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# DEVELOPMENTAL ANTECEDENTS OF SYMPTOMS OF SEPARATION ANXIETY IN YOUNG ADULT COLLEGE STUDENTS

by

NOËLLE T. SANTORELLI

Under the Direction of Diana L. Robins

## ABSTRACT

Separation anxiety disorder (SAD) is rarely considered in adults presenting with anxious symptomatology, but a growing body of evidence suggests that its symptoms are experienced by a significant number of adults. Early parent-child relationships are an especially important area of study for understanding SAD. Moreover, the attachment style that is formed through early parent-child interactions may serve as a mediator to later expression of symptoms of adult separation anxiety (ASA). Studying the early parent-child relationship and perceived parenting styles in conjunction with individual attachment styles will allow for a more systemic approach to understanding potential risk factors for the development of ASA. Young adult college students may be particularly vulnerable to ASA as they transition into college and away from primary caregivers. This study investigates a mediational model with individual attachment style serving as a mediator between perceived early parenting styles and symptoms of ASA in 170 first-year college students between the ages of 18-20. As anticipated a large percent of the sample endorsed clinically significant levels of symptoms of ASA (47%). In addition, results utilizing bootstrapping analyses demonstrated that a perceived indifferent parenting style had an indirect effect on symptoms of ASA, with the effect

occurring through an anxious attachment style. Support for the mediation model was obtained when statistically controlling for perceived parenting styles of overcontrol and abuse as well as confounding variables including age, sex, number of different families lived with and emotionality domains of temperament (distress, anger, and fearfulness). Highlighting the role of perceived parenting styles and attachment styles in the development of symptoms of ASA will serve to establish potential family-based interventions and help in the development of prevention programs. Examining symptoms of ASA in young adult college students may result in the development of university-based psycho-educational programs to help these students master a challenging transitional period. This study is one of the first to explore a model that can help to explain the developmental trajectory of symptoms of ASA. Future studies are encouraged to consider symptoms of ASA when investigating anxious symptomatology in adult populations.

**INDEX WORDS:** Separation Anxiety Disorder, Perceptions of parenting, Attachment styles, Young adults, First-year college students, risk factors

DEVELOPMENTAL ANTECEDENTS OF SYMPTOMS OF SEPARATION ANXIETY IN  
YOUNG ADULT COLLEGE STUDENTS

by

NOËLLE T. SANTORELLI

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of

Doctor of Philosophy

in the College of Arts and Sciences

Georgia State University

2010

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2010

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YOUNG ADULT COLLEGE STUDENTS

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August 2010

## DEDICATION

To my husband, Anthony Santorelli, and his love, support, encouragement, tuition payments, amazing tomato sauce, obsessive house cleaning, and great diaper duty skills. You had faith in me when I did not; you had faith in this process when I did not. You have been my rock and you have made the completion of my doctoral degree possible.

To my beautiful son, Leonardo Charles Santorelli, whose laughter and spirit has given me the strength to persevere and encourages me to live each and every day better than the one before. You are my angel.

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## TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	v
LIST OF TABLES.....	x
LIST OF FIGURES.....	xi
<b>Introduction .....</b>	<b>1</b>
<b>Separation Anxiety Disorder .....</b>	<b>1</b>
<b>Separation Anxiety in Adults .....</b>	<b>3</b>
<b>History of Attachment Theory.....</b>	<b>7</b>
<b>Temperament and Attachment Style.....</b>	<b>11</b>
<b>Adult Attachment .....</b>	<b>12</b>
<b>Adult Attachments and Psychopathology .....</b>	<b>14</b>
<b>Parenting Style and Family Environment .....</b>	<b>15</b>
<b>Separation Anxiety in College Populations .....</b>	<b>18</b>
<b>Specific Aims.....</b>	<b>20</b>
<b>Method.....</b>	<b>23</b>
<b>Participants.....</b>	<b>23</b>
<b>Procedure.....</b>	<b>24</b>
<b>Measures.....</b>	<b>24</b>
<i>Demographic data form .....</i>	<i>24</i>
<i>Adult separation anxiety.....</i>	<i>25</i>
<i>Attachment style .....</i>	<i>26</i>
<i>Perceived parenting style.....</i>	<i>28</i>

<i>Temperament</i> .....	30
<b>Secondary Measures</b> .....	30
<i>Personality disorders</i> .....	30
<i>Panic disorder</i> .....	31
<i>State and trait anxiety</i> .....	33
<b>Results</b> .....	39
<b>Preliminary Analyses</b> .....	39
<b>Primary Analyses</b> .....	41
<i>Total negative parenting, anxious attachment style and symptoms             of ASA</i> .....	41
<i>Testing an anxious attachment style as a mediator</i> .....	42
<i>Relations between total negative parenting, anxious attachment             style and symptoms of ASA</i> .....	43
<i>Relations between negative parenting dimensions, anxious             attachment style and Symptoms of ASA</i> .....	44
<i>Relations between total negative parenting, anxious attachment and             secondary outcome variables</i> .....	45
<b>Discussion</b> .....	54
<b>Perceived Parenting Styles, Anxious Attachment Style and ASA</b> .....	58
<b>Mediation with Secondary Outcome Variables</b> .....	63
<b>Limitations and Future Research</b> .....	65
<b>References</b> .....	70
<b>APPENDIX</b> .....	87

## LIST OF TABLES

Table 1.	Demographic Characteristics of the Sample	36
Table 2.	Frequency of Comorbid Symptoms with Self-Reported ASA ( <i>n</i> = 81)	38
Table 3.	Descriptive Statistics for Predictor and Outcome Variables with Total Sample (N = 170)	46
Table 4.	Descriptive Statistics for Predictor and Outcome Variables by Symptoms of ASA (N = 170)	47
Table 5.	Intercorrelations of Possible Confounding Variables with Symptoms of ASA	48
Table 6.	Intercorrelations of Variables of Interest with Symptoms of ASA	49
Table 7.	Intercorrelations of Possible Confounding Variables with Secondary Outcome Variables	50
Table 8.	Summary of Hierarchical Regression Analysis for Variables Predicting Symptoms of ASA	51
Table 9.	Summary of Mediation Results for Symptoms of ASA (DV) with Negative Parenting (IV) and Anxious Attachment Style (M)	52
Table 10.	Summary of Mediation Results for Secondary Outcome Measures (DV) with Negative Parenting (IV) and Anxious Attachment Style (M)	53

## LIST OF FIGURES

Figure 1. Anxious attachment style as a mediator of the relation between perceived negative parenting style and symptoms of ASA.	22
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## **Introduction**

Early parent-child relationships are an especially important area of study for understanding separation anxiety. Moreover, the attachment style that is formed through early parent-child interactions may play an important role in the development of separation anxiety. The recent proposal of an adult form of separation anxiety (Cyranowski, et al., 2002; Manicavasagar, Silove, & Curtis, 1997; Manicavasagar, Silove, Curtis, & Wagner, 2000; Shear, Jin, Ruscio, Walters, & Kessler, 2006) offers the potential to examine this association over the course of later development. Examining developmental family factors in conjunction with individual attachment styles offers a systemic approach to understanding symptoms of adult separation anxiety (ASA).

## **Separation Anxiety Disorder**

Separation anxiety disorder (SAD) is a well-recognized psychiatric disorder for children and adolescents. SAD is one of the most common anxiety disorders of childhood with prevalence estimates of 4-5% (American Psychiatric Association, 1994; Bernstein, Borchardt, & Perwien, 1996). SAD is characterized by a consistent reaction of excessive age-inappropriate anxiety to separation from a caregiver. In response to anticipated or actual separation, children with SAD typically exhibit excessive distress manifested by crying, complaints of physical symptoms (e.g., stomachaches), avoidance (e.g., school refusal), and engagement in safety behaviors (e.g., frequent phone calls to or from a caregiver). The primary concern of children with SAD is that something terrible will happen to their caregiver (e.g., car accident) or that they will become permanently separated from their caregiver (e.g., kidnapped or lost; American Psychiatric Association, 1994).

SAD can make it difficult for children and adolescents to reach important developmental milestones and can impair functioning in multiple domains. The pervasive impairment in functioning that can be caused by SAD underscores the importance of investigation into the causes, and consequently, potential sources of intervention, for the disorder. Although there has been considerable research on anxiety disorders as a class, there is a dearth of research specifically examining SAD both in terms of the underlying etiological factors and its course over the lifespan.

Developmentally appropriate separation anxiety usually appears between 7 and 12 months of age, peaks between 15 and 18 months of age, and then gradually declines in most individuals. The age of onset for typical separation anxiety is similar for children being raised in nuclear families, kibbutzim in Israel, the barrios of Guatemala, and Indian villages in Central America (Ellis, 1990). The intensity and time of initial onset of typical separation anxiety does not vary between children in daycare and those cared for by stay at home mothers (Ellis, 1990). The developmental trajectory of childhood SAD remains unclear, with some research suggesting that it creates a specific vulnerability to panic disorder (PD) in adulthood (Yeragani, Meiri, Balon, Patel, & Pohl, 1989). However, more recent studies suggest that childhood SAD may be a more generic risk factor for a range of adult anxiety disorders (Lipsitz, et al., 1994). Another possibility recently explored in the literature suggests that childhood SAD may persist into an adult form of the disorder (Manicavasagar, et al., 1997; Manicavasagar, et al., 2000) or that a form of SAD may have a first onset in adulthood (Shear, et al., 2006).

## Separation Anxiety in Adults

According to the DSM-IV (American Psychiatric Association, 1994) SAD can be diagnosed in adults as long as the symptoms were present before age 18. However, recent empirical evidence suggests an adult onset of the disorder is possible (Manicavasagar, et al., 1997; Pini, et al., 2005; Shear, et al., 2006). Unfortunately specific criteria have not been established for the diagnosis of SAD in adults. The current DSM criteria for SAD makes it nearly impossible to diagnosis an adult with this disorder because the diagnostic criteria are presented in a way that is developmentally inappropriate for adult levels of functioning. For example, Manicavasagar and colleagues (1997) suggest that adults with SAD may not ‘physically cling’ but may talk excessively as a proximity-maintaining device analogous to the physical clinging seen in children. In addition, symptoms of separation anxiety in adults may manifest as extreme anxiety about being separated from spouses or children as well as from parents (Manicavasagar, Silove, Wagner, & Drobny, 2003).

A recently proposed revision for the DSM-V is the possible reclassification of SAD from *Disorders Usually First Diagnosed in Infancy, Childhood, or Adolescence* to *Anxiety Disorders*; modification includes rewording of the criteria to be suitable for adults as well as children and the potential problem of overlap with other disorders. In addition, as empirical evidence for adult-onset SAD increases, the criterion that symptoms occur before the age of 18 may be eliminated from future versions of the DSM ("DSM-V Development", American Psychiatric Association, 2010)

Shear and colleagues (2006) completed the first epidemiological study of adult separation anxiety disorder (ASAD). Data used in the study were obtained from the



National Comorbidity Survey Replication (NCS-R), a nationally representative survey of U.S. households. Shear and colleagues (2006) sought to examine the prevalence and correlates of ASAD and its relation to childhood SAD. A structured, lay-administered diagnostic interview assessed a wide range of DSM-IV disorders, including SAD. Childhood SAD was assessed retrospectively with questions based on the DSM-IV criteria. Parallel sets of questions were also asked about adult-onset SAD, making age-appropriate modifications to the criterion A symptom questions. For example, for childhood SAD a criterion A symptom question is: 'Did you ever worry that something bad would happen to you that would separate you from your mother (like getting lost, being kidnapped, have an accident, or even being killed)?' The modification of this question to make it age-appropriate for ASAD is: 'Did you ever worry that something bad would happen to you and separate you from a loved one (like getting lost, being kidnapped, have an accident or being killed)?' The SAD symptom questions closely resembled those in the Structured Clinical Interview for Separation Anxiety Symptoms (Cyranowski, et al., 2002) an instrument with good psychometric properties that was developed for use with clinical groups of adults (Shear, et al., 2006).

Results of the study conducted by Shear and colleagues (2006) found lifetime prevalence estimates of 4.1% for childhood SAD and 6.6% for ASAD. These estimates suggesting a higher prevalence of SAD in adults run counterintuitive to the general belief that SAD is specifically a childhood disorder and is in conflict with current DSM-IV guidelines that symptoms must be present before age 18. Approximately 36% of the respondents who endorsed SAD had a childhood case of SAD that persisted into adulthood. However, the vast majority (77.5%) of adults diagnosed with SAD had a first

onset of the disorder in adulthood. Results also indicated that 50.3% of the respondents classified as having SAD in the year prior to the study received 12 months of treatment for emotional problems, but only 28.5% reported that separation anxiety disorder was a focus of the treatment. More woman than men endorsed experiencing separation anxiety in adulthood (odds 1.4). Moreover, study results estimated that ASAD is associated with roughly doubling of the odds of low education (0-12 years), unemployment, and marital disruption. ASAD was significantly related to low education (0-12 years), unemployment, and marital disruption (e.g. separated, widowed, or divorced). In fact, results estimate that ASAD is associated with roughly doubling of the odds of low education, unemployment and marital disruption.

An important limitation of the above noted study is the potentially distorted or inaccurate influence of retrospective recall bias regarding the presence or absence of childhood SAD. Another important limitation of the study is that diagnoses were based on unvalidated structured clinical interviews that were administered by lay interviewers (Shear, et al., 2006). However, within the context of these limitations, the results offer interesting provisional data regarding the prevalence and correlates of childhood SAD and ASAD.

Manicavasagar and colleagues (2000) found that in a clinic-based study to identify cases of ASAD among patients attending an anxiety clinic, when comorbidity existed, symptoms of separation anxiety appeared to predate the onset of other anxiety disorders. Despite the high rates of comorbidity with separation anxiety symptoms, it has been found that ASAD does exist in isolation from other diagnoses. Another study conducted by Manicavasagar and colleagues (1997) determined that of 36 participants

who met study criteria for an ASAD diagnosis, 89% met criteria for at least one additional anxiety or affective disorder diagnosis and 11% met criteria only for ASAD. Of those with a comorbid diagnosis, 75% met criteria for panic disorder, agoraphobia, or both; however, the majority of these participants associated their panic attacks or agoraphobia with separation from attachment figures. Similar to results reported by Manicavasagar and colleagues (2000), 75% of the individuals with comorbid diagnoses reported that the separation anxiety symptoms appeared to predate the development of their other symptoms.

Again highlighting the prevalence and significance of symptoms of adult separation anxiety (ASA), a similar study examined separation anxiety symptoms in 91 adult psychiatric outpatients and 20 non-psychiatric controls and found that 54% of the sample reported symptoms that could be classified as ASAD (Cyranowski, et al., 2002). Further investigating the possibility that SAD may be a primary disorder in adulthood seems warranted based on both theory and previous research. If future studies support such a claim, this may provide an impetus for the development of specific treatments and interventions that will more directly address the issues of separation anxiety in adulthood.

The question remains as to why SAD is not more commonly discussed clinically in adult populations despite the supporting research. One possibility is that symptoms of childhood SAD may progress into an adult equivalent of the disorder, but the symptoms are overlooked in the clinical setting either because contemporary diagnostic conventions discourage making such a diagnosis or because supervening symptoms of PD, agoraphobia, or additional affective diagnoses obscure the underlying disorder

(Manicavasagar, et al., 1997). Adding to the complexity of diagnosis is the need to distinguish between symptoms of SAD and more common adult diagnoses of Dependent Personality Disorder (DPD) and Borderline Personality Disorder (BPD).

It is important to distinguish between symptoms of separation anxiety and those of certain personality disorders. DPD is marked by a pervasive and indiscriminate tendency to rely excessively on others, whereas SAD refers to a limited array of concern about the proximity and safety of specific attachment figures (Bowlby, 1982a). Although the “frantic efforts to avoid real or imagined abandonment” (American Psychiatric Association, 1994) often observed in borderline patients may share features with ASA, these fears are often marked by patterns of highly intense and unstable relationships and dangerous behavior. In contrast, adults with separation anxiety often experience anxiety in relation to relatively stable relationships in which separation fears are focused less on abandonment by the relationship partner, but rather on possible separation from a primary attachment figure due to accident, injury, death or some other unforeseen event (Cyranowski, et al., 2002).

### **History of Attachment Theory**

Bowlby (1973) suggested that all forms of anxiety disorders (with the exception of animal phobias) are best accounted for by anxiety regarding the availability of the attachment figure. Although this hypothesis may be overstated, it is important to examine the possibility that some adult forms of anxiety may be based in insecure attachments. Whereas links have been made between agoraphobia and generalized anxiety disorder and early attachment-related experiences little research has been conducted to examine such a relationship with symptoms of ASA. To the author's

knowledge only one study has examined attachment styles among individuals with symptoms of ASA (Cyranowski, et al., 2002; Manicavasagar, Silove, Marnane, & Wagner, 2009). Results of this study indicated strong correlations with scales measuring anxious attachment and separation anxiety.

The theory of attachment was originally developed by John Bowlby, a British psychoanalyst who was trying to understand the intense distress experienced by infants who had been separated from their parents. Bowlby observed that separated infants would go to extraordinary lengths (e.g. crying, clinging, frantically searching) to either prevent separation from their parents or to reestablish proximity to a missing parent. Drawing on concepts from ethology and developmental psychology, Bowlby postulated that these attachment behaviors were adaptive responses to separation from a primary attachment figure. Because human infants, like other mammalian infants, cannot feed or protect themselves, they are dependent upon the care and protection of a caregiver. Bowlby argued that, over the course of evolutionary history, infants who were able to maintain proximity to an attachment figure would be more likely to survive to a reproductive age (Bowlby, 1982a).

Bowlby's major conclusion was that to grow up mentally healthy, "the infant and young child should experience a warm, intimate, and continuous relationship with his mother (or permanent mother substitute) in which both find satisfaction and enjoyment" (Bowlby, 1951). If the child perceives the primary attachment figure as being nearby, accessible, and attentive, he or she will feel loved, secure, confident, and behaviorally, will be likely to explore his or her environment, play with others, and be sociable. If however, the child does not perceive their primary attachment figure as being nearby,

accessible, and attentive, the child will experience anxiety and, behaviorally, will be likely to exhibit attachment behaviors such as visual monitoring, clinging, or vocal signaling. Thus, Bowlby concluded that, to thrive emotionally, children need a close and continuous caregiving relationship.

Although Bowlby recognized that there are individual differences in the way children experience attachment to their primary caregivers, it wasn't until Ainsworth began to systematically study infant-parent separations that a formal understanding of these individual differences was articulated. Ainsworth developed "the Strange Situation" paradigm for studying infant-parent attachment. In the Strange Situation, 12– to 18-month-old children and their parents are brought to the laboratory and systematically separated and reunited (Ainsworth & Bell, 1970).

Through her experiments with the Strange Situation, Ainsworth discovered different patterns of attachment that could be seen in individual infants. Ainsworth and colleagues found that in the Strange Situation, 66% of infants behave in ways suggestive of "secure" attachments to their caregivers. These infants cry when their caregivers leave the room, go to their mothers to be picked up upon reunion, are easily soothed, and upon being comforted return to exploration (Ainsworth, Blehar, Waters, & Wall, 1978).

However, the other 34% of children exhibited behavior patterns suggestive of "insecure" attachments to their caregivers when in the Strange Situation. According to Ainsworth and colleagues (1978), there are two principal types of insecure attachment: anxious-ambivalent and avoidant. Children classified as having anxious-ambivalent relationships with their caregivers comprise approximately 13% of infants tested in the

Strange Situation. These children demonstrate mixed reactions to their caregiver (approach-avoidance behaviors), engage in less exploration initially, become extremely distressed by separation, and are difficult to soothe upon reunion. Approximately 21% of infants tested in the Strange Situation are classified as having avoidant relationships with their caregivers. These children are less obviously upset at separation; are slow to make contact with their caregiver upon reunion, often ignoring or disregarding their mothers; and tend to engage in behaviors that keep them distracted from the distress they are feeling. A fourth Strange Situation classification, disorganized/disoriented, represents the least common attachment style where infants exhibit conflicted or disoriented behaviors that indicate an inability to maintain one coherent attachment strategy in the face of distress (Main & Solomon, 1990).

In addition to creating the first empirical taxonomy of individual differences in infant-parent attachment patterns, Ainsworth (1963) contributed the concept of the attachment figure as a “secure base” from which an infant can explore the world. That is, secure infants are able to engage in exploration and mastery of their environment because experience tells these infants that if they are faced with a threat during exploration, they can rely on their caregivers to be there and alleviate their distress. Children experience their caregiver as a secure base when they feel that they are nearby, accessible, and attentive to their needs. A child who looks to his or her caregiver as a source of comfort and protection will feel secure, confident, and self-reliant and thus, is more likely to explore his or her environment (Sroufe, 2005). On the other hand, infants who have not experienced consistent availability of and comfort from their caregivers when the environment has proven threatening do not experience

confidence in their own interactions with the world and are less likely to explore their environments (Weinfield, Stroufe, Egeland, & Carlson, 1999).

It is important to note that the behavioral differences seen in the different attachment styles include not only outward manifestations but also an inner organization, or working model. According to Bowlby, working models are usually fairly accurate reflections of experiences that individuals have had with attachment figures (Rholes & Simpson, 2005). An individual's working model provides a blueprint for what should be expected and what is likely to occur in different kinds of interactions with future attachment figures. More specifically, one's working model of self represents one's internalized sense of self-worth; and one's working model of others represents one's general expectations about the availability, dependability, and supportiveness of others. These mental representations, or internal working models of self and others, then form the basis for the individual's attachment style throughout later life (Gamble & Roberts, 2005).

### **Temperament and Attachment Style**

There are a number of contributing factors, from both environmental and genetic origins, that help to determine the development of a particular attachment style. Although a full discussion of the numerous factors that may affect the development of an individual attachment style is beyond the scope of this paper, temperament and its impact on individual attachment style will be briefly discussed.

Temperament is said to form the foundation of an individual's personality development through the dispositions by which infants can exert a unique influence on those around them, and become recognized by others as distinct individuals. These



dispositions include the child's dominant mood, adaptability, activity level, persistence, and threshold for distress (Thompson & Goodvin, 2005). Some theorists suggest that temperament may shape the development of an individual's attachment style. However, infant temperament alone does not seem to predict secure versus insecure attachment. Even though infant temperamental characteristics may contribute to the quality of interaction between caregiver and child, the evidence that such attributes are the primary determinants of attachment security is weak (Belsky, Rosenberger, & Crnic, 1995). While it is unfair to suggest that there is no relation whatsoever between temperament and attachment style it is clear that the relationship between the two constructs is not straightforward but rather involves complex relationships (Belsky, 2005).

### **Adult Attachment**

Attachment theory was initially conceived as a means of understanding the bonds that form between infants and their primary caregivers; however, Bowlby (1982b) regarded the attachment system as influential throughout the lifespan lasting "from the cradle to the grave" (p.208). Ainsworth (1989) agreed that attachments were present throughout the life cycle, despite the general lack of understanding of these developmental processes as they occur beyond infancy. More recently, attachment theory research has focused on the impact of early attachment relationships on current relationships and attachment behaviors in adulthood.

Research on adult attachment is guided by the assumption that the same motivational system that gives rise to the close emotional bond between parents and their children is responsible for the bond that develops between adults in emotionally

intimate relationships. Thus, attempts were made to translate Ainsworth's infant-parent attachment patterns into corresponding adult patterns. This task was accomplished through the creation of the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985), which assesses how memories of childhood experiences with attachment figures are organized mentally. Not only did the AAI classifications correspond to Ainsworth's secure, anxious-ambivalent, and avoidant infant patterns at a conceptual level, but AAI classifications also showed evidence of a cross-generational transmission process (Van IJzendoorn, 1995). In other words, adult parental patterns were shown to be predictive of their child's attachment styles through the Strange Situation (e.g., an adult who has a dismissing attachment style is more likely to have an avoidantly attached infant; Main & Goldwyn, 1984).

Ainsworth (1989) argued that adults may remain attached to their parents but they can also be attached to a number of different individuals who serve as attachment figures in their adult lives. For example, Ainsworth discussed attachment bonds individuals may have with romantic partners, friends, and siblings. Some attachment researchers argue that in childhood, early representations are relationship-specific whereas over time they are believed to generalize, providing a guide for attachment-related thoughts, feelings, and behaviors in relationships beyond the parent-infant relationship. In fact, the AAI was developed as an assessment of the generalized attachment representation rather than as a means of characterizing any specific attachment individual or relationship (Main, Kaplan, & Cassidy, 1985).

## **Adult Attachments and Psychopathology**

Attachment security has been linked to positive affect and well-being and with lower rates of psychopathology (Kobak & Sceery, 1988). Individuals high in attachment security are said to have an open, flexible style of emotion regulation (Magai, Hunziker, Mesias, & Culver, 2000). In contrast, preoccupied attachment styles have been associated with greater peer-rated anxiety (Kobak & Sceery, 1988), as well as with self-report of greater anxiety (Magai, Distel, & Liker, 1995). Individuals with avoidant attachments tend to report less anxiety (Bartholomew & Horowitz, 1991), and are rated as more hostile and defensive by peers (Kobak & Sceery, 1988).

Insecure attachments are based in strategies that either serve to minimize or maximize the expression of attachment needs. Minimizing strategies consist of turning attention away from feelings of distress and from issues of caregiver availability. These individuals have limited access to their own feelings. Individuals with avoidant attachments have been characterized as having a 'minimizing' style of emotion regulation (Cassidy, 1994). Maximizing strategies, on the other hand, consist of turning attention to their own distress and to issues of caregiver availability. These individuals are overly concerned with issues of caregiver availability, and are unable to accurately access the environment for existing threats and caregiver availability. Individuals characterized by ambivalent/preoccupied attachment styles tend to have a 'maximizing' style of emotion regulation (Cassidy, 1994, 2000).

Either of these strategies may place individuals at an increased risk for psychopathology. Minimizing strategies place an individual at greater risk for externalizing disorders (e.g., eating disorders, oppositional defiant disorder) because

attention is turned away from the self, without the resolution of negative representations of the self and others. On the other hand, it has been suggested that maximizing strategies place an individual at an increased risk for internalizing disorders (e.g., depression, anxiety) because attention is focused on caregiver availability, and negative representations remain painful (Dozier, Stovall-McClough, Albus, Cassidy, & Shaver, 2008).

Longitudinal research studies have presented promising results linking infant attachment styles to adult forms of psychopathology (Carlson, 1998; Warren, Huston, Egeland, & Sroufe, 1997). For example, Warren and colleagues (1997) found that infants with resistant (anxious-ambivalent) attachments were significantly more likely than infants with secure or avoidant attachments to be diagnosed with anxiety disorders as adolescents. Moreover, even when temperamental differences were controlled for, resistant attachments still emerged as significant predictors of later anxiety disorders (Dozier, Stovall, & Albus, 1999).

### **Parenting Style and Family Environment**

Early attachment experiences have been shown to have a vital influence on development. However, it must be kept in mind that attachment experiences are only one of many environmental influences on the developing child. For example, parenting styles and behaviors (i.e., limit and boundary setting, appropriately modulated stimulation, support for problem solving, etc.) lie outside the scope of attachment (Sroufe, et al., 2005). Various studies have indicated that parental and familial characteristics such as parental psychopathology, overprotectiveness, and family disharmony are important factors that contribute to childhood anxiety (Kearney, Sims,

Pursell, & Tillotson, 2003). Parent-child relationships are an especially important area of study for understanding the development of insecure attachments. Research has shown that parent-child bonding has two principal dimensions: “care” and “control” (Parker, Tupling, & Brown, 1979). According to this model, the care dimension involves, at one end, affection, emotional warmth, empathy, and closeness, and on the other, emotional coldness, indifference, and neglect. One end of the control dimension is defined by overprotection, intrusion, excessive contact, and prevention of independent behavior, whereas the other end is defined by allowance of independence and autonomy.

In terms of parenting style, parents who are more consistently responsive provide the child with more opportunities to exercise their ability to elicit social reinforcement. These experiences with social reinforcement can be thought of as one of the earliest opportunities for children to familiarize themselves with control of the environment. In addition, parenting styles that are less intrusive and protective, and thus provide the child with occasions to develop new skills and to explore and manipulate the environment, will help cultivate an enhanced sense of environmental control (Chorpita & Barlow, 1998). Early experience with reduced control can foster a psychological diathesis that may eventually give rise to increased anxiety in children and adults (Chorpita & Barlow, 1998). Results from animal models have indicated that lack of control (i.e., the inability to influence events) is one of the pathways to fear and anxiety (Minor, Dess, Overmier, & Denny, 1991 as cited in Chorpita & Barlow, 1998).

Results from human populations are similar. It has been found that maternal overprotectiveness is a contributing factor in the development of childhood SAD and that it may also precede symptoms of ASA (Manicavasagar, Silove, Wagner, & Hadzi-

Pavlovic, 1999). Silove, Parker, Hadzi-Pavlovic, Manicavasagar, & Blaszczyński (1991) differentially predicted anxiety disorders (i.e. PD, generalized anxiety disorder, and matched controls) by using the Parental Bonding Instrument (PBI; Parker, et al., 1979), a self-report measure completed by the participant, designed to assess the perceived quality of attachment or “bond” between parent and child up until age 16. The authors used the PBI to classify parents into four groups based on parenting styles: 1) high care – low overprotection; 2) high care – high overprotection; 3) low care – low overprotection; 4) low care – high overprotection. Results suggested that anxious individuals were significantly more likely to report their parents as less caring more protective (i.e. ‘affectionless control’). Further analyses concluded individuals with generalized anxiety were more likely to have experienced combinations of parental neglect and overprotection whereas individuals with PD were more likely to report experiencing distinctly overprotective parenting.

In addition to parent-child bonds, family environments have been shown to play a role in the development of attachment bonds (Mothersead, Kivlighan, & Wynkoop, 1998). Bowlby noted that different family environments were more or less likely to contribute to the development of secure attachments that allow the child to tolerate separation for longer periods of time with less distress (Bowlby, 1973). He suggested that family environments that involve parental control through overprotection or rejection are more likely to cause insecure attachments and subsequently anxiety disorders. Some examples of maladaptive family environments according to Bowlby include environments in which a child worries about a parent’s survival in the child’s absence (e.g., family violence, suicidal threats), environments in which the child worries about

being rejected or abandoned, environments in which the child feels the need to remain home as a companion to the parent, and environments in which a parent has difficulty letting go of the child (Dozier, et al., 1999).

A common question regarding research conducted using adult perceptions of early negative parenting is the concern that an individual's current affective state could impact reports of early parenting. More specifically, the concern is that current affective distress could lead to negative biases in the recall of parenting behaviors. However, research conducted on the impact of current affective state on parenting recall bias suggests that even after controlling for the effect of current affective symptomatology significant relationships were found between perceived parenting behaviors and both positive and negative cognitions (Brewin, Firth-Cozens, Furnham, & McManus, 1992; Ingram, Overby, & Fortier, 2001). Moreover, studies using independent raters as well as corroborative witnesses (e.g., mothers, siblings) have allowed the validity of the PBI to be tested and suggest considerable support for its validity as a measure of both actual and perceived parenting (Mackinnon, Henderson, & Andrews, 1993; Neale, et al., 1994; Parker, 1989).

### **Separation Anxiety in College Populations**

Identifying symptoms of separation anxiety in young adult college students may help to improve college retention rates. According to Kessler, Foster, Saunders, and Stang (1995) an estimated 4.29 million individuals in the United States would have been likely to graduate from college if they had not been afflicted with psychiatric disorders. In fact, anxiety was one of four psychological disorders that were noted to be “significant predictors of failure to make educational transitions” (e.g., failure to complete high

school among eighth grade graduates; failure to enter college among high school graduates; failure to complete college among college entrants) (Kessler, et al., 1995, p. 1,029).

Attachment theory holds considerable promise for understanding the challenging transitional period of young adult college students. According to Ainsworth and colleagues (1978), significant life changes or transitions – such as attending college – are likely to activate the attachment system and trigger attachment insecurity. For securely attached college students, leaving home for college is likely to be perceived as an opportunity for environmental exploration and mastery, whereas this may not be the case for college students who are insecurely attached. In fact, among college students, secure parental attachments have been positively associated with college adjustment (Larose & Boivin, 1997), assertiveness in social relationships (Kenny, 1987), enhanced resources for coping with stress (Brack, Gay, & Matheny, 1993), and career exploration and commitment (Blustein, Walbridge, Friedlander, & Palladino, 1991).

Seligman and Wuyek (2007) presented one of few studies examining the correlates of separation anxiety among college students. The authors focused their study on first-semester college students living on campus and experiencing extended separation from significant others, generally for the first time. Results indicated that 21% of first-semester college students reported experiencing symptoms of separation anxiety. In addition, symptoms of ASA were related to childhood SAD, panic attacks and educational decisions. For example, students reporting increased levels of separation anxiety symptoms were significantly more likely to attend school closer to home. There were no significant differences in separation anxiety symptoms and first semester grade



point averages or likelihood of not returning to school for the spring semester. This study examined separation anxiety during the student's first two weeks of college thus, the student's reported anxiety levels may be inflated due to transient anxiety related to their recent life change. Although the findings from this study are notable future studies should examine symptoms of ASA beyond what could be considered a normal period of adjustment for college students.

A study by Ollendick, Lease and Cooper (1993) examined separation anxiety in college students and identified three groups: 1) a group of students currently experiencing symptoms of ASA; 2) a group of students who reported meeting criteria for childhood SAD but no current symptoms (diagnostic control) and 3) a group of students who did not meet diagnostic criteria for any past or current psychiatric disorder (normal controls). Results from the study indicated that the current ASA group experienced more adjustment problems than the diagnostic or normal control groups. For example, the ASA group reported significant problems in being away from home and in "fitting in" to the college environment and actively participating in college life. These students also reported more nervousness, worry, depression, tension, arousal, and somatic complaints than either of the control groups. The authors also include anecdotal information expressed by the ASA group that they felt miserable, alone, and estranged. They also reported needing to call home frequently to "check in" with their parents and be reassured that everything was all right.

### **Specific Aims**

The primary aim of this study was to investigate the presence of symptoms of ASA in first-year college students using a self-report measure of separation anxiety and

to determine if an anxious attachment style was significantly correlated with perceived negative parenting styles and symptoms of ASA. It is hypothesized that an anxious attachment style and perceived negative parenting will be positively correlated with symptoms of ASA, with individuals obtaining high scores on measures of adult anxious attachment and total negative parenting also obtaining higher scores on a measure of symptoms of ASA. In addition, total perceived negative parenting styles will be separated into three different parenting styles (indifference, overcontrol, and abuse) to determine if a specific parenting style differentially accounts for a significant relationship found between total perceived negative parenting and symptoms of ASA. It is unclear at this point which specific parenting style will be most likely to predict symptoms of ASA. Previous research is widely mixed in terms of linking particular parenting styles to specific psychiatric outcomes. For example, Silove (1991) and colleagues suggest that indifferent, neglectful parenting styles are reported more frequently by individuals with generalized anxiety disorder whereas individuals with panic disorder tend to report a history of parental overcontrol.

Second, this study sought to gain a better understanding of the relationships among perceived negative parenting styles, an anxious attachment style, and symptoms of ASA in first-year college students. More specifically, it is hypothesized that an anxious attachment style will mediate the relationship between perceived negative parenting styles that are high on abuse, control or indifference and symptoms of ASA (Figure 1). If the above hypothesis is supported the extent to which this model is a unique pathway to symptoms of ASA will be examined by covarying out BPD, DPD, PD, State Anxiety and Trait Anxiety.

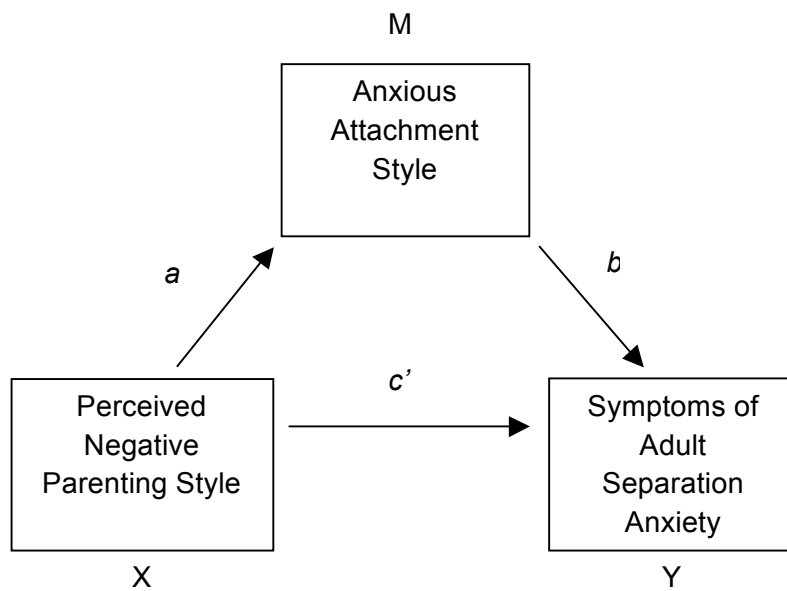


Figure 1. Anxious attachment style as a mediator of the relation between perceived negative parenting style and symptoms of ASA. Note: Parenting styles will include dimensions of abuse, control and indifference.

## Method

### Participants

College freshmen between 18 and 20 years of age ( $M=18.46$ ,  $SD=0.56$ ) were recruited from the Georgia State University (GSU) undergraduate research participant pool. GSU is a large, public urban university located in Atlanta, GA. Of the total participants ( $N = 170$ ), 81 (47.6%) endorsed symptoms of ASA in the clinically significant range ( $ASA-27 > 22$ ; Manicavasagar, et al., 2003). The overall sample was ethnically diverse, which is in accord with the overall enrollment of GSU undergraduate students and supports the generalizability of the current findings. Most participants self-identified as Caucasian ( $n=59$ ; 32.7%) or African American ( $n=55$ ; 32.3%). Sex was less evenly distributed, with 122 (71.76%) females and 47 (27.65%) males. The majority of the sample reported living in a GSU dormitory ( $n=73$ ; 42.94%) or in a parent or caregiver's home ( $n=77$ ; 45.29%). Fifty-one percent ( $n=40$ ) of the participants who reported living in a parent or caregiver's home noted that their living situation was primarily due to financial reasons. Sixty-one participants (35.88%) identified their mother as their primary attachment figure, 40 identified a romantic partner as their primary attachment figure (23.52%), 32 identified a best friend as their primary attachment figure (18.82%), and 12 identified a sibling as their primary attachment figure (7.06%). Additional demographic information on the total sample and the separate samples based on endorsement of symptoms of ASA is presented in Table 1.

Of the 81 participants endorsing clinically significant levels of ASA, 37 (45.7%) endorsed having clinically significant symptoms of only ASA and 44 (54.3%) endorsed clinically significant levels of a comorbid psychiatric condition (See Table 2).

Participants endorsed having comorbid symptoms of State ( $n=25$ , 14.7%) and Trait Anxiety ( $n=21$ , 12.4%) more than any other comorbid symptom presentation.

### **Procedure**

GSU undergraduate college students enrolled in introductory psychology classes have the option to sign up for research participation in order to fulfill a class requirement. GSU students enrolled in these courses were recruited through Sona Systems, a web-based human subject pool management software for universities. Participants were presented the study consent form online via Sona Systems. Participants who agreed to informed consent were asked to complete a total of 8 questionnaires online that were counterbalanced across participants. Approximately 40-45 minutes were needed to complete the questionnaires. Upon completion of the questionnaires participants received two research credits for their time. Participants were informed that they had the option to discontinue participating in the study at any time without penalty.

**Measures** (select study measures are included in the Appendix)

***Demographic data form.*** Questions were asked regarding participants' age, sex, ethnicity, current living situation, parental marital status, primary attachment figure, how many miles away they currently live from their permanent home address, number of different families lived with throughout their life, number of times they have moved and the number of significant losses they have experienced. Primary attachment figure was defined as the individual the participant considers to be the most involved in taking care of their needs, or the person they feel they can most count on or talk to when they have a problem.

**Adult separation anxiety.** Symptoms of ASA were assessed using the Adult Separation Anxiety Questionnaire (ASA-27, Manicavasagar, et al., 2003). The ASA-27 is a 27-item self-report inventory that explores symptoms of ASA, including, but not limited to, adult variants of DSM-IV criteria for childhood SAD. Individual items are scored on a 4-point Likert scale ranging from 0 = (*this has never happened*) to 3 (*this happens very often*). The ASA-27 takes approximately 10 minutes to complete. The items are summed to derive a total score for ASA. A cut-off score of 22 was used to identify individuals with clinically significant levels of ASA. A cut-off score of 22 has been shown to maintain sound levels of sensitivity (81%) and specificity (84%) (Manicavasagar, et al., 2003). The ASA-27 has been shown to display good internal reliability (Cronbach's  $\alpha = 0.89$ ) as well as concurrent validity with clinical assessments of ASA (Manicavasagar, et al., 2000; Manicavasagar, Silove, & Hadzi-Pavlovic, 1998; Manicavasagar, et al., 2003).

The validation sample was recruited in Sydney, Australia via a media campaign utilizing ads in newspapers and radio interviews. Advertisements sought adults whose major concerns were anxieties about separation from key attachment figures. The validation sample consisted of 36 subjects (10 men and 26 women) with a mean age of 43 ( $SD = 11.3$ ). Seventy-five percent of the sample were married, with most participants residing with their spouses ( $n = 12$ ) or with their spouses and children ( $n = 15$ ). One participant resided with her parents. Fifty-six percent of the sample held university qualifications, and three (8%) were unemployed (Manicavasagar, et al., 1997). Specific demographic information regarding the ethnic backgrounds of the validation sample was

not provided. To the author's knowledge, this is the only known self-report measure of symptoms of ASA.

**Attachment style.** To assess adult attachment style, participants completed the Experiences in Close Relationships, Revised questionnaire (ECR-R; Fraley, Waller, & Brennan, 2000). The ECR-R assesses individual differences with respect to attachment-related anxiety (i.e., the extent to which people are insecure vs. secure about the degree to which others are available and responsive) and attachment-related avoidance (i.e., the extent to which people are uncomfortable being close to others versus secure depending on others). The wording of the ECR-R items and the instructions can be altered to apply to a particular relationship, to one's general orientation in romantic relationships, or to one's general or global "attachment style" in various kinds of relationships. For the purpose of the current study, the wording of the ECR-R reflected an assessment of the participant's general or global "attachment style."

The ECR-R is a 36-item self-report measure in which individuals rate on a 7-point Likert scale how well each item describes their feelings in emotionally intimate relationships from: 1 (*strongly disagree*) to 7 (*strongly agree*). The ECR-R takes approximately 10 minutes to complete. Eighteen anxiety items assess fear of abandonment and desire for intimate contact (e.g., "I often worry that others will not want to stay with me") and 18 avoidance items assess discomfort with interpersonal disclosure about personal issues (e.g., "I prefer not to show a partner how I feel deep down" and "I am nervous when partners get too close to me"). To obtain a score for attachment-related anxiety, responses to the 18 attachment items were averaged and responses to the 18 avoidance items were averaged for attachment-related avoidance.

Lower scores on both dimensions correspond to more secure attachment styles.

Attachment-related anxiety scores will be the score used in the primary data analyses.

As suggested by the authors of the scale the order of the items presented were randomized. The ECR-R has norms for attachment style anxiety and attachment style avoidance based on a sample of 22,000 people (78% female) with an average age of 24 years ( $SD = 10$ ).

At the present time there are several self-report measures that can be utilized to assess adult attachment styles. However, the ECR-R is believed to be the best available measure for a number of reasons. The original Experiences in Close Relationships was developed by factor-analyzing the non-redundant items from all self-report adult attachment measures that had been created by the late 1990's, using a large sample of over 900 college students (Brennan, 1998). The goal was to refine the existing measures and create a measure that would specifically assess for Ainsworth's two major dimensions (i.e. anxiety and avoidance). It was believed that this process would maximize internal consistency without unnecessarily narrowing the constructs being assessed. The ECR has been used in numerous studies since its development and has always resulted in high internal consistency (alpha coefficients near or above .90) and moderate test-retest coefficients ranging between .50 and .75 (Mikulincer & Shaver, 2007).

To further improve on the ECR, Fraley, Waller, and Brennan (2000) used item response theory to evaluate the measures ability to discriminate between the two scales equally. In order to yield better discrimination at the secure ends of the two scales, the authors created the ECR-R, which uses different items taken from Brennan and



colleagues (1998) large item pool to replace some of the original items. The ECR-R displayed test-retest correlations in the low .90s during a 6-week period. These results suggest that the ECR-R provides more stable test-retest estimates than those reported in previous research during comparable time periods (Sibley & Liu, 2004). Internal consistency reliability estimates using the ECR-R items are comparable to those of the original ECR items (Sibley, Fischer, & Liu, 2005). The ECR-R was validated on 1,085 undergraduate students from the University of Texas at Austin with a mean age of 18. Specific demographic information regarding the ethnic backgrounds of the validation sample was not provided.

***Perceived parenting style.*** Using the Measure of Parenting Style (MOPS; Parker, et al., 1997), information was gathered related to perceived negative parenting styles. The MOPS is a self-report measure completed by the individual about his or her parents or primary caregivers. The MOPS was developed to directly address parenting behaviors that put a child at risk for later psychopathology. The measure includes dimensions of parental indifference (i.e., lack of care and neglect), over-control (i.e., overprotection and criticism) and parental abuse (physical and verbal abuse, making the child feel in danger and parental loss) through a 15-item self-report questionnaire. There are six items measuring parental indifference, four items measuring overcontrol, and five items measuring parental abuse.

The MOPS was developed by refining two scales on the Parental Bonding Instrument (PBI; Parker, et al., 1979) and including a measure of abuse. The MOPS can be used as a shortened version of the PBI, which has been extensively examined in terms of its psychometric properties (Gerlsma, Emmelkamp, & Arrindell, 1991; Parker,

1983; Parker, et al., 1979). The MOPS scales have acceptable internal consistency. Parker and colleagues (1997) reported alpha coefficients of .93 for both maternal and paternal indifference, .82 and .76 for maternal and paternal overcontrol, and .87 and .92 for maternal and paternal abuse. As evidence of concurrent validity, Parker and colleagues (1997) reported that the indifference and overcontrol scales correlated highly with, respectively, the care and protection subscales of the PBI and had correlations from .39 to .66 between abuse scores and psychiatrists' ratings of patients' reported abusive experience. The validation sample consisted of 152 depressed patients (65% female) with a mean age of 40.7 (SD = 11.9). Participants were recruited from a Mood Disorders unit in Sydney, Australia. Specific demographic information regarding the ethnic backgrounds of the validation sample was not provided.

Although the authors do not consider the MOPS an advanced version of the PBI, its benefits include brevity and greater breadth in assessing parenting behaviors. The authors consider the MOPS to be a broad measure of the likelihood of exposure to dysfunctional parenting. The MOPS takes approximately 5 minutes to complete. The questions are presented twice, once referring to the individual's perception of their mother up until age 16 and again referring to the individual's perception of their father up until age 16. For the purpose of the current study participants were instructed to answer the questions based on their primary female and male caregivers whether or not these individuals were their parents. Participants rated each item as a description of their primary caregiver's behaviors toward them in their first 16 years of life, using a 4-point Likert scale ranging from 0 (*not true at all*) to 3 (*extremely true*). Total MOPS subscale scores (i.e., overcontrol, indifference and abuse) were calculated and summed

across male and female primary caregiver to obtain three parental subscale scores. The average of these three scores was calculated to obtain an overall measure of exposure to total negative parenting.

**Temperament.** Temperament was assessed using the Emotionality, Activity, and Sociability Temperament Survey for Adults (EAS; Buss & Plomin, 1984). The EAS is a 20-item self-report inventory that taps the dimensions of emotionality (including the subdimensions emotional distress, fearfulness and anger), activity, and sociability. This is the newest version of the instrument and has four items corresponding to each of the five subscales. Items are rated on a 5-point Likert scale ranging from 1 (*not characteristic or typical of yourself*) to 5 (*very characteristic or typical of yourself*) and takes approximately 5 minutes to complete. Although numerous questionnaires are available to measure temperament, the EAS was selected because of its brevity, established reliability, grounding in behavior genetics, and suitability for adults. Test–retest correlations for the five dimensions range from .75 to .85, and the dimensions show excellent discriminant validity (Buss & Plomin, 1975). Specific demographic information regarding the ethnic backgrounds of the validation sample was not provided.

## Secondary Measures

**Personality disorders.** Personality disorder symptoms were measured using the Personality Diagnostic Questionnaire, Fourth Edition (PDQ-4+; Hyler, 1994). Items reflect DSM-IV diagnostic criteria for personality disorders. Specific personality disorder scores were calculated by summing the pathological responses to the items exploring the corresponding DSM-IV diagnostic criteria. For the purpose of the current study only two personality disorders were assessed: BPD and DPD. The borderline subscale

consists of 9 questions and the dependent subscale consists of 8 questions. A threshold score of greater than or equal to 5 on either scale indicates clinical concern.

The PDQ-4+ was designed for high sensitivity at the expense of low specificity. Information on the inclusion of ethnically diverse participants in the validation sample was not provided. The main advantage of the PDQ-4+ over lengthy structured psychiatric interviews (such as the SCID-II; First, 1997) is ease of administration. The full PDQ-4+ can be completed in approximately 10 –15 minutes. As a screening measure, the PDQ-4+ showed acceptable internal consistency, reliability and construct validity. In clinical samples from Italy and China, internal consistency averaged about .62 and ranged from .46 to .74 and low to modest agreement between the PDQ-4+ and structured diagnostic interviews was observed for both dimensional and categorical personality disorder evaluations (Fossati, et al., 1998; Yang, et al., 2000). Although the PDQ-4+ and similar self-report scales (e.g. SCID-II Personality Questionnaire) do not provide diagnostic information with high specificity, they do provide useful indices of the severity of specific classes of personality disorder symptoms (Jacobsberg, Perry, & Frances, 1995). Lacking any true “gold standard” for personality diagnoses, the PDQ-4+ is an appropriate measure for the current study.

***Panic disorder.*** PD symptoms were assessed using the Panic Disorder Self-Report (PDSR; Newman, Holmes, Zuellig, Kachin, & Behar, 2006). The PDSR is a self-report diagnostic measure of PD based on the DSM-IV (American Psychiatric Association, 1994). The PDSR was modeled after the PD module of the Anxiety Disorders Interview Schedule Adult Version, Fourth Edition (ADIS-IV; Brown, 1994), a well-validated structured interview for the DSM–IV. Thus, questions follow a hierarchical

structure in which items central to diagnosis appear first, followed by additional questions administered only if central symptoms are present.

The first four items assess whether a person has had recurrent and unexpected panic attacks, and if so, the total number of lifetime panic attacks. The next three questions assess worry and change in behavior in response to panic attacks. Next, the PDSR includes a list of 12 symptoms associated with panic attacks and assesses whether these symptoms were experienced during the most severe panic attack. Individuals then rate distress and interference caused by panic attacks on a 4-point Likert scale ranging from 0 (*no interference*) to 4 (*severe interference*). The PDSR concludes with a question to verify that most panic attacks peaked within 10 minutes, as well as two questions to rule out substance and medically related causes for the panic attacks.

The values of endorsed items were summed to create a total score, ranging from 0 to 24. The scoring system allots 1 point to any item required for a diagnosis of panic disorder as well as to items relevant for meeting diagnostic criteria even if endorsing all of the items in a particular section is not required for diagnosis. In the current study a cut-off score of 8.75 was used for analyses that required a categorical diagnosis. This cut-off score has been shown to result in the optimal balance between sensitivity and specificity. The PDSR takes approximately 5 minutes to complete.

The validation sample consisted of 139 undergraduate students (mean age = 21; range 18-41) from Pennsylvania State University. Seventy-nine percent of the sample were women, 19% were men, and 2% did not identify their gender. Self-identified ethnic breakdown was 4% African American, 7% Asian American, 78% Caucasian, 4% Latino,

and 7% other. The PDSR showed superior accuracy in detecting the presence of PD (specificity = 100%; rate of detecting false positive cases identified was 0%), excellent accuracy in detecting the absence of PD (sensitivity = 89%; rate of false negative cases identified was 11%), and a high overall rate of agreement with the ADIS-IV (kappa = .93) (Newman, et al., 2006). Evaluation of the PDSR also demonstrated that it had excellent test-retest reliability over a 2-week period, as well as strong convergent and discriminant validities.

The Panic Disorder Severity Scale – Self-Report form (PDSS-SR; Houck, Spiegel, Shear, & Rucci, 2002) is another measure that could potentially be used to assess for presence of PD. This measure provides a simple, practical format for obtaining level of distress associated with panic symptoms. However, the primary use of the PDSS-SR is to allow clinicians and researchers to monitor the severity of PD symptoms during treatment or the course of a research study. In addition, the PDSS-SR has not been validated on a college sample. The PDSR however was specifically developed to be used as a screening measure and has been validated on a college sample. Students who were identified as having PD using the PDSR did not have significantly different scores on the PDSS-SR than a panic disordered community sample. Both groups (students identified as having PD and the panic disordered community sample) had significantly higher scores than students identified as not meeting criteria for PD (Newman, et al., 2006). In other words, the PDSR was able to adequately discriminate between individuals with and without PD symptoms.

**State and trait anxiety.** General levels of anxiety were assessed using the State-Trait Anxiety Inventory Form Y (STAI; Spielberger, 1983). The STAI is a well-

known 40-item self-report instrument, measuring transient (20 items) and enduring levels (20-items) of anxiety. Completion of the measure requires approximately 10 minutes.

The STAI clearly differentiates between the temporary condition of "state anxiety" and the more general and long-standing quality of "trait anxiety." State anxiety may fluctuate over time and can vary in intensity whereas trait anxiety refers to a general tendency to respond with anxiety to perceived threats in the environment and remains relatively stable over time. The essential qualities evaluated by the State Anxiety scale are feelings of apprehension, tension, nervousness, and worry. Scores on the State Anxiety scale increase in response to physical danger and psychological stress, and decrease as a result of relaxation training. On the Trait Anxiety scale, consistent with the trait anxiety construct, psychoneurotic and depressed patients generally have high scores.

In responding to the State Anxiety scale, individuals indicate on a 4-point Likert scale the intensity of their *current* feelings ranging from 1 (*not at all*) to 4 (*very much so*). When responding to items of the Trait Anxiety scale individuals are asked to indicate how they *generally* feel by rating the frequency of their feelings of anxiety on a 4-point Likert scale ranging from 1 (*almost never*) to 4 (*almost always*). Scores on the STAI have a direct interpretation with high scores indicating increased levels of state or trait anxiety. For the current study the STAI standard scores were utilized as continuous measures of state and trait anxiety. However, for the purpose of further examining the demographics of the current sample clinically significant levels of state and trait anxiety were calculated as 1 SD above the sample mean.

The stability of the STAI scales was assessed on high school and college students for test-retest intervals ranging from one hour to 104 days. The magnitude of the reliability coefficients decreased as a function of interval length. For the Trait Anxiety scale the coefficients ranged from .65 to .86, whereas the range for the State Anxiety scale was .16 to .62. This low level of stability for the State Anxiety scale is expected since responses to the items on this scale are thought to reflect the influence of whatever transient situational factors exist at the time of testing. Strong psychometric support is available for the STAI with younger adults (Spielberger, 1983).

Although the STAI was originally developed for use with high school and college students it has been adapted in more than 30 languages for cross-cultural research. In fact, the STAI is perhaps the most widely used measure of 'anxiety' across cultures (Lonner & Ibrahim, 1989). Research by Novy and colleagues (1993) attests to the psychometric strengths of the STAI in a multicultural setting. Their results present compelling evidence for the psychometric comparability of the STAI scales across different ethnic groups and gender, namely, Caucasian, African American, and Latino men and women.



Table 1

*Demographic Characteristics of the Sample*

	<i>Total Sample (N= 170) N(%)</i>	<i>Symptoms ASA (n= 81) n(%)</i>	<i>No ASA Symptoms (n=89) n(%)</i>
Sex			
Male	47 ( 27.6)	18 (22.22)	29 (32.6)
Female	122 (71.7)	63 (77.77)	59 (66.3)
Missing	1 (0.6)	0 (0)	1 (1.1)
Ethnicity			
African American	55 (32.3)	23 (28.4)	32 (36.0)
Asian/Pacific Islander	25 (14.7)	11 (13.5)	14 (15.7)
Caribbean	10 (5.8)	3 (3.7)	7 (7.9)
Caucasian/White	59 (32.7)	34 (41.9)	25 (28.1)
Hispanic/Latino	7 (4.1)	3 (3.7)	4 (4.4)
Multiracial	9 (5.3)	4 (4.9)	5 (5.6)
Declined to Answer	5 (2.9)	3 (3.7)	2 (2.2)
Current Living Situation			
GSU Dorm	73 (42.9)	39 (48.1)	34 (38.2)
Apartment	14 (8.2)	6 (7.4)	8 (9.0)
Parent's/Caregiver Home	77 (45.2)	32 (39.5)	45 (50.6)
Other	6 (3.5)	4 (4.9)	2 (2.2)
If Living with Parent/Caregiver Why?	<i>n=77</i>	<i>n=32</i>	<i>n=45</i>
Financial	40 (51.9)	17 (53.1)	23 (51.1)
More comfortable	12 (15.5)	6 (18.7)	6 (13.3)
More convenient	9 (11.6)	4 (12.5)	5 (11.1)
Needed to help at home	5 (6.4)	2 (6.2)	3 (6.6)
Missing	11 (14.2)	3 (9.3)	8 (17.7)
Parent Marital Status			
Single	16 (9.4)	8 (9.8)	8 (9.0)
Married	111 (65.2)	50 (61.7)	61 (68.5)
Separated	5 (2.9)	1 (1.2)	4 (4.5)
Divorced	32 (18.8)	19 (23.4)	13 (14.6)
Widowed	6 (3.5)	3 (3.7)	3 (3.4)
Primary Attachment Figure			
Mother	61 (35.8)	27 (33.3)	34 (38.2)
Father	7 (4.1)	3 (3.7)	4 (4.5)
Parents	8 (4.7)	2 (2.4)	6 (6.7)
Best Friend	32 (18.8)	17 (20.9)	15 (16.9)
Romantic Partner	40 (23.5)	23 (28.4)	17 (19.1)
Sibling	12 (7.0)	6 (7.4)	6 (6.7)
Multiple Attachments	5 (2.9)	2 (2.4)	3 (3.4)

Other Family Member (Cousin/Grandparent)	3 (1.7)	1 (1.2)	2 (2.2)
Missing	2 (1.1)	0 (0)	2 (2.2)
	M (SD)	M (SD)	M (SD)
Age	18.46 (0.5)	18.40 (0.5)	18.51 (0.5)
Miles from Permanent Address	41.93 (91.1)	43.98 (85.7)	40.01 (96.4)
Number of Families Lived With	1.01 (1.1)	1.22 (1.3)*	0.82 (0.8)
Number of Times Moved	3.22 (2.8)	3.21 (2.7)	3.23 (3.0)
Number of Significant Losses	1.78 (2.2)	2.01 (2.7)	1.57 (1.5)

\*p<.05

Table 2

*Frequency of Comorbid Symptoms with Self-Reported ASA (n=81)*

	N (%)
ASA without comorbid diagnoses	37 (45.7)
ASA with comorbid diagnoses	44 (54.3)
ASA and Panic Disorder	6 (3.5)
ASA and Borderline Personality Disorder	19 (11.2)
ASA and Dependent Personality Disorder	15 (8.8)
ASA and State Anxiety	25 (14.7)
ASA and Trait Anxiety	21 (12.4)

## Results

### Preliminary Analyses

All statistical procedures were performed using the Statistical Package for the Social Sciences (SPSS) Version 17. Three of the initial 173 cases were deleted due to missing data, resulting in a final sample of 170 individuals. The decision was made to delete the cases as opposed to imputing the data because the validity of the rest of the data obtained for these cases was questionable due to evidence of multiple outliers and unusual response patterns indicative of careless or inconsistent responding. Duration to complete all measures resulted in completion times that were within the expected limits ( $M = 27.75$ ,  $SD = 10.69$ , range = 62.00). The majority of participants completed the questionnaires between 20 and 45 minutes. These observations of the data were performed to help ensure the validity of the data collected.

Prior to running analyses, predictor and outcome variables were examined and graphed to assess for deviation from the normal curve. All variables were within expectations of normalcy and were continuous in nature. Independent samples t-tests were conducted to compare mean scores for demographic variables between individuals reporting clinically significant levels of ASA and those without (see Table 1).

There was a significant difference in the number of families lived with between individuals with clinically significant levels of ASA and those without clinically significant levels of ASA. The ASA group reported having lived with more families ( $M = 1.22$ ,  $SD = 1.29$ ) than those without clinically significant symptoms of ASA ( $M = 0.82$ ,  $SD = 0.86$ ;  $t(168) = -2.405$ ,  $p = .017$ ). The magnitude of the differences in the means (mean difference =  $-.402$ , 95% CI:  $-.732$  to  $-.071$ ) was small (eta squared =  $.03$ ), suggesting

that only 3% of the variance in symptoms of ASA is explained by the number of families lived with. There was also a significant difference between the scores on symptoms of ASA for males ( $M = 20.38$ ,  $SD = 11.24$ ) and females,  $M = 24.84$ ,  $SD = 13.48$ ,  $t(167) = -2.01$ ,  $p = .05$ . The magnitude of the differences in the means (mean difference =  $-4.45$ , 95% CI:  $-8.82$  to  $-.080$ ) was small (eta squared =  $.02$ ), suggesting that only 2% of the variance in symptoms of ASA is explained by sex. Pearson's correlation was used to determine the relationship between age and symptoms of ASA. A significant negative linear relationship was revealed ( $r = -.153$ ,  $n = 170$ ,  $p < .05$ ) indicating that greater scores on ASA were related to younger chronological age.

A one-way ANOVA was used to test for differences in mean ASA scores among African Americans ( $n = 55$ ;  $M = 21.76$ ), Caucasians ( $n = 59$ ;  $M = 24.61$ ) and an 'Other' group comprising individuals self-identifying as Asian/Pacific Islander, Caribbean, Hispanic, Latino or Multiracial ( $n = 51$ ;  $M = 23.70$ ). ASA scores did not differ significantly across the three groups,  $F(2, 162) = .73$ ,  $p = .48$ .

Descriptive statistics for predictor and control variables (i.e., Total Negative Parenting; Anxious Attachment Style; Temperament) and outcome variables (i.e., ASA, BPD, DPD, PD, State Anxiety and Trait Anxiety) were calculated and are included in Table 3. The mean score for symptoms of ASA ( $M = 23.48$ ) was above the recommended cut-off score of 22 on the ASA-27 to assign individuals to the putative category of ASA. This elevated sample mean for symptoms of ASA is not surprising, given that data were collected on a sample going through a recent life transition involving separation from attachment figures. Despite the somewhat elevated mean score for the sample there was adequate variability among the scores on the ASA-27,

which ranged from no separation anxiety to clinically significant levels of ASA ( $M = 23.482$ ,  $SD = 13.065$ , minimum = 2.00, maximum = 60.00). An analysis of mean differences between the predictor and outcome variables for individuals with and without clinically significant levels of ASA are reported in Table 4. Overall, there were significant differences between individuals with and without clinically significant levels of ASA on all measures except for parental indifference, avoidant attachment style, sociability, and PD.

Correlation matrices were created for possible confounding variables and variables of interest. Results of the correlations are presented in Tables 5-7. The hypothesized predictor variables (Total Negative Parenting, Anxious Attachment Style) were correlated with the primary outcome variable (ASA). The hypothesized predictor variables were also significantly correlated with all of the secondary outcome variables (BPD, DPD, State Anxiety and Trait Anxiety) with the exception of PD. All confounding variables significantly correlated with the primary (ASA) and secondary outcome variables were controlled for in the main analyses.

### **Primary Analyses**

#### ***Total negative parenting, anxious attachment style and symptoms of ASA.***

In order to determine the overall magnitude of associations among perceived negative parenting, an anxious attachment style, and symptoms of ASA after controlling for potentially confounding variables (i.e., age, sex, number of different families lived with, and emotionality domains of temperament) hierarchical multiple regression was used. Confounding variables were entered at Step 1, explaining 30% of the variance in symptoms of ASA. After entry of perceived negative parenting at Step 2 the total

variance explained by the model as a whole was 33%. Entry of anxious attachment style at Step 3 explained an additional 4.4% of the variance in symptoms of ASA, after controlling for confounding variables and perceived negative parenting, ( $R^2_{change} = .04$ ;  $F_{change}(1,158) = 11.14, p < .001$ ). Variance explained by the model as whole was 37%. In the final model, only an anxious attachment style was a statistically significant predictor of symptoms of ASA ( $\beta = .292, p < .001$ ). See Table 8.

*Testing an anxious attachment style as a mediator.* The mediating role of an anxious attachment style in the association between perceived negative parenting styles and symptoms of ASA was examined using bootstrap methodology (with  $n = 5000$  bootstrap samples; Preacher & Hayes, 2004). Bootstrapping is a nonparametric resampling procedure that involves estimating the indirect effect in each resampled data set. By resampling repeatedly from the data set, an empirical approximation of the sampling distribution is built and used to create point estimates and confidence intervals for the indirect effect. Point estimates of indirect effects are considered significant when zero is not contained in the confidence interval. Preacher and Hayes (2004) suggest that a more powerful strategy for testing mediation than the more traditionally used Baron and Kenny criteria (1986) may be to require only (1) that there exists an effect to be mediated (i.e.,  $c \neq 0$ ) and (2) that the indirect effect be statistically significant in the direction predicted by the mediation hypothesis. However, it is also important to note that it is possible to find that an indirect effect is significant even when there is no evidence for a significant total effect (Preacher & Hayes, 2004).

Bootstrapping analyses were conducted for total negative parenting (IV), as well as for the three parenting subscales of indifference, overcontrol, and abuse as

predictors of ASA. Bootstrapping analyses were repeated using BPD, DPD, PD, State Anxiety and Trait Anxiety as additional outcome variables to test path specificity for the model. The results of mediation analyses are presented in Tables 9 and 10.

***Relations between total negative parenting, anxious attachment style and symptoms of ASA.*** Bootstrap meditational analyses were conducted while controlling for potential confounding variables (age, sex, number of different family's lived with and temperamental dimensions that comprise emotionality). To test a conventional meditational model, three conditions must first be met: (1) the independent variable (IV) predicts the dependent variable (DV; c pathway), (2) the IV predicts the mediator (a pathway) and (3) the mediator predicts the DV (b pathway) (Baron & Kenny, 1986).

As can be seen in Table 9, an anxious attachment style cannot be a mediator of total negative parenting by the Baron and Kenny (1986) criteria, because total perceived negative parenting does not significantly predict symptoms of ASA (c pathway). However, there is evidence that total negative parenting *does* have an indirect effect on symptoms of ASA, with the effect occurring through an anxious attachment style. The positive, albeit nonsignificant, relationship between total negative parenting and symptoms of ASA ( $c = 0.40$ ) is smaller after controlling for an anxious attachment style ( $c' = 0.20$ ) and the bootstrap output shows that the indirect effect is different from zero with 95% confidence based on 5,000 bootstrapped samples ( $CI = .08 - .39$ ; Table 9).

In a subsequent analysis Trait Anxiety was controlled for along with additional potential confounding variables (age, sex, number of different family's lived with and temperamental dimensions that comprise emotionality). The model remained significant



after controlling for Trait Anxiety, the broadest measure of proneness to relatively stable levels of anxiety in general (point estimate (ab) = .11, 95% CI = .02-.26).

***Relations between negative parenting dimensions, anxious attachment style and symptoms of ASA.*** In order to be better ascertain which dimensions of total negative parenting account for the indirect effects found in above the analysis, additional analyses were performed separately for each dimension of the negative parenting measure (i.e. indifference, overcontrol, and abuse). The MOPS scale used with the current sample was determined to have acceptable internal consistency (alpha coefficients of .84 and .91 for maternal and paternal indifference, .71 and .75 for maternal and paternal overcontrol, and .81 and .88 for maternal and paternal abuse). After controlling for parental overcontrol and abuse as well as other potentially confounding variables (age, sex, number of different families lived with and temperamental dimensions that comprise emotionality) results from bootstrapping analyses revealed significant indirect effects of an indifferent parenting style on symptoms of ASA (CI = .06 – .31), indicating that an anxious attachment style mediates the link between a perceived indifferent parenting style and symptoms of ASA.

After controlling for parental indifference and abuse as well as other potentially confounding variables results from bootstrapping analyses indicated there were no significant indirect effects of a perceived overcontrolling parenting style (CI = -.12 – .20) on symptoms of ASA. Results also indicated that there were no significant indirect effects of perceived parental abuse (CI = -.20 – .07) on symptoms of ASA after controlling for parental indifference and overcontrol as well as other potentially confounding variables indicating. These results suggest that an anxious attachment

style does not mediate the link between perceived parenting styles of overcontrol or abuse. See Table 9 for a summary of mediation results for symptoms of ASA and different dimensions of negative parenting styles.

***Relations between total negative parenting, anxious attachment and secondary outcome variables.*** Bootstrapping analyses were repeated using BPD, DPD, PD, State Anxiety and Trait Anxiety as outcome variables to test path specificity for the model. Correlation matrixes were created for possible confounding variables and outcome variables of interest (Table 7). All confounding variables significantly correlated with the outcome variables were controlled for in the following analyses. Bootstrapping results yielded significant indirect effects of perceived total negative parenting on all outcome variables, with the exception of PD, demonstrating that an anxious attachment style mediates the link between perceived total negative parenting and BPD, DPD, State Anxiety and Trait Anxiety (Table 10). Trait Anxiety as a DV explained more total variance than any other model (59%,  $F(8, 156) = 27.97, p < .001$ ). See Table 10 for the variance explained by the remaining outcome variables.

Table 3

*Descriptive Statistics for Predictor and Outcome Variables with Total Sample (N = 170)*

		<i>M</i>	<i>SD</i>	<i>Range of Possible Scores</i>	<i>MIN</i>	<i>MAX</i>	<i>% Above Clinical Cutoff</i>
Total Negative	Parenting <sup>a</sup>	6.05	4.29	0 – 30	.67	17	N/A
	Indifference	5.46	6.43	0 – 36	0	25	
	Overcontrol	6.98	4.63	0 – 24	0	19	N/A
	Abuse	5.76	4.56	0 – 30	0	28	N/A
Attachment Style <sup>b</sup>							
	Anxious	3.76	1.11	1 – 7	1.33	6.50	N/A
	Avoidant	3.88	.95	1 – 7	1.28	6.67	N/A
Temperament <sup>c</sup>							
	Activity	12.67	3.16	4 – 20	6	20	N/A
	Social	13.69	3.16	4 – 20	6	20	N/A
	Distress	10.56	3.69	4 – 20	4	20	N/A
	Fearfulness	10.72	3.47	4 – 20	4	20	N/A
	Anger	11.11	3.36	4 – 20	4	20	N/A
Adult Separation Anxiety <sup>d</sup>		23.48	13.07	0 – 81	2	60	47.6
Panic Disorder <sup>e</sup>		1.59	4.64	0 – 24	0	21.50	5.9
Borderline Personality Traits <sup>f</sup>		2.39	1.96	0 – 9	0	7	15.3
Dependent Personality Traits <sup>f</sup>		1.79	1.75	0 – 8	0	7	11.2
State Anxiety <sup>g</sup>		49.49	9.22	34 – 93	34	73	21.8
Trait Anxiety <sup>g</sup>		52.27	10.95	30 – 95	32	82	17.6

*Note.* <sup>a</sup>Measure of Parenting Style (MOPS; Parker et al., 1997); <sup>b</sup>Experiences in Close Relationships, Revised (ECR-R; Fraley et al., 2000); <sup>c</sup>Emotionality, Activity, and Sociability (EAS) Temperament Survey (Buss & Plomin, 1984); <sup>d</sup>Adult Separation Anxiety Questionnaire (ASA-27; Manicavasagar et al., 2003), clinical cut-off  $\geq 22$ ; <sup>e</sup>Panic Disorder Self-Report (PDSR; Newman et al., 2006), clinical cut-off  $\geq 8.75$ ; <sup>f</sup>Personality Diagnostic Questionnaire, 4+ (PDQ-4+; Hyler, 1994), clinical cut-off  $\geq 5$ ; <sup>g</sup>State-Trait Anxiety Inventory (Form Y) (STAI; Spielberger, 1983), clinical cut-off State Anxiety  $\geq 58.71$ , Trait Anxiety  $\geq 63.22$ ; Standard Scores are reported for the STAI.

Table 4

*Descriptive Statistics for Predictor and Outcome Variables by Symptoms of ASA (N = 170)*

	<i>Symptoms ASA</i> ( <i>n</i> = 81)	<i>No ASA Symptoms</i> ( <i>n</i> = 89)	<i>t</i>
	M (SD)	M (SD)	
Total Negative Parenting <sup>a</sup>	6.91 (4.43)	5.26 (6.43)	2.53**
Indifference	6.35 (6.66)	4.66 (6.13)	1.72
Overcontrol	7.98 (4.70)	6.08 (4.39)	2.72**
Abuse	6.56 (4.95)	5.04 (4.08)	2.18*
Attachment Style <sup>b</sup>			
Anxious	4.20 (.980)	3.35 (1.06)	5.41**
Avoidant	3.85 (.923)	3.90 (.976)	-3.25
Temperament <sup>c</sup>			
Activity	13.25 (3.10)	12.15 (3.14)	2.29*
Social	13.93(2.99)	13.47 (3.30)	.94
Emotionality			
Distress	12.19 (3.24)	9.09 (3.46)	6.00**
Fearfulness	12.21 (2.88)	9.37 (3.42)	5.82**
Anger	11.80 (3.35)	10.48 (3.27)	2.60**
Panic Disorder <sup>d</sup>	2.21 (5.45)	1.02 (3.69)	1.65
Borderline Personality Traits <sup>e</sup>	2.98 (2.14)	1.86 (1.62)	3.79**
Dependent Personality Traits <sup>e</sup>	2.45 (1.90)	1.15 (1.33)	5.32**
State Anxiety <sup>f</sup>	52.57 (8.73)	46.68 (8.79)	4.37**
Trait Anxiety <sup>f</sup>	56.35 (10.46)	48.56 (10.08)	4.94**

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

*Note.* <sup>a</sup>Measure of Parenting Style (MOPS; Parker et al., 1997), <sup>b</sup>Experiences in Close Relationships, Revised (ECR-R; Fraley et al., 2000), <sup>c</sup>Emotionality, Activity, and Sociability (EAS) Temperament Survey (Buss & Plomin, 1984), <sup>d</sup>Panic Disorder Self-Report (PDSR; Newman et al., 2006), <sup>e</sup>Personality Diagnostic Questionnaire, 4+ (PDQ-4+; Hyler, 1994), <sup>f</sup>State-Trait Anxiety Inventory (Form Y) (STAI; Spielberger, 1983); Standard Scores are reported for the STAI.

Table 5

*Intercorrelations of Possible Confounding Variables with Symptoms of ASA*

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Separation Anxiety <sup>a</sup>	–													
2. Age	-.15*	–												
3. Sex	.15*	-.09	–											
4. Miles away from home	.03	.09	.004	–										
5. Current residence	.002	.027	-.10	-.20*	–									
6. Ethnicity	.08	.15	-.15	-.16*	.07	–								
7. Number of losses	.02	.05	.12	.01	-.13	-.06	–							
8. Number of different families lived with	.19*	.11	.08	.03	.17*	.11	.04	–						
9. Times moved	.02	.13	.11	.01	.11	-.01	.03	.46**	–					
10. Primary attachment	.09	.02	-.001	-.01	.08	.10	-.05	.18*	.11	–				
11. Activity <sup>b</sup>	.14	.04	.16*	.002	-.06	.15*	.03	.14	.10	.05	–			
12. Social <sup>b</sup>	.05	.09	.10	-.18*	-.08	.14	.03	.05	.05	-.01	.14	–		
13. Distress <sup>b</sup>	.51**	-.22**	.20**	.08	.06	-.005	.02	.17*	.03	.18*	.11	-.05	–	
14. Fearfulness <sup>b</sup>	.46**	-.19*	.19*	.04	.01	-.01	-.02	.14	.000	.04	.03	-.007	.64**	–
15. Anger <sup>b</sup>	.23**	-.12	.04	-.05	.06	.03	.005	.10	-.005	.17*	.23**	.07	.46**	.28**

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

Note. <sup>a</sup>Adult Separation Anxiety Questionnaire (ASA-27; Manicavasagar et al., 2003), <sup>b</sup>Emotionality, Activity, and Sociability (EAS) Temperament Survey (Buss & Plomin, 1984).

Table 6

*Intercorrelations of Variables of Interest with Symptoms of ASA*

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Separation Anxiety <sup>a</sup>	–										
2. Total Negative Parenting <sup>b</sup>	.32**	–									
3. Indifference <sup>b</sup>	.25**	.83**	–								
4. Overcontrol <sup>b</sup>	.32**	.87**	.55**	–							
5. Abuse <sup>b</sup>	.27**	.81**	.45**	.69**	–						
6. Anxious Attachment <sup>c</sup>	.51**	.42**	.40**	.34**	.31**	–					
7. Avoidant Attachment <sup>c</sup>	-.04	.22**	.29**	.12	.09	.18*	–				
8. Panic Disorder <sup>d</sup>	.03	.13	.18*	.05	.03	.27**	.25**	–			
9. Borderline Personality <sup>e</sup>	.42**	.41**	.32**	.36**	.35**	.57**	.24**	.36**	–		
10. Dependent Personality <sup>e</sup>	.50**	.32**	.24**	.27**	.32**	.55**	.03	.06	.50**	–	
11. State Anxiety <sup>f</sup>	.40**	.39**	.35**	.33**	.31**	.47**	.21**	.17*	.48**	.40**	–
12. Trait Anxiety <sup>f</sup>	.47**	.41**	.36**	.36**	.33**	.65**	.36**	.31**	.69**	.55**	.72**

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

Note. <sup>a</sup>Adult Separation Anxiety Questionnaire (ASA-27; Manicavasagar et al., 2003), <sup>b</sup>Measure of Parenting Style (MOPS; Parker et al., 1997), <sup>c</sup>Experiences in Close Relationships, Revised (ECR-R; Fraley et al., 2000), <sup>d</sup>Panic Disorder Self-Report (PDSR; Newman et al., 2006), <sup>e</sup>Personality Diagnostic Questionnaire, 4+ (PDQ-4+; Hyler, 1994), <sup>f</sup>State-Trait Anxiety Inventory (Form Y) (STAI; Spielberger, 1983); Standard Scores are reported for the STAI.

Table 7

*Intercorrelations of Possible Confounding Variables with Secondary Outcome Variables*

Variables	Borderline Personality	Dependent Personality	Panic Disorder	State Anxiety	Trait Anxiety
1. Age	-.14	-.19*	-.12	-.13	-.09
2. Sex	.11	.15	.11	.04	.04
3. Miles away from home	.13	-.04	.16*	.15*	.17*
4. Current residence	.04	-.03	-.08	.04	.13
5. Ethnicity	.07	-.02	.08	-.07	.03
6. Number of losses	.01	.01	-.08	-.03	-.03
7. Number of different families lived with	.17*	.07	.06	.09	.16*
8. Times moved	.08	-.05	.09	.00	.06
9. Primary attachment	.17*	.12	-.02	.11	.17*
10. Activity <sup>a</sup>	-.02	.06	.01	-.01	-.07
11. Social <sup>a</sup>	-.14	.05	-.15*	-.22**	-.27**
12. Distress <sup>a</sup>	.62**	.50**	.28**	.44**	.63**
13. Fearfulness <sup>a</sup>	.41**	.49**	.19*	.30**	.52**
14. Anger <sup>a</sup>	.32**	.15	.04	.12	.18*

\*  $p < .05$ , \*\*  $p < .01$ Note. <sup>a</sup>Emotionality, Activity, and Sociability (EAS) Temperament Survey (Buss & Plomin, 1984)

Table 8

*Summary of Hierarchical Regression Analysis for Variables Predicting Symptoms of ASA*

Variable	Model 1			Model 2			Model 3		
	<i>B</i>	<i>SE B</i>	$\beta$	<i>B</i>	<i>SE B</i>	$\beta$	<i>B</i>	<i>SE B</i>	<i>B</i>
Age	-.75	1.60	-.03	-.44	1.64	-.02	-.22	1.59	-.01
Sex	.98	1.96	.03	.82	1.99	.03	1.48	1.93	.05
Number of different families	1.5	.81	.12	1.20	.82	.10	1.17	.80	.10
Fearfulness	.73	.32	.19**	.76	.32	.20**	.54	.32	.15
Distress	1.25	.33	.35*	1.10	.34	.31*	.57	.36	.16
Anger	-.05	.29	-.01	-.02	.29	-.01	.18	.28	.05
Indifference				.15	.17	.07	-.02	.17	-.01
Overcontrol				.43	.28	.16	.41	.27	.15
Abuse				-.20	.27	-.07	-.15	.26	-.05
Anxious Attachment							3.43	1.03	.29*
$R^2$		.30			.33			.37	
<i>F for change in <math>R^2</math></i>		11.58*			1.95			11.14**	

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



Table 9

*Summary of Mediation Results for Symptoms of ASA (DV) with Negative Parenting (IV) and Anxious Attachment Style (M)*

Independent Variable (IV)	Effect of IV on M (a)	Effect of M on DV (b)	Total effects (c)	Direct effects (c')	Indirect effect (a x b)	BCa 95 % CI		R-Square
						Point Estimate	Lower	Upper
1. Total Negative Parenting	.06 (.02)**	3.44 (1.00)**	.40 (.22)	.20 (.22)	.19 (.08)	.08	.39	.36
2. Indifference	.05 (.01)**	3.43 (1.03)**	.15 (.17)	-.02 (.17)	.17 (.06)	.06	.31	.37
3. Overcontrol	.01 (.02)	3.43 (1.03)**	.43 (.28)	.40 (.27)	.02 (.08)	-.12	.20	
4. Abuse	-.01(.02)	3.43 (1.02)**	-.19 (.27)	-.15 (.27)	-.04 (.07)	-.20	.07	

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

Note. BCa = bias corrected and accelerated bootstrapping confidence intervals; 5,000 bootstrap samples.

Table 10

*Summary of Mediation Results for Secondary Outcome Measures (DV) with Negative Parenting (IV) and Anxious Attachment Style (M)*

	Dependent Variable (DV)	Effect of IV on M (a)	Effect of M on DV (b)	Total effects (c)	Direct effects (c')	Indirect effect (a x b)	BCa 95 % CI		R-Square
							Point Estimate	Lower Upper	
1.	Borderline Personality	.06 (.02)**	.52 (.14)**	.09 (.03)**	.06 (.03)*	.03 (.01)	.01	.06	0.48
2.	Dependent Personality	.06 (.02)**	.53 (.13)**	.07 (.03)*	.03 (.03)	.03 (.01)	.01	.07	0.39
3.	Panic Disorder	.06 (.02)**	.72 (.41)	.01 (.09)	-.04 (.09)	.05 (.03)	-.01	.12	0.13
4.	State Anxiety	.06 (.02)**	2.14 (.71)**	.53 (.16)**	.40 (.16)**	.14 (.06)	.05	.29	0.33
5.	Trait Anxiety	.06 (.02)**	3.64 (.68)**	.42 (.16)**	.20 (.15)	.22 (.08)	.10	.40	0.59

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

Note. BCa = bias corrected and accelerated bootstrapping confidence intervals; 5,000 bootstrap samples.

## Discussion

Despite the extensive research that has been devoted to childhood SAD, adult forms of SAD have been virtually unexplored until recently. Prior to discussing the implications of the current findings it is important to note that the diagnostic status of an adult form of SAD in the DSM remains provisional with recent consideration for inclusion in the DSM-V. The construct of an adult form of SAD however, seems to be gaining acceptance with increasing evidence to support its status as a specific form of adult anxiety equivalent to the established childhood diagnosis of SAD (Cyranowski, et al., 2002; Kessler, Chiu, Demler, & Walters, 2005; Manicavasagar, et al., 2009; Silove, Marnane, Wagner, Manicavasagar, & Rees, 2010).

Adding to this evidence, the current study found that a high proportion (47%;  $n=81$ ) of first-year college students between the ages of 18 and 20 endorsed clinically significant symptoms of ASA, suggesting that separation concerns may be an important factor to consider in the mental health of college freshmen. Our prevalence estimate of students endorsing symptoms of ASA was obtained via a self-report measure. Despite the fact that self-report measures may result in inflated prevalence estimates as compared to clinician administered diagnostic interviews, and the fact that our sample was experiencing a separation relevant life stressor, this estimate still offers additional evidence that symptoms of ASA may represent a significant mental health concern for young adult college students.

Given the high incidence of individuals endorsing symptoms of ASA in the current study and past research suggesting symptoms of ASA are correlated with lower levels of education (Shear, et al., 2006) and more adjustment difficulties related to the

transition to college (Ollendick, et al., 1993), symptoms of ASA may significantly impact the ability to remain in college. Thus, symptoms of ASA may be one of the non-academic factors that relates to college retention and addressing these symptoms may have important implications for designing effective university-based retention programs. Although many retention programs tend to rely on traditional academic factors to identify students at risk of dropping out, this approach may overlook a key student population at risk for poor retention. The self-report measure of symptoms of ASA used in the current study could be administered early on in the freshman year to identify students determined to be at-risk for significant symptoms of ASA. These students could be encouraged to attend group psychotherapy sessions at the university counseling center that are specifically focused on separation anxiety and the transition to college.

Given that close to 50% of the current sample endorsed significant symptoms of ASA universities could also consider offering programs addressing separation concerns to all first-year students. For example, residence hall programs, living/learning residential communities, or freshman seminars that include a focus on anxiety around separations could be offered on campus. Openly discussing these concerns with other students as well as university staff could allow for an improved sense of security and normalcy in seeking help around feelings of anxiety related to separation. Another strategy to target separation anxiety concerns early on in the freshman year could include offering extended freshmen orientations (where credit could be offered as incentive to participate), summer bridge programs, or a more intensive orientation program that includes a parent/family orientation. Parent/family orientation sessions would allow caregivers to be given information regarding separation anxiety in young

adults. The current study offers evidence to suggest that perceived parental factors are related to symptoms of ASA. Given this link caregivers could be offered information regarding parenting styles or strategies that may help buffer or improve symptoms of ASA in young adults.

Consistent with past research (Ollendick, et al., 1993; Shear, et al., 2006) our results suggest that more females than males endorsed clinically significant levels of symptoms of ASA (77% and 22% respectively). Future research should explore the possibility of a gender difference among symptoms of ASA by attempting to explore differences among a sample that has an even distribution of males and females. In addition, our results found that younger students endorsed more symptoms of ASA. It is possible that the transition into a college setting is developmentally more difficult for younger individuals.

Current data also suggest a significant difference between individuals with ASA and the number of different families the participant reported having lived with throughout childhood. Individuals meeting the cut-off for clinically significant levels of ASA reported having lived with significantly more families throughout childhood than individuals without ASA. Although the current study did not access the specific reasons for living with different families during childhood a number of possibilities exist (i.e., foster care, death in the family, financial difficulties). Future research should further examine the impact of living with multiple families during childhood on the development of ASA. Living with numerous families during childhood likely impacts the development of a secure attachment style that in turn may create longstanding anxieties or concerns regarding separations from primary attachment figures. In future research it will be

important to identify the factors involved in the decision for a child to live with different families, as the factors leading up to the transition into different households could differentially impact the development of ASA. For example, a child needing to move in with grandparents due to a parental illness or financial or childrearing assistance could have a significantly different impact on the development of ASA than needing to be placed with a foster care family.

Results showed an association between a dimensional index of symptoms of ASA and an anxious attachment style. It is possible that individuals reporting higher symptoms of ASA are predisposed to report higher scores on measures of insecure attachment styles. It is noteworthy however that the individuals in the current study, as well as individuals in an earlier study exploring symptoms of ASA and attachment styles (Manicavasagar, et al., 2009) did not demonstrate statistically higher scores on both insecure attachment dimensions, only on the dimension of an anxious attachment. Future studies should further explore the idea that the two constructs (symptoms of ASA and an anxious attachment style) simply reflect different aspects of the same construct, 'anxiety about relationships.' Manicavasagar and colleagues (2009) present preliminary evidence that this may not be the case, given that in their study, although there were strong associations between the two relevant measures, the greater portion of variance remained unexplained, suggesting a high degree of independence between the two constructs. Similarly, current data show a significant association between an anxious attachment style and BPD, DPD, PD, State and Trait Anxiety. Given the link between an anxious attachment style and the secondary outcome variables it is likely that an

anxious attachment style is related more generally to psychiatric presentations that have an anxiety component rather than specifically to 'anxiety about relationships'.

### **Perceived Parenting Styles, Anxious Attachment Style, and ASA**

In addition to exploring the prevalence of symptoms of ASA in a young adult college sample, this study investigated potential developmental correlates of symptoms of ASA. In particular, this research explored a model positing that the relationship between perceptions of negative parenting styles and symptoms of ASA is mediated by an anxious attachment style. It was hypothesized that individuals who perceived their parents as having more negative parenting styles would report a more anxious attachment style, which in turn would predict more symptoms of ASA.

Results from bootstrapping analyses provided support for the general model. More specifically, bootstrapping demonstrated that perceived negative parenting has an indirect effect on symptoms of ASA, with the effect occurring through an anxious attachment style. When the mediational model is examined using traditional Baron and Kenny methods there is not a significant *direct* relationship between perceived negative parenting and symptoms of ASA. According to Baron and Kenny (1986) if there is not a direct relationship between the IV and DV then a mediational model is not possible. However if the IV's effect on the DV is carried indirectly through an intervening variable (*M*), the causal steps approach (i.e. Baron and Kenny) is not likely to detect that effect (Hayes, 2009). Given that the effect found was an indirect effect it is important to note that the relationship between perceived negative parenting styles and symptoms of ASA is mediated almost entirely by an anxious attachment style. Thus, perceived parenting styles appear to exert little or no direct influence on symptoms of ASA and instead

operate indirectly through an anxious attachment style. An anxious attachment style then acts as a more proximal cause of symptoms of ASA.

When perceived negative parenting was broken down into three components (e.g. indifference, overcontrol, and abuse) in the mediational model, a perceived indifferent parenting style was the predictor that upheld the mediational model. Support for the mediation model was obtained when statistically controlling for perceived parenting styles of overcontrol and abuse as well as additional confounding variables including age, sex, number of different families lived with and emotionality domains of temperament (distress, anger, and fearfulness). Overcontrolling parenting styles and parental abuse were not significant predictors on their own in the mediational model. Thus, an anxious attachment style was shown to mediate the relationship between an indifferent parenting style and symptoms of ASA.

The current study did not find support for an anxious attachment style mediating the relationship between perceived overcontrolling parenting styles or parental abuse and symptoms of ASA. However, there was a significant difference between the levels of overcontrol and parental abuse endorsed by participants with and without clinical levels of ASA. Participants with clinically significant levels of ASA perceived their parents to be more overcontrolling and abusive than those without clinically significant levels of ASA. Although the mediational model only held true for an indifferent parenting style when parenting dimensions were separated out it is noteworthy that individuals with separation anxiety perceived more overcontrol and parental abuse than those not endorsing clinically significant levels of ASA.



Parenting styles can be understood as attitudes toward the child that are communicated to the child and create an emotional climate in which parents' behaviors are expressed (Darling & Steinberg, 1993). Several aetiological models of anxiety have argued for the importance of the parent–child relationship as one factor central to the development of anxiety disorders (Chorpita & Barlow, 1998; Krohne, 1990; Manassis & Bradley, 1994; Rapee, 2001; Rubin & Mills, 1991). However, there has been some disagreement in the literature in terms of the particular parenting styles that tend to be implicated in anxiety disorders.

Some research has suggested that the parent–child relationship seen in individuals with anxiety tends to be characterized by an overprotective or overinvolved style of interaction that serves to promote insecurity and fear of independence in the child (Manicavasagar, et al., 1999; Solyom, Silberfeld, & Solyom, 1976; Terhune, 1949; Tucker, 1956; Webster, 1953). Other studies have suggested that adults with a wide range of anxiety disorders tend to report parenting styles characterized by low warmth, rejection, and negligence (Arbel & Stravynski, 1991; Arrindell, Kwee, Methorst, & Van der Ende, 1989; de Ruiter & Van Ijzendoorn, 1992; Mackinnon, et al., 1993; Silove, 1986). Still others suggest that specific parenting styles are directly related to different expressions of anxiety – with more neglectful, affectionless parenting styles reported more frequently by general anxiety patients, and parental overprotection being more often reported in patients with panic disorder (Silove, et al., 1991).

Finally, additional research suggests that parental styles and the resultant anxiety disorders may differ for perceived maternal vs. paternal parenting styles or that specific combinations of control and care (i.e. 'affectionless control' – low care, high

overprotection and ‘affectionate constraint – high care, high overprotection’) are implicated in anxiety disorders (Silove, et al., 1991). The results of the current study support the findings of previous retrospective studies that demonstrate a relationship between rejecting or indifferent parenting styles and anxiety.

Research on parenting often uses the term “control” to refer to parental intrusiveness, domination or pressure with the other end of the continuum being support of autonomy and independence (Grolnick & Pomerantz, 2009). It is noteworthy however that an important distinction can be made between “psychological control” and “behavioral control.” Whereas behavioral control often includes parental guidance, monitoring and rule setting, psychological control often includes parental regulation of children’s feelings and thoughts (e.g., Barber, Stolz, & Olsen, 2005). Thus, behavioral control does not necessarily involve intrusiveness or domination and can even be seen as having positive rather than negative effects on children’s psychological development depending on the parents intention or goal: to regulate children’s behavior or to regulate their psychology (Grolnick & Pomerantz, 2009).

The current study utilized the MOPS to assess for levels of parental overcontrol. The MOPS includes four questions pertaining to parental overcontrol in which the participant is asked to respond with how true they feel the following statements are regarding their primary caregiver’s behavior toward them during their first 16 years of life: 1) overprotective of me; 2) overcontrolling of me; 3) sought to make me feel guilty; and 4) critical of me. Only two of the above questions are clearly psychological in nature (e.g. ‘sought to make me feel guilty’; ‘critical of me’). The other two questions could be interpreted to be forms of either behavioral or psychological control. The perceived

intention of the parental behaviors was not assessed; thus, they could be interpreted by the participant as either positive (overprotective and overcontrolling in order to ensure safety and establish healthy boundaries) or negative (overprotective and overcontrolling as a means of limiting friendships and creating enmeshed boundaries). In order to more clearly interpret the parental domain of overcontrol, future studies should further extrapolate the perceived goal of the parental behaviors. Although behavioral and psychological control may in fact create a more general vulnerability to anxiety as a class, it was not specifically indicated in the mediational model proposed in the current study.

Whereas there has been some disagreement over the degree to which the impact of parental control is universal in the psychological development of children, it has been suggested that parental rejection-acceptance plays a role in psychological development regardless of culture because relatedness is a universally important human construct (e.g., Rohner, Khaleque, & Cournoyer, 2004). The idea that the rejection-acceptance continuum may be more influential than the parental control continuum in the development of maladaptive ideas regarding attachment security fits well with the current findings. The current study's results suggest that an anxious attachment style indirectly mediates the relationship between perceived indifferent parenting styles and symptoms of ASA. Thus, it appears that a rejecting or indifferent parenting style would undermine the individual's attachment security. These results make theoretical sense: if a child senses emotional distance from a primary attachment figure they may learn to engage in proximity-increasing behaviors in an attempt to draw the attachment figure in more closely. The problematic behaviors (i.e., clinging, school

refusal, increased somatic complaints) can also draw the attention and care of others as well, thus decreasing their felt attachment anxiety.

### **Mediation with Secondary Outcome Variables**

The meditational model examining an anxious attachment style as a mediator between perceived negative parenting and symptoms of ASA was not a unique pathway for symptoms of ASA. Rather, the model held true for BPD, DPD, State Anxiety and Trait Anxiety, but not PD.

It is somewhat surprising that the rates of PD were not significantly different between those with and without clinically significant levels of ASA given the previous research linking separation anxiety and PD (Klein, 1964; Perugi, Deltito, Soriani, & Musetti, 1988; Pini, et al., 2005; Zitrin & Ross, 1988). However, some research has suggested that separation anxiety may constitute a nonspecific vulnerability to anxiety disorders as a class rather than being linked specifically to PD and/or agoraphobia (Lipsitz, et al., 1994; Manicavasagar, et al., 2009; Silove, Manicavasagar, Curtis, & Blaszczynski, 1996). In fact, research by Silove and colleagues (1996) suggests that once an adult form of SAD is included as a subcategory of adult anxiety, any apparent relationship between childhood SAD and PD disappears.

In addition, it is possible that individuals did not endorse having PD via the self-report measure of PD because panic attacks experienced by individuals with ASA may be specifically triggered or linked to anticipated or real separations from primary attachment figures. Thus, their panic attacks may not seem to appear 'out of the blue' and may be more easily controlled or managed than individuals with PD who seemingly have no control over the occurrence of a panic attack. For example, individuals with

panic attacks as a result of separations from key attachment figures may live their lives in a way that limits separations from attachment figures from occurring thus preventing the occurrence of panic attacks. Clinician diagnoses of the presence or absence of panic attacks related to separations from key attachment figures may result in a more accurate estimate of PD in those with ASA.

Together with past research, the present findings support the view that the various forms of anxiety may be best conceptualized as interrelated dimensions (Brown, 1996; Silove, et al., 2007). The high diagnostic comorbidity seen between symptoms of ASA and the secondary outcome measures may be due to a shared vulnerability dimension such as high trait anxiety and/or low positive affect/behavioral activation (Brown & Barlow, 2009). In the current study trait anxiety was the most highly correlated construct with all of the secondary outcome measures including PD (ASA = .47; BPD = .69; DPD = .55 and PD = .31). The high correlation between trait anxiety and the secondary outcome measures suggests that trait anxiety may account for a large portion of variance across these measures.

Future methodological studies are needed to investigate whether comorbidities involving ASA are because of overlapping symptoms, imprecision of diagnostic criteria, other methodological confounds, or are true psychiatric comorbidities reflecting the presence of two distinct clinical entities. Assuming that confounds can be ruled out, it would be important to investigate whether existing comorbidities are causal and, if so, whether early treatment of symptoms of ASA in childhood and/or young adulthood would reduce the development of secondary adult disorders.

A related concern that would benefit from future study is whether symptoms of ASA have any effect on the persistence or severity of other comorbid disorders (Shear, et al., 2006). Current research offers some evidence to suggest that ASA in combination with additional mental disorders can increase the negative impact on daily functioning and increase distress in the individual. Shear and colleagues (2006) found that 45 percent of respondents experienced severe role impairment (i.e., home management, work, social life, and personal relationships) if their ASA was associated with a comorbid mental disorder. In addition, Kirsten, Grenyer, Wagner & Manicavasagar (2008) recently found that higher levels of ASA was associated with a greater likelihood of anxiety and comorbid depression remaining unremitted at termination of cognitive behavioral group psychotherapy. The authors concluded that separation anxiety appears to be one factor contributing to greater levels of distress, and to poorer outcomes from psychotherapy. They also suggest future studies examine the use of psychodynamic treatments that specifically target attachment fears and separation conflicts.

### **Limitations and Future Research**

There are limitations to the current study that should be noted. The first limitation pertains to the fact that the sample consisted of only college students. Therefore, generalizability of the findings to a young adult community or a clinical sample of young adults is limited. However, the ethnic diversity of the sample allows for generalizability of symptoms of ASA across various college samples.

The second set of challenges with the study relate to measurement issues. Only self-report data was used to assess early parenting styles, attachment style, and clinical

symptomatology. The parenting style measure was limited in that it only took into account the participants' report and was obtained retrospectively. In addition, participants' recollection of the parenting they received could be influenced by their current emotional states. It is recommended that, in addition to self-report, adult attachment styles and clinical symptomatology should be evaluated from the perspective of a mental health professional in future studies by utilizing clinician administered diagnostic interviews. This evaluation might include an adult attachment interview, such as the Structured Adult Separation Inventory (SASI), and clinician administered diagnostic interviews to obtain classifications for additional Axis I and II disorders. A final measurement concern is that most of the self-report measures used in the current study did not provide sufficient information about the validation sample or were not validated on an ethnically diverse sample. Therefore, the psychometric properties of the measures for use with an ethnically diverse sample are unclear.

Additionally, future research should obtain both reports of perceived parenting styles and information on parenting styles from multiple informants (e.g., parents, siblings, peers) as a way to ensure the most accurate picture of recalled parenting styles. Future research should also consider exploring how specific aspects of mothers' and fathers' parenting styles (or primary female and male caregivers) may contribute to particular aspects of attachment insecurity, and how these insecurities specifically related to symptoms of ASA. In addition, it is important that the findings from the current study be replicated in a clinical sample that includes a more evenly distributed sample of males and females. The current study found a significant difference between males and females and their mean scores on a measure of ASA. Future research should

examine the effect of sex in moderating the meditational relationship found with an anxious attachment style mediating the relationship between indifferent parenting styles and symptoms of ASA.

A third area of concern is that the current study failed to assess for other potentially relevant variables in the analyses, such as depressive symptomatology and externalizing disorders. Future studies should assess for psychological disorders that are not believed to have an underlying anxiety component. Assessing for additional psychological disorders would allow for a more thorough understanding of the meditational model in regard to outcome variables that do not fall along an anxiety dimension. Given that the model specifically examines the mediating effect of an anxious attachment disorder it is likely that the model would extend to other internalizing affective disorders as opposed to externalizing disorders or disorders without a primary affective component (i.e. ADHD, ODD, substance abuse, or schizophrenia spectrum disorders). Along these lines future research should attempt to further expand the model by examining the mediating effect of an avoidant attachment style. It is possible that an avoidant attachment style may more precisely account for psychiatric presentations that involve a component of isolation (i.e. depression; cluster A personality disorders; avoidant personality disorder).

In further studies of ASA, it would be important to explore the boundaries between a normal response to loss of an attachment figure, separation anxiety as an adjustment reaction, and ASAD. Given the recognized importance of attachment relationships in adulthood, symptoms of separation anxiety may be more easily elicited in adults than is commonly recognized and might be the norm under certain life



circumstances (e.g. transition to college). Thus, it would make sense that diagnostic criteria for ASA take into consideration the possibility of expected reactions to extreme life stressors that create an unusual but realistic threat to attachment security (e.g., living in a dangerous neighborhood or a war zone, caring for a seriously ill child). In addition, as ASA becomes more widely accepted and understood, it would be valuable to distinguish transient context-dependent symptoms of ASA or mild adaptive forms related to culturally accepted familial interdependence from pathological symptoms of ASA. The diagnosis of adjustment disorder with anxious mood is currently used in children when there are subthreshold, transient symptoms of separation anxiety. Consideration should be given as to when this diagnosis applies to adults as well (Shear, et al., 2006).

Finally, the cross-sectional design of the current study cannot address the issue of causal direction. Longitudinal studies that include multiple informants, multiple methodologies (e.g. self-report measures, family interviews, clinician administered diagnostic interviews), and diagnostic comparison groups are needed to better address causality.

Despite these limitations this study produced unique findings that add to the field of adult separation anxiety. Moreover, it is the first study to the author's knowledge to include data regarding symptoms of separation anxiety on such an ethnically diverse sample. This study explored the extent to which symptoms of ASA were endorsed in a sample of college freshmen and proposed a model that can help to explain the developmental trajectory of separation anxiety in adults. Given that separation anxiety in

adults is a relatively new and underexplored area it is our hope that the current findings prompt future research and clinical work in this area of inquiry.

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## APPENDIX

### Sample Characteristics

1. What is your birthday? : \_\_\_\_/\_\_\_\_/\_\_\_\_
2. How old are you? \_\_\_\_\_
3. Your marital status? \_\_\_\_\_
4. The term primary attachment figure refers to the person with whom an individual develops a lifelong emotional bond, and whom they most want to be with when they are frightened or hurt. Who do you consider to be your primary attachment figure?  
  
 \_\_\_\_\_(i.e. mother, father, stepparent, boyfriend/girlfriend, best friend, sister, brother, etc.)
5. Approximately how many miles away from GSU is your permanent address? \_\_\_\_\_
6. Where do you currently live?
  - a. GSU Dorm
  - b. Apartment
  - c. Parents/Caregiver home
  - d. Other
7. If living at home please select the answer that best describes why you chose to live at home:
  - a. Financial reasons
  - b. More comfortable
  - c. More convenient
  - d. Needed to help around the home
8. How long have you lived in the state of GA? \_\_\_\_\_
9. Are you new to the U.S.? \_\_\_\_YES \_\_\_\_NO
10. Is English your first language? \_\_\_\_YES \_\_\_\_NO
11. How would you classify yourself?
  - a. African American
  - b. Arab

- c. Asian/Pacific Islander
- d. Caribbean
- e. Caucasian/White
- f. Hispanic
- g. Indigenous or Aboriginal
- h. Latino
- i. Multiracial
- j. Would rather not say

12. How many people in your life have died? \_\_\_\_\_

13. How many times have you moved in your life? \_\_\_\_\_

14. How many different families have you lived with? \_\_\_\_\_

15. How much money on average does your family make per year?

\_\_\_\_\_

16. Have you ever seen a psychologist or psychiatrist for emotional problems? Did they say you had any mental illness?

\_\_\_\_\_  
\_\_\_\_\_

17. Are your Parents/Caregivers married?

\_\_\_ Single

\_\_\_ Married

\_\_\_ Separated

\_\_\_ Divorced

\_\_\_ Widowed

### Adult Separation Anxiety Questionnaire (ASA-27)

The following statements refer to symptoms that you might have experienced as an adult (over the age of 18 years). Please indicate how often you have experienced any of these symptoms by marking the corresponding space underneath each question. Please remember to answer all questions. Each question will have space for marking 'this happens very often,' 'this happens fairly often,' 'this happens occasionally,' this has never happened.'

1. Have you felt more secure at home when you are with people that are close to you?
2. Have you experienced difficulty in staying away from home for several hours at a time?
3. Have you been carrying around something in your purse or wallet that gives you a sense of security or comfort?
4. Have you experienced extreme stress before leaving home to go on a long trip?
5. Have you suffered from nightmares or dreams about being separated from someone close to you?
6. Have you experienced extreme stress before leaving someone close to you when going away on a trip?
7. Have you become very upset when your usual daily routine is disrupted?
8. Have you been worried about the intensity of your relationship with those people closest to you, e.g. that you are too strongly attached?
9. Have you experienced symptoms such as headaches, stomachaches or nausea (or other) before leaving for work or other regular activity outside the home?
10. Do you find that you talk a lot in order to keep people close to you?
11. Have you been especially concerned about where people close to you are going when you are separated from them, e.g. when you leave them to go to work or go out of the house?
12. Have you experienced difficulty in sleeping alone at night, e.g. is your sleep better if someone close to you is in the house?
13. Have you noticed that you are better able to go off to sleep if you can hear the voices of people you are close to or the sound of the TV or the radio?

14. Have you become very distressed when thinking about being away from people that are close to you?
15. Have you suffered from nightmares or dreams about being away from home?
16. Have you been worrying a lot about people close to you coming to serious harm, for example, meeting with a car accident, or suffering from a fatal illness?
17. Have you become very upset with changes to your usual daily routine if they interfere with your contact with persons close to you?
18. Have you been worrying a lot about people you care about leaving you?
19. Have you found that you sleep better if the lights are on in the house or in the bedroom?
20. Have you tried to avoid being at home alone especially when people close to you are out?
21. Have you suffered from sudden bouts of anxiety or panic attacks (e.g. sudden shaking, sweating, shortness of breath, pounding heart) when thinking about leaving people close to you or about them leaving you?
22. Have you found that you get anxious if you do not speak to people that are close to you on the telephone regularly, e.g. daily?
23. Have you been afraid that you would not be able to cope or could not go on if someone you cared about left you?
24. Have you suffered from sudden bouts of anxiety or panic attacks (e.g. sudden shaking, sweating, shortness of breath, pounding heart) when separated from people close to you?
25. Have you been worrying a lot about possible events that may separate you from those close to you e.g. because of work requirements?
26. Have people close to you mentioned that you 'talk a lot'?
27. Have you been worrying that your relationships with some people are so close that it may cause them problems?



## The Experiences in Close Relationships-Revised (ECR-R) Questionnaire

Instructions: The statements below concern how you feel in emotionally intimate relationships. We are interested in how you generally experience relationships, not just in what is happening in a current relationship. Respond to each statement by clicking a number to indicate how much you agree or disagree with the statement. Each item is rated on a 7-point scale where 1 = strongly disagree and 7 = strongly agree.

1. It makes me mad that I don't get the affection and support I need from others.  
Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree
  
2. I prefer not to be too close to others.  
Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree
  
3. I find it difficult to allow myself to depend on others.  
Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree
  
4. It helps to turn to others in times of need.  
Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree
  
5. I don't feel comfortable opening up to others.  
Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree
  
6. I am very comfortable being close to others.  
Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree
  
7. I get uncomfortable when others want to be very close.  
Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree
  
8. My desire to be very close sometimes scares people away.  
Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree
  
9. I am nervous when others get too close to me.  
Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

10. I find it easy to depend on others.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

11. I worry a lot about my relationships.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

12. I rarely worry about others leaving me.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

13. I prefer not to show others how I feel deep down.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

14. I worry that others won't care about me as much as I care about them.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

15. Others make me doubt myself.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

16. I find it relatively easy to get close to others.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

17. When I show my feelings for others, I'm afraid they will not feel the same about me.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

18. Others only seem to notice me when I'm angry.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

19. It's not difficult for me to get close to others.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

20. I usually discuss my problems and concerns with others.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

21. I often worry that others will not want to stay with me.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

22. I talk things over with others.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

23. I feel comfortable sharing my private thoughts and feelings with others.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

24. I tell others just about everything.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

25. Sometimes others change their feelings about me for no apparent reason.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

26. I'm afraid that once others get to know me, they won't like who I really am.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

27. When others are out of sight, I worry that they might become interested in someone else.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

28. I find that others don't want to get as close as I would like.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

29. It's easy for me to be affectionate with others.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

30. I'm afraid that I will lose others love.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

31. I often worry that others don't really love me.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

32. I often wish that others feelings for me were as strong as my feelings for them.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

33. I worry that I won't measure up to other people.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

34. Others really understand me and my needs.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

35. I do not often worry about being abandoned.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

36. I feel comfortable depending on others.

Strongly Disagree 1      2      3      4      5      6      7      Strongly Agree

37. Please list all the relationships you considered as you completed this questionnaire:

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### Measure of Parenting Style (MOPS)

During your first 16 years how 'true' are the following statements about your MOTHER'S (female caregiver's) behavior towards you

Rate each statement either as:

0 = not true at all

1 = slightly true

2 = moderately true

3 = extremely true

1. Overprotective of me
2. Verbally abusive of me
3. Over controlling of me
4. Sought to make me feel guilty
5. Ignored me
6. Critical of me
7. Unpredictable towards me
8. Uncaring of me
9. Physically violent or abusive of me
10. Rejecting of me
11. Left me on my own a lot
12. Would forget about me
13. Was uninterested in me
14. Made me feel in danger
15. Made me feel unsafe

During your first 16 years how 'true' are the following statements about your FATHER'S (male caregiver's) behavior towards you

Rate each statement either as:

0 = not true at all

1 = slightly true

2 = moderately true

3 = extremely true

1. Overprotective of me
2. Verbally abusive of me
3. Over controlling of me
4. Sought to make me feel guilty
5. Ignored me
6. Critical of me
7. Unpredictable towards me
8. Uncaring of me
9. Physically violent or abusive of me
10. Rejecting of me
11. Left me on my own a lot
12. Would forget about me
13. Was uninterested in me
14. Made me feel in danger
15. Made me feel unsafe

## Personality Diagnostic Questionnaire – Version 4 (PDQ4)

The purpose of this questionnaire is for you to describe the kind of person you are. When answering the questions think about how you have tended to feel, think, and act over the past several years.

Please answer either True or False to each item.

Where:

T (True) means that the statement is generally true for you.

F(False) means that the statement is generally false for you.

Even if you are not entirely sure about the answer, indicate “T” or “F” for every question.

For example, for the question:

xx. I tend to be stubborn.                      T              F

If, in fact you have been stubborn over the past several years, you would answer True by clicking on T.

If, this was not true at all for you, you would answer False by clicking on F.

There are no correct answers.

Over the past several years .....

1. I can't make decisions without advice, or reassurance, of others.

T\_\_\_\_ F\_\_\_\_

2. I want people to like me so much that I volunteer to do things that I'd

rather not do. T\_\_\_\_ F\_\_\_\_

3. I feel that my life is dull and meaningless. T\_\_\_\_ F\_\_\_\_

4. I either love someone or hate them, with nothing in between. T\_\_\_\_ F\_\_\_\_

5. I have difficulty controlling my anger, or temper. T\_\_\_\_ F\_\_\_\_

6. I am a very moody person. T\_\_\_\_ F\_\_\_\_

7. I have done things on impulse (such as those below) that could have gotten me into trouble. T\_\_\_\_ F\_\_\_\_

Click all that apply to you:

- a. Spending more money than I have \_\_\_\_
  - b. Having sex with people I hardly know \_\_\_\_
  - c. Drinking too much \_\_\_\_
  - d. Taking drugs \_\_\_\_
  - e. Eating binges \_\_\_\_
  - f. Reckless driving \_\_\_\_
8. When a close relationship ends, I need to get involved with someone else immediately. T\_\_\_\_ F\_\_\_\_
9. When stressed, things happen like I get paranoid or just “black out.”  
T\_\_\_\_ F\_\_\_\_
10. I’ll go to extremes to prevent those who I love from ever leaving me.  
T\_\_\_\_ F\_\_\_\_
11. I often wonder who I really am. T\_\_\_\_ F\_\_\_\_
12. When alone, I feel helpless and unable to care for myself. T\_\_\_\_ F\_\_\_\_
13. I prefer that other people assume responsibility for me. T\_\_\_\_ F\_\_\_\_
14. I find it difficult to start something if I have to do it by myself. T\_\_\_\_ F\_\_\_\_
15. I fear losing the support of others if I disagree with them. T\_\_\_\_ F\_\_\_\_
16. I am terrified of being left to care for myself. T\_\_\_\_ F\_\_\_\_
17. I have tried to hurt or kill myself. T\_\_\_\_ F\_\_\_\_

**SELF-EVALUATION QUESTIONNAIRE STAI Form Y-1**

Please provide the following information:

Name \_\_\_\_\_ Date \_\_\_\_\_ S \_\_\_\_\_

Age \_\_\_\_\_ Gender (Circle) M F T \_\_\_\_\_

**DIRECTIONS:**

A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you feel *right now*, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

- |                        |   |   |   |   |
|------------------------|---|---|---|---|
| 1. I feel calm .....   | 1 | 2 | 3 | 4 |
| 2. I feel secure ..... | 1 | 2 | 3 | 4 |
| 3. I am tense .....    | 1 | 2 | 3 | 4 |

NOT AT ALL  
SOMEWHAT  
MODERATELY SO  
VERY MUCH SO

**SELF-EVALUATION QUESTIONNAIRE**

STAI Form Y-2

Name \_\_\_\_\_ Date \_\_\_\_\_

**DIRECTIONS**

A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you *generally* feel.

- |                                       |   |   |   |   |
|---------------------------------------|---|---|---|---|
| 21. I feel pleasant .....             | 1 | 2 | 3 | 4 |
| 22. I feel nervous and restless ..... | 1 | 2 | 3 | 4 |

ALMOST NEVER  
SOMETIMES  
OFTEN  
ALMOST ALWAYS