depression, lower religiosity, and lower family alliance. With this in mind, it may be beneficial for community health services, pediatricians, and educators to come together to create a screener for adolescents to complete in different settings (i.e., pediatricians office) with questions concerning attachment security, religiosity, depression, and other risk factors related to suicidality. If the adolescent screens positive for risk, parents/legal guardians can be informed and adolescents may receive the appropriate professional services, such as a counselor or a therapist that could potentially prevent suicidal behavior.

For future research, there is still much to examine concerning the association of attachment security and adolescent suicidality. Future projects could potentially explore better measurements of religiosity and locus of control to see if differences are found from what has been presented. Religiosity is a very complex construct and some studies have shown that religiosity is related to suicidality while others have not (Donahue & Benson, 1995; Koenig, 2009; Wong et al., 2006). It may be interesting to explore the public and private domains of religiosity, as discussed by Nonnemaker et al (2003), and
how these relate to suicidality in adolescence. In the article, the public domain of religiosity included the amount of time adolescents attended religious services and participated in special activities at religious institutions while the private domain was defined as how important the adolescents believed religion was to them and how often they prayed. Overall, the authors found that the private domain was associated with lower suicidal ideation and lower risk for attempting suicide (Nonnemaker et al., 2003). It would be interesting to see if this finding holds in a different sample.

Another topic that could be explored is social capital and religiosity. Social capital is defined as “the actual and potential resources that an individual has access to through a durable network of more or less institutionalized relationships of mutual acquaintance or recognition” (King & Furrow, 2008, p. 37). It is possible that religiosity provides a higher level of social capital, which has been related to positive outcomes for health and well-being (Furstenberg, Cook, Eccles, Elder, Sameroff, 1999; King, Furrow, & Roth, 2002; Morrow, 1999). Exploring how social capital is associated with attachment security and how it effects the association between attachment and suicidality would be an interesting topic to explore.

Some other topics that could be explored include: the context surrounding the suicide attempt (i.e., a break-up with a boyfriend/girlfriend), the lethality of attempts that occur in individuals who have insecure attachment styles vs. secure attachments, personality factors, impulsivity and aggression, parenting style, romantic relationship quality, and many others. How these factors relate to the association between attachment security and suicidality and if these particular factors play a mediating or moderating role would be interesting to explore in future research.
In terms of research design, establishing a longitudinal study where children are recruited at a very young age and are followed up over many years may help to determine if certain risk or protective factors occur before or after a suicide attempt has taken place. Exploring the association between attachment security and suicidality in adolescence with a longitudinal design would be very interesting and could potentially answer many questions concerning this association.

Suicide in the adolescent population is a very serious concern and in the United States, it is the third leading cause of death among older adolescents only to be surpassed by motor vehicle accidents and homicide (CDC, 2008; Gould et al., 2003). Focusing our prevention efforts on risk and protective factors that show a difference is extremely important. Hopefully, the present research has opened a door to an alternative way of thinking about suicide prevention in the adolescent population.
Appendix A: Tables and Figures
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<thead>
<tr>
<th>Sample Demographics</th>
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<tr>
<td><strong>Gender</strong></td>
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<td><strong>Race/Ethnicity</strong></td>
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<td><strong>Living Arrangements</strong></td>
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<td><strong>Age</strong></td>
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<tr>
<td><strong>Income</strong></td>
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Table 1. Sample demographics
Family History was not included in the correlation table as it is a dichotomous variable coded as 0 = no, 1 = yes

Table 2. Descriptive statistics for the adolescent controls

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<th></th>
<th>M</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
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<th>% Missing Data</th>
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<tr>
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<tr>
<td>SCARED</td>
<td>2.03</td>
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<td>Depressive Symptoms</td>
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<td><strong>Adolescent Suicide Attempters (n=40)</strong></td>
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<td>69.95</td>
<td>22.83</td>
<td>18.00</td>
<td>123.00</td>
<td>40</td>
<td>0%</td>
</tr>
<tr>
<td>Locus of Control</td>
<td>7.35</td>
<td>3.42</td>
<td>0.00</td>
<td>13.00</td>
<td>40</td>
<td>0%</td>
</tr>
<tr>
<td>Affective Lability</td>
<td>18.55</td>
<td>11.32</td>
<td>0.00</td>
<td>48.00</td>
<td>38</td>
<td>5%</td>
</tr>
<tr>
<td>Family Alliance</td>
<td>29.40</td>
<td>11.01</td>
<td>7.00</td>
<td>42.00</td>
<td>40</td>
<td>0%</td>
</tr>
<tr>
<td>Religiosity</td>
<td>-0.62</td>
<td>2.67</td>
<td>-3.66</td>
<td>4.16</td>
<td>39</td>
<td>2.5%</td>
</tr>
</tbody>
</table>

Family History was not included in the correlation table as it is a dichotomous variable coded as 0 = no, 1 = yes

Table 3. Descriptive statistics for the adolescent suicide attempters
<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. SCARED</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. BDI</td>
<td>.46**</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Family History</td>
<td>.04</td>
<td>.06</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Attachment Avoidance</td>
<td>.38**</td>
<td>.21</td>
<td>.23*</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Attachment Anxiety</td>
<td>.48**</td>
<td>.51**</td>
<td>.06</td>
<td>.41**</td>
<td>–</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Locus of Control</td>
<td>.13</td>
<td>.01</td>
<td>.14</td>
<td>.21</td>
<td>.38**</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>7. Affective Lability</td>
<td>-.01</td>
<td>.14</td>
<td>.11</td>
<td>.00</td>
<td>-.01</td>
<td>-.03</td>
<td>–</td>
</tr>
<tr>
<td>8. Family Alliance</td>
<td>-.04</td>
<td>-.26*</td>
<td>.01</td>
<td>-.14</td>
<td>-.29*</td>
<td>-.25*</td>
<td>-.07</td>
</tr>
<tr>
<td>9. Religiosity</td>
<td>-.11</td>
<td>-.28*</td>
<td>.07</td>
<td>-.07</td>
<td>-.16</td>
<td>-.13</td>
<td>-.24*</td>
</tr>
</tbody>
</table>

*p < .05.  **p < .01.  ***p < .001; aFamily History: 0 = no, 1 = yes

Table 4. Correlations among key variables
Table 4. Continued

<table>
<thead>
<tr>
<th>Variables</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. Family Alliance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Religiosity</td>
<td>.47**</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05. **p < .01. ***p < .001.
Table 5. Summary of logistic regression analysis for variables predicting group by attachment security and family alliance while controlling for depressive symptoms

<table>
<thead>
<tr>
<th>Predictor</th>
<th>B</th>
<th>SE B</th>
<th>$e^B$</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depressive Symptoms</td>
<td>.07</td>
<td>.09</td>
<td>1.07</td>
<td>.90 to 1.27</td>
</tr>
<tr>
<td>Family Alliance</td>
<td>-1.22</td>
<td>.93</td>
<td>.29</td>
<td>.05 to 1.83</td>
</tr>
<tr>
<td>Attachment Avoidance</td>
<td>.38</td>
<td>1.27</td>
<td>1.46</td>
<td>.12 to 17.46</td>
</tr>
<tr>
<td>Attachment Anxiety</td>
<td>-.49</td>
<td>.79</td>
<td>.62</td>
<td>.13 to 2.90</td>
</tr>
<tr>
<td>Avoidance X Family Alliance</td>
<td>.05</td>
<td>.26</td>
<td>1.05</td>
<td>.63 to 1.75</td>
</tr>
<tr>
<td>Anxiety X Family Alliance</td>
<td>.14</td>
<td>.16</td>
<td>1.15</td>
<td>.84 to 1.56</td>
</tr>
<tr>
<td>Constant</td>
<td>2.75</td>
<td>4.41</td>
<td>15.64</td>
<td>21.00</td>
</tr>
</tbody>
</table>

$\chi^2$ = 21.00

Df = 6.00

*p < .10. **p < .05. ***p < .01.
Table 6. Summary of logistic regression analysis for variables predicting group by attachment security and religiosity while controlling for depressive symptoms

<table>
<thead>
<tr>
<th>Predictor</th>
<th>B</th>
<th>SE B</th>
<th>e^B</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depressive Symptoms</td>
<td>.03</td>
<td>.10</td>
<td>1.03</td>
<td>.85 to 1.24</td>
</tr>
<tr>
<td>Religiosity</td>
<td>-2.70*</td>
<td>1.55</td>
<td>.07</td>
<td>.00 to 1.39</td>
</tr>
<tr>
<td>Attachment Avoidance</td>
<td>.84**</td>
<td>.36</td>
<td>2.31</td>
<td>1.14 to 4.70</td>
</tr>
<tr>
<td>Attachment Anxiety</td>
<td>.19</td>
<td>.27</td>
<td>1.21</td>
<td>.71 to 2.06</td>
</tr>
<tr>
<td>Avoidance X Religiosity</td>
<td>.66*</td>
<td>.40</td>
<td>1.93</td>
<td>.89 to 4.21</td>
</tr>
<tr>
<td>Anxiety X Religiosity</td>
<td>-.10</td>
<td>.32</td>
<td>.90</td>
<td>.49 to 1.68</td>
</tr>
<tr>
<td>Constant</td>
<td>-3.86</td>
<td>1.39</td>
<td>.02</td>
<td>21.06</td>
</tr>
</tbody>
</table>

\[ \chi^2 \]  
\[ Df \]

\*p < .10. **p < .05. ***p < .01.
Figure 1. Model depicting affective lability and locus of control as mediators of the association between attachment security and group status.
Figure 2. Model depicting religious orientation and family alliance as moderators of the association between attachment security and group status
Figure 3. The interaction of attachment avoidance and religiosity.
Appendix B: Measures for the Present Study
Family History of Suicide – Parent Version

1. Are there any family members (other than the subject) that you know of that have attempted or completed suicide?
   a. Yes
   b. No

2. If yes, what is the relationship to the subject?
   a. Biological Mother
   b. Biological Father
   c. Grandmother
   d. Grandfather
   e. Cousin
   f. Step-mother
   g. Step-father
   h. Foster Mother
   i. Foster Father
   j. Aunt
   k. Adoptive Mother
   l. Adoptive Father
   m. Uncle
   n. Other, please specify ________________________________

3. If yes, please indicate with an X whether the suicidal behavior was a suicide attempt or completed:

   Attempt

   Completion
Self-Report for Childhood Anxiety Related Disorders (SCARED) Child Screen Version

<table>
<thead>
<tr>
<th>Item</th>
<th>Not true or Hardly True</th>
<th>Somewhat True or Sometimes True</th>
<th>Very True or Often True</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I get frightened for no reason at all.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>2. I'm afraid to be alone in the house.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>3. People tell me I worry too much.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>4. I am scared to go to school.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>5. I am shy.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
**Experience in Close Relationships Scale (ECR)**

The following statements concern how you generally feel in close relationships (e.g., with romantic partners, close friends, or family members). Respond to each statement by indicating how much you agree or disagree with it by bubbling in the circle that corresponds to your answer:

<table>
<thead>
<tr>
<th>Item</th>
<th>1=Disagree Strongly</th>
<th>2=Disagree</th>
<th>3=Disagree Slightly</th>
<th>4=Neutral /Mixed</th>
<th>5=Agree Slightly</th>
<th>6=Agree</th>
<th>7=Agree Strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I prefer not to show others how I feel deep down.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>2. I worry about being rejected or abandoned.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>3. I am very comfortable being close to other people.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>4. I worry a lot about my relationships.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>5. Just when someone starts to get close to me I find myself pulling away.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>6. I worry that others won't care about me as much as I care about them.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>7. I get uncomfortable when someone wants to be very close to me.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>8. I worry a fair amount about losing my close relationship partners.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Item</td>
<td>1=Disagree Strongly</td>
<td>2=Disagree</td>
<td>3=Disagree Slightly</td>
<td>4=Neutral/Mixed</td>
<td>5=Agree Slightly</td>
<td>6=Agree</td>
<td>7=Agree Strongly</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>---------------------</td>
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<td>---------------------</td>
<td>-----------------</td>
<td>------------------</td>
<td>---------</td>
<td>------------------</td>
</tr>
<tr>
<td>9.) I don't feel comfortable opening up to others.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.) I often wish that close relationship partners' feelings for me were as strong as my feelings for them.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.) I want to get close to others, but I keep pulling back.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.) I want to get very close to others, and this sometimes scares them away.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.) I am nervous when another person gets too close to me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.) I worry about being alone.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.) I feel comfortable sharing my private thoughts and feelings with others.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.) My desire to be very close sometimes scares people away.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.) I try to avoid getting too close to others.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.) I need a lot of reassurance that close relationship partners really care about me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.) I find it relatively easy to get close to others.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>1=Disagree Slightly</td>
<td>2=Disagree Slightly</td>
<td>3=Disagree Slightly</td>
<td>4=Neutral /Mixed Slightly</td>
<td>5=Agree Slightly</td>
<td>6=Agree</td>
<td>7=Agree Strongly</td>
</tr>
<tr>
<td>------</td>
<td>---------------------</td>
<td>---------------------</td>
<td>---------------------</td>
<td>--------------------------</td>
<td>-----------------</td>
<td>---------</td>
<td>-----------------</td>
</tr>
<tr>
<td>20.</td>
<td>Sometimes I feel that I try to force others to show more feeling, more commitment to our relationship than they otherwise would.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>21.</td>
<td>I find it difficult to allow myself to depend on close relationship partners.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>22.</td>
<td>I do not often worry about being abandoned.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>23.</td>
<td>I prefer not to be too close to others.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>24.</td>
<td>If I can't get a relationship partner to show interest in me, I get upset or angry.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>25.</td>
<td>I tell my close relationship partners just about everything.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>26.</td>
<td>I find that my partners don't want to get as close as I would like.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>27.</td>
<td>I usually discuss my problems and concerns with close others.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>28.</td>
<td>When I don't have others close around, I feel somewhat anxious and insecure.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>29.</td>
<td>I feel comfortable depending on others.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>30.</td>
<td>I get frustrated when my close relationship partners are not around as much as I would like.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Item</td>
<td>1=Disagree Strongly</td>
<td>2=Disagree</td>
<td>3=Disagree Slightly</td>
<td>4=Neutral /Mixed</td>
<td>5=Agree Slightly</td>
<td>6=Agree</td>
<td>7=Agree Strongly</td>
</tr>
<tr>
<td>------</td>
<td>---------------------</td>
<td>------------</td>
<td>---------------------</td>
<td>-----------------</td>
<td>-----------------</td>
<td>---------</td>
<td>-----------------</td>
</tr>
<tr>
<td>31.) I don't mind asking close others for comfort, advice, or help.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>32.) I get frustrated if relationship partners are not available when I need them.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>33.) It helps to turn to close others in times of need.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>34.) When other people disapprove of me, I feel really bad about myself.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>35.) I turn to close relationship partners for many things, including comfort and reassurance.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>36.) I resent it when my relationship partners spend time away from me.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
### Locus of Control – Short Version

<table>
<thead>
<tr>
<th>Items</th>
<th>Strongly disagree</th>
<th>Somewhat disagree</th>
<th>Neither agree nor disagree</th>
<th>Somewhat agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. When I make plans, I am almost certain that I can make them work.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Getting people to do the right things depends upon ability; luck has nothing to do with it.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. What happens to me is my own doing.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Many of the unhappy things in people’s lives are partly due to bad luck.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Getting a good job depends mainly on being in the right place at the right time.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Many times I feel I have little influence over the things that happen to me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Religious Orientation Questionnaire (ROQ-C)

Directions: Please read carefully and select the answer that best applies.

1. How important is religion in your life?
   (a) Not at all important [   ]
   (b) A little important [   ]
   (c) Moderately important [   ]
   (d) Extremely important [   ]

2. How often do you attend religious services?
   (a) Never [   ]
   (b) One to 12 times per year [   ]
   (c) More than once a month [   ]
   (d) About once a week [   ]
   (e) More than once a week [   ]

3. When you have problems or difficulties in your family, work, or personal life, how often do you seek comfort through religious or spiritual means, such as praying, meditating, attending a religious or spiritual service, or talking to a religious or spiritual advisor?
   (a) Often [   ]
   (b) Sometimes [   ]
   (c) Rarely [   ]
   (d) Never [   ]
   (e) Don't know [   ]
### Children's Affective Liability Scale (CALS) Parent Form for Children 6-17 Years Old

**DIRECTIONS:** Please fill in the bubble that best describes your child's mood over the *PREVIOUS MONTH.*

Relationship to Child: [ ] Mother [ ] Father [ ] Guardian/Other caretaker

<table>
<thead>
<tr>
<th>Items</th>
<th>Never or rarely occurs</th>
<th>1 – 3 times during the month</th>
<th>1 – 3 times during the week</th>
<th>4 – 6 times a week</th>
<th>1 or more times a day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.) Suddenly start to cry for little or no apparent reason, more so than other children his/her age.</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>2.) It is hard to tell what will set him/her off into a blow up or temper.</td>
<td>○</td>
<td>○</td>
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<td>3.) Suddenly becomes tense or anxious.</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<td>4.) Has bursts of being overly affectionate for little reason, hugging or kissing people more than you would expect.</td>
<td>○</td>
<td>○</td>
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<tr>
<td>5.) Suddenly loses interest in what he/she is doing.</td>
<td>○</td>
<td>○</td>
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<tr>
<td>6.) It is hard to tell what mood he/she will be in.</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>7.) Suddenly loses his/her temper (may yell, cuss, or throw something) when others would not expect it.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
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<td>Items</td>
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<td>1 – 3 times during the week</td>
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<tr>
<td>8.) Has bursts of increased talking.</td>
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<tr>
<td>9.) Complains of short periods when he/she feels shaky or his/her heart is pounding, or he/she has difficulty breathing (not due to asthma or another medical problem).</td>
<td></td>
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<tr>
<td>10.) It is hard to tell what will set him/her off crying.</td>
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<tr>
<td>11.) Has bursts of silliness for little or no apparent reason.</td>
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<td>12.) Does an activity and then suddenly stops because he/she is tired.</td>
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<tr>
<td>13.) You never know when he/she is going to blow up.</td>
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<td>14.) Has periods of time when he/she talks about the same thing over and over.</td>
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<td>15.) Suddenly starts to laugh about something that most people do not think is very funny.</td>
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<tr>
<td>16.) Suddenly appears sad, depressed, and down in the dumps for no apparent reason.</td>
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<td>17.) Has bursts of being nervous or fidgety.</td>
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<td></td>
</tr>
<tr>
<td>Items</td>
<td>Never or rarely occurs</td>
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<tr>
<td>18.) Has bursts of crabiness or irritability.</td>
<td>✓</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>19.) Suddenly acts overly familiar with people he/she barely knows.</td>
<td>✓</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>20.) Appears very angry (yell, curse) in response to a simple requests</td>
<td>✓</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
**Reasons for Living – Adolescent Version (RFL-A)**

This questionnaire lists specific *reasons* that people sometimes have for *not committing suicide*, if the thought were to occur to them, or if someone were to suggest it to them. Please read each statement carefully, and then choose a number that best describes how *important* each reason is to you for *not* committing suicide. Use the scale below and fill in the bubble to the right of each statement that best describes how you feel. Please use the whole range of choices so as not to rate only at the middle (2, 3, 4, 5) or only at the extremes (1, 6).

*Only family alliance items are listed below as these were the only items used in the present study.*

<table>
<thead>
<tr>
<th>How important to you is this reason for not committing suicide.</th>
<th>1=Not at all</th>
<th>2=Quite unimportant</th>
<th>3=Somewhat unimportant</th>
<th>4=Somewhat important</th>
<th>5=Quite important</th>
<th>6=Extremely important</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.) Whenever I have a problem, I can turn to my family for support or advice.</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
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<tr>
<td>7.) I feel emotionally close to my family.</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>12.) My family takes the time to listen to my experiences at school, work, or home.</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>17.) I enjoy being with my family.</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>23.) Most of the time, my family encourages and supports my plans or goals.</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>24.) My family cares about the way I feel.</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>30.) My family cares a lot about what happens to me.</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
</tbody>
</table>
References


attempt and major depressive episode in a prospective study. *Journal of Affective Disorders, 123*, 123-130.


109-120.
Main, M., & Hesse, E. (1990). Parents' unresolved traumatic experiences are related to infant disorganized attachment status: Is frightened and/or frightening parental
behavior the linking mechanism? In M. T. Greenberg, D. Cicchetti & E. M. Cummings (Eds.), Attachment in the preschool years: Theory, research, and intervention (pp. 161-182). Chicago: University of Chicago Press.


Salzinger, S., Rosario, M., Feldman, R. S., & Ng-Mak, D. S. (2007). Adolescent suicidal behavior: Associations with preadolescent physical abuse and selected risk and


