

PARADE, STEPHANIE H., M.S. Attachment to Parents and the Close Relationships of First Semester College Students. (2007)
Directed by Dr. Esther M. Leerkes. 58 pp.

This study investigated the relationship between parental attachment security and friendship and romantic relationship outcomes of first semester college students. 168 college freshmen completed a measure of parental attachment security before their first semester of college and measures to assess ease forming close relationships at college, satisfaction in close relationships at college, and social anxiety at the end of their first semester of college. Results of the study indicated that college students who were more securely attached to their parents at the beginning of the Freshmen year experienced greater ease forming close friendships and romantic relationships at college and more satisfaction in those close relationships.

ATTACHMENT TO PARENTS AND THE CLOSE
RELATIONSHIPS OF FIRST SEMESTER
COLLEGE STUDENTS

by

Stephanie H. Parade

A Thesis Submitted to
The faculty of the Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Master of Science

Greensboro
2007

Approved by

Committee Chair

APPROVAL PAGE

This thesis has been approved by the following committee of the Faculty of The Graduate School at The University of North Carolina at Greensboro.

Committee Chair _____

Committee Members _____

Date of Acceptance by Committee

Date of Final Oral Examination

ACKNOWLEDGEMENTS

The author wishes to acknowledge Dr. Esther Leerkes for her role as faculty advisor and committee chair. Dr. Leerkes' constant guidance and support throughout this thesis project has always been greatly appreciated. Thanks also are extended to Dr. Anne Fletcher and Dr. Andrew Supple for their role as committee members. Finally, the author is grateful to the freshmen college students who generously gave their time to participate in this study.

TABLE OF CONTENTS

| | Page |
|--|------|
| LIST OF TABLES..... | vi |
| LIST OF FIGURES | vii |
| CHAPTER | |
| I. INTRODUCTION..... | 1 |
| II. THEORY | 4 |
| Measurement Approaches..... | 6 |
| III. ATTACHMENT AND CLOSE RELATIONSHIPS | 10 |
| Attachment and Friendships | 10 |
| Attachment and Romantic Relationships | 12 |
| Social Anxiety as a Mediator | 14 |
| IV. THE CURRENT STUDY | 17 |
| Hypotheses..... | 19 |
| V. METHOD | 20 |
| Participants..... | 20 |
| Procedure..... | 21 |
| Measures..... | 22 |
| VI. RESULTS | 27 |
| Preliminary Analyses | 27 |
| Hypothesis Testing | 28 |
| VII. DISCUSSION | 31 |
| Relationship Satisfaction | 31 |
| Interpersonal Competence Initiating Relationships..... | 32 |
| Consistency of Findings with Prior Research | 33 |
| Mean Level Racial Differences | 34 |
| Limitations and Directions for Future Research..... | 34 |

| | |
|----------------------------------|----|
| Contributions of the Study | 37 |
| Implications..... | 38 |
| REFERENCES | 39 |
| APPENDIX A. TABLES..... | 48 |
| APPENDIX B. FIGURE..... | 58 |

LIST OF TABLES

| | Page |
|---|------|
| Table 1. Descriptive Statistics of Major Variables | 48 |
| Table 2. t-tests of Major Variables by Gender..... | 49 |
| Table 3. t-tests of Major Variables by Race | 50 |
| Table 4. Hierarchical Regressions Testing Interactions between Attachment and Race in Relation to Social Anxiety and Relationship Outcomes..... | 51 |
| Table 5. Correlations Among Major Variables and Covariates | 52 |
| Table 6a. Hierarchical Regressions Testing Mediation of Parental Attachment Security and Relationship Satisfaction with Best Friend by Social Anxiety | 53 |
| Table 6b. Hierarchical Regressions Testing Mediation of Parental Attachment Security and Relationship Satisfaction with Closest Group of Friends by Social Anxiety..... | 54 |
| Table 6c. Hierarchical Regressions Testing Mediation of Parental Attachment Security and Relationship Satisfaction with Dating Partner by Social Anxiety | 55 |
| Table 6d. Hierarchical Regressions Testing Mediation of Parental Attachment Security and Interpersonal Competence Initiating Friendships by Social Anxiety | 56 |
| Table 6e. Hierarchical Regressions Testing Mediation of Parental Attachment Security and Interpersonal Competence Initiating Romantic Relationships by Social Anxiety | 57 |

LIST OF FIGURES

| | Page |
|---|------|
| Figure 1. Theoretical Model of Parental Attachment Security and Social Anxiety as Predictors of Relationship Outcomes | 58 |

CHAPTER I

INTRODUCTION

Erik Erikson (1982) theorized that during young adulthood individuals are faced with the task of establishing a sense of intimacy, or the ability to relate to others on a personal level. According to Erikson, if individuals are unable to establish intimacy they may enter into a state of isolation where they fear committed relationships. Peer and romantic relationships during college may be especially important in helping young adults to foster that sense of intimacy. Erikson theorized that the development of a sense of self during adolescence lays the foundation for the formation of close intimate relationships. However, at this time little is known about how familial factors, such as children's attachments to parents, influence the development of close friendships and romantic relationships during the first year of college. The purpose of this study was to investigate the relationship between attachment security and ease forming close friendships and romantic relationships and satisfaction within those relationships in a sample of first semester college students. Social anxiety was considered as a mediating variable.

The first semester of college is a period of change for older adolescents. During this time, students may experience loss of close friendships and gaining of new friendships. Adolescents may leave home for the first time in their lives

and they may have to deal with new academic challenges as they face more rigorous course work. Students may also face pressure from their peers to engage in behaviors that involve drug or alcohol use. Despite the magnitude of changes experienced by college freshmen, levels of attachment security to parents usually remain stable during this transition suggesting that parents may influence how adolescents respond to this transition (Larose & Boivin, 1998).

Research on parent-child relationships during adolescents' early years of college first became popular during the 1980's. Impacts of the transition to college on various domains of parent-child relationships have been increasingly studied as more women and men have sought to further their educations.

Although knowledge already gained on parent-child attachment relationships during the transition to college is important for researchers in the field of human development and family studies, the majority of work conducted on this topic to date has been with samples that are lacking racial and ethnic diversity.

Additionally, the number of studies investigating attachment to parents as a predictor of friendships and romantic relationships of students during the first year of college is limited. It is important to gain a better understanding of precursors of friendship and romantic relationship outcomes, as characteristics of these close relationships have been found to be related to academic outcomes and emotional well being of college students. Specifically, social support has been found to be related to adaptation to college (Zea, Jarama, & Bianchi, 1995), GPA (Boyer & Sedlacek, 1988; Brooks & DuBois, 1995), college retention rates

(Upcraft & Gardner, 1989), and emotional well being (Abby, Abramis, & Caplan, 1995). Furthermore, attachment to peers in college is positively related to academic achievement (Fass & Tubman, 2002) and psychological well being (Armsden & Greenberg, 1987). Prior to considering the influence of attachment to parents on friendships and romantic relationships during the college years, an understanding of Attachment Theory and the concept of internal working models must be achieved.

CHAPTER II

THEORY

Bowlby (1969) postulated that bonds are formed between infants and caregivers to promote protection and survival of infants. Because infants cannot survive on their own, infants exhibit behaviors that elicit caregiving responses from parent figures. Infants tend to form secure attachments to those caregivers that consistently respond to their signals in an appropriate manner. In the context of these interactions, caregivers may act as secure bases so that children become comfortable in exploring the environment around them. When caregivers are viewed as secure bases, children may feel more comfortable leaving their caregiver to explore their environment, play, and develop new friendships. Rather than feeling the need to constantly be in direct contact with their caregiver, securely attached children may be comforted in understanding that they can turn to their caregiver for support and protection when necessary.

From these early experiences individuals develop internal working models, or schemas, which influence how they view themselves and the world around them. When parents are supportive and reliable infants develop internal working models of themselves as competent and appreciated and of others as trustworthy and dependable. If parents are unreliable and rejecting infants

develop internal working models of themselves as incompetent and unappreciated and view others as untrustworthy and not dependable (Bretherton & Munholland,1999). These internal working models guide individuals' behavior and expectations in future close relationships. For example, individuals with insecure internal working models may be more likely to notice negative comments made by others than positive comments made by others. Individuals with insecure internal working models may also interpret interactions with others as more negative than those individuals with secure internal working models as they may have a more negative lens through which they evaluate social exchanges.

Internal working models influence individuals throughout their lives and are thought to be significant in the development of peer and romantic relationships. According to Ladd (1992), children with secure attachments and more positive internal working models may be more likely to initiate friendships and interactions with peers. Such children interact with peers in a more confident and supportive manner because they hold the expectation that peers will be affectionate, receptive, and encouraging. Internal working models have also been found to be influential in romantic relationships. Adults with secure internal working models are more comfortable in close relationships and have greater trust in romantic partners than adults with insecure working models (Hazan & Shaver, 1987).

Although internal working models are generally resistant to change and remain stable throughout individuals' lives, affective change may occur (Bretherton & Munholland, 1999). Securely attached children may become less securely attached and develop insecure internal working models if their parents become less responsive and more rejecting. Internal working models may also change as individuals enter into adult relationships. Individuals who felt rejected as children yet have supportive romantic partners or intimate friends whom they can trust and feel that they may rely on, may develop more secure internal working models as their close relationships become stronger. Those individuals who were rejected by their parents as children yet still have secure internal working models, and those who are resilient despite past negative experiences, are characterized as "earned secure" (Hesse, 1999). Earned security may be attributed to personality or genetic characteristics that influence individuals' states of mind (Hesse). However, internal working models and attachment security generally remain stable throughout the life as early experiences drive expectations for future relationships (Scharfe & Bartholomew, 1994; Waters, Merrick, Treboux, Crowell, & Albersheim, 2000).

Measurement Approaches

To gain an understanding of research grounded in Attachment Theory, it is important to be aware of the various measurement approaches and attachment classifications over the lifespan. Mary Ainsworth and colleagues (Ainsworth, Blehar, Waters, & Wall, 1978) were the first to measure the security of parent-

child attachments among infants. Infants are classified into various attachment categories using a laboratory procedure called the Strange Situation (Ainsworth et al., 1978). During the strange situation procedure, children are separated from their caregiver twice and then reunited a short time later to observe whether or not infants appear to use their parents as secure bases during times of stress. Originally, this yielded three categories; secure, avoidant, and ambivalent or resistant. Secure infants use their mothers as secure bases, avoidant infants do not display secure base behavior, and ambivalent or resistant infants engage in a mix of secure base behavior and resisting caregivers' attempts to interact. For example, ambivalent or resistant infants may approach their mothers and then push them away. More recently a fourth category, disorganized, has been identified (Main & Solomon, 1990). Disorganized infants do not appear to have clear goals or intentions and engage in contradictory behaviors. Importantly, extensive research using the Strange Situation procedure demonstrates that children's attachment security is predicted by the sensitivity of caregiver's responses to their infant's cues (DeWolff & van IJzendoorn, 1997), consistent with Bowlby's (1969) original writings about the origins of attachment. Over time, this measure has become the gold-standard method for the assessment of infant-parent attachment. In contrast, there is much less consensus about the measurement of attachment in adolescence and adulthood.

Instruments such as The Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987) and the Adult Attachment Interview (AAI; George,

Kaplan, & Main, 1984) have been used in studies examining the relationship between attachment security and how students manage the transition from high school to college (Lapsley, Rice, and Fitzgerald, 1990; Sorokou and Weissbrod 2005). The IPPA is a self-report measure that taps into participants' internal working models by assessing experiences of trust, anger, and hopelessness in parental and peer attachment relationships. The AAI (George et al., 1984) is a structured interview that captures participants' relationships with their parents and the influence of those relationships on development. The AAI is coded based on the manner in which participants discuss and make meaning of their relationships, not the actual content of their experiences.

Researchers who utilize the AAI generally classify individuals into one of four categories including preoccupied, dismissive, unresolved/disorganized, and autonomous/secure (George et al., 1984). Preoccupied individuals generally feel more intense emotion, both positive and negative, and express anger toward their primary attachment figure. Dismissive individuals generally feel less positive emotion and idealize their primary attachment figure.

Unresolved/disorganized individuals feel more negative emotion when distressed and lack reasoning in discussions of their primary attachment figures.

Autonomous/secure individuals are emotionally balanced and value their attachment relationships yet are objective in their discussions of them. Some researchers who utilize self-report measures classify individuals into categories that parallel the attachment types which emerged from Ainsworth's (et al., 1978)

work with infants: avoidant, ambivalent, and secure (Hazan and Shaver, 1987) and preoccupied, dismissing, fearful, and secure (Bartholomew & Horowitz, 1991). Other researchers who use self-report measures rate individuals on a continuum from securely attached to insecurely attached or on continuums of avoidance and anxiety (Armsden & Greenberg, 1987; West & Sheldon-Keller, 1994; West, Sheldon, & Reiffer, 1987). Although the AAI and self-report approaches to measure attachment differ in a number of ways, they converge and yield similar findings (Shaver & Mikulincer, 2002); thus relevant data from both measurement traditions will be reviewed.

CHAPTER III
ATTACHMENT AND CLOSE RELATIONSHIPS

Attachment and Friendships

The association between parental attachment and peer relationships has been studied in young children, adolescents, and college students. Specifically, researchers have investigated the association between parental attachment security and the quality of friendship interactions, peer status and peer acceptance, social orientation, social support, and loneliness.

Following young children between the ages of four and five, Kerns (1994) found that friendship pairs in which both children were securely attached to their mothers had more positive interactions than those friendship pairs where one child was securely attached and the other was insecurely attached. In a similar study of preschool children and their friends, Park and Waters (1989) found that friendship pairs in which both children were securely attached were more responsive, harmonious, and happy than friendship pairs where one child was insecurely attached. Friendship pairs in which both children were securely attached were less controlling and used more positive conflict resolution strategies than friendship pairs in which one child was securely attached and the other child insecurely attached. These results support the view that securely

attached children have more positive internal working models which influence their expectations for and behaviors in peer relationships (Ladd, 1992).

Researchers have also investigated relationships between attachment security and peer status and peer acceptance among young children. In a sample of first born preschoolers, LaFreniere and Sroufe (1985) found that preschoolers classified as anxious-resistant were lower in peer status than preschoolers classified as securely attached. Building on the study by LaFreniere and Sroufe, Cohn (1990) found that six year old boys who were insecurely attached were not as well liked by their teachers or peers as securely attached boys. More recently, Rydell, Bohlin, and Thorell (2005) followed five year old children over the course of a year and found that children who had a secure attachment representation had a more prosocial orientation than children who had avoidant representations. This finding supports Ladd's (1992) statement that children with more secure internal working models are more likely to initiate friendships than insecurely attached children.

Building upon the foundation of research on parental attachment and peer relationships during young childhood, recent research has been conducted on attachment quality and peer relationships with samples of adolescents. Allen, Moore, Kuperminc, and Bell (1998) found that adolescents who were more securely attached to their parents were more accepted by their peers. This sample however was composed of academically at risk students which limits the generalizability of the findings. Lieberman, Doyle, and Markiewicz (1999) found

that a secure attachment style was related to positive friendship qualities (conceptualized as security, help, and closeness) and lower friendship conflict in a more normative sample of nine to fourteen year old students.

A limited amount of research has also been conducted on peer relationships and parental attachment during the college years. Kobak and Sceery (1988) found that first year college students who were more securely attached to their parents reported higher levels of social support from peers. In a study of college students and their friends, Kerns and Stevens (1996) found that students who were more securely attached to their parents reported less loneliness. This finding may be attributed to the assumption that individuals with secure internal working models are more likely to seek out friendships and close relationships. Students who were more securely attached also reported higher quality daily interactions with their friends.

Attachment and Romantic Relationships

Romantic relationships in young adulthood have also been studied from the perspective of attachment theory. Attachment style in college romantic relationships has been found to be related to attachment history (Feeney & Noller, 1990). In Feeney and Noller's study, students who felt more secure in their romantic relationships tended to have more positive perceptions of their parental relationships in early childhood. Attachment style has also been found to be related to relationship quality, satisfaction, trust, commitment, and closeness in young adult romantic relationships. In a longitudinal study following participants

from birth to young adulthood, Roisman, Collins, Sroufe, and Egeland (2005) found that individuals classified as securely attached during the strange situation in infancy had higher quality romantic relationships in young adulthood than those individuals not classified as securely attached. Similarly, Simpson (1990) found that a secure attachment style toward romantic partners was related to greater commitment, trust, and satisfaction in the romantic relationship. Building upon the work of Simpson, Feeney (1996) found that marital satisfaction was positively related to a secure attachment style in a study of 229 married couples. The relationship between attachment style and perception of relationship closeness has also been investigated by researchers. Tucker and Anders (1998) found that a more secure attachment style was related to more nonverbal closeness in a sample of heterosexual dating couples. Those individuals exhibiting an avoidant attachment style demonstrated less nonverbal closeness. The relationship between attachment style and relationship stability has also been investigated. Following adults over a four year period, Kirkpatrick and Hazan (1994) found that those individuals who exhibited a secure attachment style were less likely to report the breakup of a romantic relationship than individuals who exhibited an insecure attachment style.

In sum, there has been much research investigating the association between parental attachment and peer relationships among young children, adolescents, and college students. Next, I examine the process by which

attachment to parents may influence relationship formation and satisfaction via its impact on social anxiety.

Social Anxiety as a Mediator

Bowlby (1973,1980) argued that children's attachments to their primary caregivers will influence their personalities and vulnerabilities to psychopathology. Specifically, Bowlby postulated that children's internal working models, their representations of themselves and others, influence emotional dispositions. In particular, children whose needs are not consistently met, and who as a result feel negatively about themselves and others, may be prone to a negative attribution bias, which increases negative emotional arousal. Children with a more negative attribution bias may also perceive interactions that they have with others as more negative and may experience more anxiety in social situations. Consistent with Bowlby's proposition, I argue that parental attachment security influences the close relationships of college students through its influence on social anxiety. Specifically, I argue that social anxiety mediates the relationship between parental attachment security and peer and romantic relationship outcomes. That is, individuals who are less securely attached to their parents may have higher levels of social anxiety which may influence how they develop, behave in, and perceive their close relationships. Next, I review research documenting the associations among these variables.

Much research supports Bowlby's (1973, 1980) proposition that attachment representations are related to emotional tendencies. Specifically,

researchers have found that parental attachment security is related to experiences of social anxiety. Papini, Roggman, and Anderson (1991) found that adolescents who were more securely attached to their parents reported less social anxiety. More generally, Armsden and Greenberg (1987) found that secure attachment to parents was related to lower levels of anxiety in their sample of predominantly White middle-class college students. In a longitudinal study following children from infancy to school age, Bohlin, Hagekull, and Rydell (2000) found that securely attached children as measured by the Strange Situation at 15 months of age reported less social anxiety at ages eight or nine. Thus, attachment to parents has been demonstrated to be linked to social anxiety.

Previous research has demonstrated that social anxiety is also related to a wide variety of close relationship outcomes. La Greca and Lopez (1998) found that adolescent girls with higher levels of social anxiety reported having fewer friendships and less support in their close relationships. Among children, social anxiety has been found to be negatively associated with social acceptance and quality of peer interactions (Ginsburg, La Greca, & Silverman, 1998). Similarly, adolescents who experience greater dating anxiety have been found to be less likely to be involved in a dating relationship (Glickman & La Greca, 2004). Clearly, the outcomes of social anxiety on peer and romantic relationships are overwhelmingly negative.

In sum, prior research demonstrates direct associations between attachment to parents and relationships outcomes, attachment to parents and social anxiety, and social anxiety and relationship outcomes. Thus, it is plausible that the association between attachment and relationship outcomes is mediated by social anxiety.

CHAPTER IV

THE CURRENT STUDY

It is important to have a better understanding of predictors of college students' close relationship characteristics because they influence college students' academic outcomes and psychological well-being (Abby et al., 1995; Armsden & Greenberg, 1987; Boyer & Sedlacek, 1988; Brooks & DuBois, 1995; Fass & Tubman, 2002; Upcraft & Gardner, 1989; Zea et al., 1995). Four features of the current study distinguish it from prior research.

First, no known studies have specifically investigated the relationship between attachment security and ease forming relationships or satisfaction with relationships among college students. Although knowledge has been gained on the association between attachment security and factors such as social support, loneliness, and the quality of daily interactions with friends and romantic partners, there is not much known about the interplay between attachment security and the specific relationship outcomes examined in the present study.

Second, this study will examine the process by which attachment security predicts the formation of and satisfaction within close friendships and romantic relationships by considering the role of social anxiety. Although previous research has separately considered the influence of attachment security on social anxiety and the influence of social anxiety on relationship outcomes,

previous studies have not considered the potential mediating effect of social anxiety on the relationship between attachment security and relationship outcomes. It is important to gain a better understanding of the role that social anxiety plays in the relationship between attachment security and relationship outcomes as it will provide insight into the process by which parental attachment influences the close friendships and romantic relationships of college students and may be useful from an intervention perspective.

Third, only a limited number of previous studies have examined the influence of attachment security on characteristics of friendships and romantic relationships among college students utilizing a sample composed of both Black and White participants. Some research has demonstrated main effects for race in levels of attachment security while other research has demonstrated no main effects. Race may also influence the nature of the relationship between attachment security and social anxiety and attachment security and friendship and romantic relationship outcomes thus acting as a moderator variable. By utilizing a sample of both Black and White participants, this study will help gain a better understanding of the experiences of racial and ethnic minority students.

Finally, this study will investigate the relationship between attachment security and relationship outcomes in a panel rather than concurrent research design by measuring parental attachment prior to attending college and friendship and romantic relationship outcomes at the end of the first semester of college. Previous research has generally examined associations between

parental attachment security and friendship and romantic relationship outcomes when they are measured at the same time, providing little insight into the role that attachment security plays in subsequent close relationships.

Hypotheses

Based on Attachment Theory and previous research findings, a theoretical model of parental attachment security and social anxiety as predictors of relationship outcomes has been developed as illustrated in Figure 1. This model can be separated into three hypotheses.

Hypothesis 1. Students who are more securely attached to their parents prior to the first semester of college will report greater ease forming close friendships and romantic relationships.

Hypothesis 2. Students who are more securely attached to their parents prior to the first semester of college will report more satisfaction in their close friendships and romantic relationships.

Hypothesis 3. The positive association between attachment security and ease forming close friendships and romantic relationships and satisfaction in close friendships and romantic relationships will be mediated by social anxiety.

CHAPTER V

METHOD

Participants

Data was collected from 429 college freshmen with the assistance of the Office of Institutional Research. The Office of Institutional Research assisted in participant recruitment by sending e-mails with a link to an online survey to all incoming Black and White freshmen the summer before their first semester of college. Black and White freshmen only were invited to participate in the study because of the limited number of students from other racial backgrounds. In total, 1,770 freshmen were invited to participate in the study and 484 freshmen responded. Students who had previously attended another university or who had not graduated from high school the prior spring were excluded from data analysis. Students who did not complete key measures were excluded from analyses also. Of the 338 eligible participants who completed data collection at time one, 50 percent also completed the measures at time two. Thus, the final sample for data analysis was composed of 168 college freshmen including 27 Black females, 5 Black males, 119 White females, and 17 White males. Students ranged in age from 18 to 20 years ($M=18.06$). Less than half of the students had mothers (39.9%) or fathers (40.3%) who had received a Bachelors

degree. Eligible participants who completed measures at time one but did not complete measures at time two were more likely to be Black ($\chi^2(1) = 4.12, p < .05$). There were no other differences between eligible participants who did and did not complete measures at time two for other demographic variables or the measure of parental attachment.

The ethnic composition of the sample somewhat reflected the ethnic composition of the freshmen class, however White females were overrepresented in the sample and White males were underrepresented in the sample. White females represent 44% of the university freshmen population and represented 71% of the sample. White males represent 21% of the university freshmen population but only represented 10% of the current sample. The sample of Black females and Black males were better representations of the freshmen population. Black females make up 18% of the university freshmen population and represented 16% of the sample. Black males make up 5% of the university freshmen population and represented 3% of the sample.

Procedure

Wave one: Summer 2006. Incoming freshmen were e-mailed the summer before their first semester of college. The email included a description of the purpose of the study, an invitation to participate, and an explanation about what participation entailed. Through a link to an online survey, incoming freshmen who wished to participate in the study completed the Inventory of Parent and Peer Attachment, parent subscale (Armsden & Greenberg, 1987) and a

demographic questionnaire assessing family SES among other things. Two weeks after the original e-mail was sent to incoming freshmen, reminder e-mails were sent to those students who had not yet participated. Students who completed the online survey were entered into a drawing for a \$100 gift certificate to the University Bookstore.

Wave two: Winter 2006/2007. Freshmen who completed the first wave of data collection were sent an email inviting them to participate in a second online survey. Two weeks following the e-mail, students who had not completed the survey were sent a reminder e-mail encouraging them to participate. A final reminder e-mail was sent at the beginning of the spring semester after students returned to campus. During wave two, participants completed the measures of satisfaction with best friendships at college, satisfaction in closest group of friends at college, and satisfaction in current romantic relationships; measures to assess ease at forming friendships and romantic relationships at college; and a measure of social anxiety. Students who completed the online survey were entered into a drawing for a \$100 gift certificate to the University Bookstore.

Measures

Demographics. The race, gender, and birthdates of participants were provided by the Office of Institutional Research. To assess family socio-economic status, participants indicated the educational attainment of their mothers and fathers during the first wave of data collection.

Parental Attachment Security: The Inventory of Parent and Peer Attachment, parent subscale (IPPA; Armsden & Greenberg, 1987). The IPPA parent subscale is a 28 item measure that assesses cognitive and affective dimensions of parental relationships and the quality of adolescents' attachments to their parents. A previously conducted factor analysis of the items indicates three subscales; trust, communication, and alienation (Armsden & Greenberg). Examples of statements include "My parent respects my feelings" and "I trust my parent". Responses are made on a five point Likert scale ranging from almost never or never to almost always or always. In this study, participants were instructed to rate each parental figure separately. Ratings about the parent who participants felt played the greater role in parenting them were used in the present analyses. One hundred and forty one participants indicated that their mother played the greater role in parenting them and 27 participants indicated that their father played the greater role in parenting them. There were no differences in IPPA scores, or scores for any other major variables of interest, for these two groups of participants. The IPPA parent subscale has previously demonstrated an acceptable three-week test-retest reliability score of .93 (Armsden & Greenberg). Convergent validity has been previously demonstrated by Armsden and Greenberg with the Family Environment Scale, expressiveness subscale ($r(54) = .52, p < .001$) and with the control subscale ($r(54) = -.20, p < .05$). Internal consistency reliability in this sample for the trust subscale was .91, for the communication subscale .91, and for the alienation subscale .89. To

compute scores for parental attachment, a series of steps consistent with those laid out by Armsden and Greenberg were conducted. First, appropriate items were reversed scored so that they accurately reflected each subscale. Second, the trust and communication scores were added together. Third, the alienation score was subtracted from the sum of the trust and communication scores resulting in a score for parental attachment. Higher scores indicate more secure parental attachment.

Satisfaction in College Relationships: The Relationship Assessment Scale (RAS; Hendrick, 1988). The RAS is a seven item measure that assesses romantic relationship satisfaction. This scale is uni-factorial and can be modified to assess satisfaction in non-romantic relationships. Participants were asked to think of their best friend, closest group of friends, and romantic partner (if applicable) and answer the questions based on a five point Likert scale with differing response options for each question. Examples of questions include “In general, how satisfied are you with your relationship?” and “Are there many problems in your relationship?”. Convergent validity with the Dyadic Adjustment Scale, Satisfaction Subscale (Spanier, 1976) has been previously demonstrated to be .83 (Hendrick). Items on the RAS were averaged after reverse scoring appropriate items with higher scores indicating more relationship satisfaction. The RAS was administered during wave two to assess satisfaction in relationships at college. This measure yielded two or three scores: satisfaction in relationships with best friends at college ($\alpha=.87$), satisfaction with closest group

of friends at college ($\alpha=.86$), and satisfaction with romantic relationships ($\alpha=.88$; if applicable).

Ease Forming College Relationships: The Interpersonal Competence Questionnaire, initiation subscale (ICQ; Buhrmester, Furman, Wittenberg, & Reis, 1988). The ICQ, initiation subscale is an eight item measure that assesses interpersonal competence in forming relationships. It was administered during wave two to assess ease forming relationships at college. Participants were asked to think about a specific interpersonal situation and to indicate their level of comfort and competence when handling it by responding on a five point Likert scale from “I’m poor at this; I’d feel so uncomfortable and unable to handle this situation” to “I’m extremely good at this; I’d feel very comfortable and could handle this situation very well”. Examples of situations presented to participants included “Asking or suggesting to someone new that you get together and do something, e.g., go out together” and “Presenting good first impressions to people you might like to become friends with (or date)”. The ICQ, initiation subscale has previously demonstrated convergent validity with Levinson and Gottman’s (1978) Dating and Assertiveness Questionnaire, dating skills subscale ($r(219) = .58, p < .01$; Buhrmester, 1988). Items on the ICQ, initiation subscale were averaged with higher scores indicating greater competence initiating relationships. Students were asked to report on situations since coming to college. This measure yielded two scores: ease at forming close friendships ($\alpha = .91$) and ease at forming romantic relationships ($\alpha = .92$).

Social Anxiety: The Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998). The SIAS is a twenty item measure that assesses fears of social interaction. Examples of statements include “I have difficulty talking with other people” and “I am tense mixing in a group”. Responses are made on a five point Likert scale ranging from not at all characteristic or true of me to extremely characteristic or true of me. Convergent validity has been previously demonstrated by Mattick and Clarke with the Social Avoidance and Distress Scale (Watson & Friend, 1969). Internal consistency reliability in the current sample was .94. Items on the SIAS were averaged after reverse scoring appropriate items with higher scores indicating more symptoms of anxiety. This measure was administered during wave two of data collection.

CHAPTER VI

RESULTS

Preliminary Analyses

Data analysis occurred in multiple steps. First, data was entered into SPSS and cleaned. Missing data were imputed utilizing predicted values based on regression analysis. For example, if relationship satisfaction with best friend was missing, relationship satisfaction with closest group of friends was used to impute the value for satisfaction with best friend. Distributions were inspected for outliers to ensure the variables were normally distributed by examining histograms and z-scores. If z-scores were greater than 3.29 or lower than -3.29 they were considered to be significant outliers and were adjusted following procedures outlined by Tabachnick and Fidell (1996). Specifically, scores were adjusted by lowering or raising them so that they were closer to mean but still in the same order as they were prior to being adjusted. Second, descriptive statistics were calculated for all variables and are displayed in Table 1.

Third, t-tests were conducted to determine if mean differences existed for each of the variables based on race and gender. There were no differences between males and females for any of the variables as illustrated in Table 2. There were significant differences between Black and White participants for parental attachment, relationship satisfaction with best friend, and relationship

satisfaction with closest group of friends as illustrated in Table 3. White participants were more securely attached to their parents, experienced more satisfaction in their relationships with their best friends, and were more satisfied in their relationships with their closest group of friends. To examine the possibility that the association between parental attachment security and the mediator and outcome variables vary by race, race was considered as a moderator variable. The parental attachment variable was centered and multiplied by the race variable to create an interaction term. Hierarchical multiple regression was then used to test for significant interactions in relation to the mediator and dependent variables. Parental attachment, race, and their interaction term were entered as predictors. As illustrated in Table 4, none of the interaction terms were statistically significant. Therefore, it was determined that race but not the interaction between race and attachment should be considered as a covariate in subsequent analyses.

Fourth, simple correlations were conducted to see if hypothesized relationships existed between the variables and are displayed in Table 5.

Hypothesis Testing

Following steps outlined by Baron and Kenny (1986) hierarchical multiple regression was used to test for mediation. First, the direct effect hypotheses were tested to determine if a relationship existed between parental attachment security and the relationship outcome variables. Race was entered as a covariate in the first step of the regression followed by parental attachment.

Consistent with hypotheses 1 and 2, and as illustrated in tables 6a-6e, parental attachment was a significant predictor of relationship satisfaction with best friend and with closest group of friends, interpersonal competence initiating friendships and interpersonal competence initiating romantic relationships. Parental attachment security also predicted relationship satisfaction with dating partner at the trend level.

Second, as illustrated in Table 5, correlations demonstrated that parental attachment security correlated negatively with social anxiety, and social anxiety correlated negatively with each relationship outcome variable meeting all criteria necessary to test for mediation.

Third, the associations between parental attachment security and relationship outcomes were tested after entry of social anxiety. With the exception of relationship satisfaction with best friend, all relationship outcome variables were significantly predicted by social anxiety independent of parental attachment security and demonstrated a drop in the beta for parental attachment after entry of social anxiety. Relationship satisfaction with best friend was predicted by social anxiety only at the trend level. As illustrated in Tables 6a-6e, the mediational hypothesis for social anxiety was supported in all five cases. Social anxiety fully mediated the association between parental attachment security and satisfaction with closest group of friends and parental attachment security and satisfaction with dating partner. Social anxiety partially mediated the association between parental attachment security and relationship satisfaction

with best friend, parental attachment security and interpersonal competence initiating friendships, and parental attachment security and interpersonal competence initiating romantic relationships.

To test the significance of indirect effects of parental attachment security on relationship satisfaction and interpersonal competence initiating relationships through social anxiety, a bootstrapping procedure designed for use with small samples was employed (Preacher & Hayes, 2004). Five thousand samples were drawn from the current sample of college freshmen with a resampling technique and the indirect effect was calculated for each sample. A 90% bias corrected confidence interval for the average of the indirect effect for each sample was then calculated. Confidence intervals that did not include 0 were statistically significant. Bootstrapping procedures indicated that the indirect effect of parental attachment security on all relationship outcome variables through social anxiety was statistically significant while controlling for race.

The full mediational models accounted for 13% of the variance in relationship satisfaction with best friend, 8% of the variance in relationship satisfaction with closest group of friends, and 7% of the variance in relationship satisfaction with dating partner. The mediational models also accounted for 40% of the variance in interpersonal competence initiating friendships and 46% of the variance in interpersonal competence initiating romantic relationships.

CHAPTER VII

DISCUSSION

Overall, the proposed theoretical model was supported. College students who were more securely attached to their parents at the beginning of their freshman year reported better friendship and romantic relationship outcomes at the end of their first semester of college. Moreover, social anxiety mediated those effects in all cases and indirect effects were determined to be statistically significant. These findings are consistent with Bowlby's (1969, 1973, 1980) proposition that attachment security influences vulnerability to psychopathology and expectations for and experiences in other close relationships. The effect sizes for the model predicting relationship satisfaction were small to moderate with adjusted R squares 0.07 to 0.13. The effect sizes for the model predicting interpersonal competence initiating relationships were large with adjusted R squares ranging from 0.40 to 0.46.

Relationship Satisfaction

As hypothesized, parental attachment security predicted satisfaction in close friendships and romantic relationships of first semester college students and this effect was mediated by social anxiety. Students who were more securely attached to their parents experienced less social anxiety, which in turn

predicted more satisfaction in their friendships and romantic relationships. This finding is consistent with the model proposed and the attachment theory perspective that parental attachment security influences emotional well-being and characteristics of other close relationships. Students with secure internal working models and positive emotional dispositions may evaluate their relationships through a more positive lens than students with insecure internal working models, contributing to a greater sense of relationship satisfaction. For example, if a student's dating partner does not quickly reply to a telephone message, an insecurely attached and socially anxious student may interpret that as an indicator that their dating partner does not wish to speak with them, contributing to negative feelings about the relationship. In contrast, a securely attached and non-anxious student may interpret that as an indicator that their dating partner did not receive the telephone message which would have no impact on their perceptions of the quality of the relationship. It is also possible that securely attached students behave in ways that elicit positive responses from their peers and romantic partners, enhancing the quality of their relationships and their evaluations of those relationships.

Interpersonal Competence Initiating Relationships

Parental attachment security also predicted interpersonal competence initiating new friendships and romantic relationships at college and these effects were mediated by social anxiety. Students who were more securely attached to their parents experienced greater ease forming new relationships likely because

their positive prior experiences in close relationships made them comfortable in seeking out new relationships. Insecure parental attachment promoted social anxiety, which in turn promoted more difficulty initiating new friendships and romantic relationships at college. Students who experience social anxiety may be less motivated to introduce themselves to possible peers and dating partners, and if motivated may have difficulties engaging with their peers in appropriate manners to foster a new relationship. These findings are consistent with the Attachment Theory perspective that adult emotional dispositions and experiences developing close relationships are influenced by the internal working model.

Consistency of Findings with Prior Research

In addition to being consistent with Bowlby's propositions, the finding that parental attachment security predicts peer and romantic relationship outcomes is consistent with previous research. Simpson (1990) found that a secure attachment style toward romantic partners was related to more satisfaction in the romantic relationship of college students. Similarly, Feeney (1996) found that marital satisfaction was positively related to a secure attachment style. A number of other studies have demonstrated the association between parental attachment security and social anxiety (Armsden & Greenberg, 1987; Armsden et al., 1990; Raja et al., 1992) and social anxiety and relationship outcomes (Ginsburg, La Greca, & Silverman, 1998; Glickman & La Greca, 2004; La Greca & Lopez, 1998), but this was the first to demonstrate social anxiety as a mediator of parental attachment security and relationship outcomes.

Mean Level Racial Differences

Although the role of race was not of central interest in the current study, it is important to note that mean level differences based on race were found for some of the major variables of interest. Black students were less securely attached to their parents and experienced less satisfaction in their relationships with their best friends and closest group of friends than White students. Race was also tested as a moderator of parental attachment and emotional tendencies and parental attachment and relationship outcomes. Although race did not significantly interact with any of the variables of interest, it did interact with ease forming new friendships at the trend level. Detecting interaction effects with this relatively small sample is difficult. Given this, and evidence that racial differences in attachment security have previously been documented (Griffin & Bartholomew, 1994; Montague et al., 2003), it is expected that race will operate as a moderator with similar samples that are larger and have more Black participants.

Limitations and Directions for Future Research

Limitations of the current study relate to the sample of university freshmen. The sample was relatively small and predominantly composed of White, female students. The small sample of male participants in the current study is a limitation of this project and limits the generalizability of the findings mostly to female students. Although there are more female freshmen than male freshmen enrolled at the university at which data was collected, the number of

male participants was not a good a representation of the number of males in the university freshmen population. In particular, White males were underrepresented in this sample and White females were overrepresented in the sample. Although the number of Black participants in this sample was also low, the percentage of Black participants did reflect the racial composition of the university freshmen population and few studies of this type have samples with any racial diversity. It is important for future research to replicate these findings with samples composed of more male and racial minority participants. Because racial minorities are generally underrepresented in undergraduate populations, utilizing samples from universities with high minority enrollment rates (e.g., Historically Black Colleges and Universities) may be a more successful technique in the recruitment of minority students. By recruiting more minority students, interaction effects of race and parental attachment security may be more easily tested to determine whether associations between attachment, social anxiety, and relationship outcomes operate similarly or differently across group.

Another limitation of the current study is that the sample was convenient in nature, all university freshmen were invited to participate but only some decided to participate. Because students were notified of the topic of this study, it may have influenced their decision to participate. Students who experience more strained relationships with their parents and peers may have been less likely to respond to recruitment efforts during the first round of data collection. This is problematic because the experiences of students in strained relationships with

their parents and peers would help to provide additional insight into the relationship between parental attachment security and peer and romantic relationship outcomes.

The high rate of attrition (50%) between data collection time points is also a limitation of the current study. Although students who did and did not complete measures at time two did not differ on the measure of parental attachment, it is unknown whether they would differ on experiences of social anxiety or peer and romantic relationship outcomes. To overcome this high rate of participant drop-out, researchers with more financial resources may provide a small incentive to each participant, rather than just entry into a raffle. In the current study a newsletter was sent to participants between data collection time points, but additional contact with participants (additional e-mails, letters, and phone calls) may help to reduce attrition rates.

Future research should consider the influence of pre-college friendships and romantic relationships on characteristics of other close relationships at college. Students who have more experiences initiating relationships prior to attending college may report greater ease forming relationships at college than students who did not have many experiences initiating relationships before beginning college. Similarly, students who generally experience more satisfaction in their relationships prior to attending college may experience more satisfaction with relationships at college as they may have a tendency to view their relationships in more positive manners. To address these propositions,

future research should follow students from junior or senior year of high school over the transition to college. This type of longitudinal study would allow researchers to capture various aspects of students' relationships and social experiences during high school, as students undergo the transition to college, and into their early college years.

Finally, because all variables were captured through the use of an online survey using self-report measures, shared method variance may have inflated associations between the variables. Inflated associations between the variables would increase the probably of committing Type I error rates in this study.

Contributions of the Study

Despite limitations of this study, it makes a valuable contribution to the field of human development and family studies. This study helps address a gap in the literature regarding the nature of the relationship between parental attachment security and peer and romantic relationship characteristics of college students. Moreover, this study is innovative in its emphasis on the process by which students experience relationship outcomes, rather than simply prediction of these outcomes. Specifically, this study addresses the process by which parental attachment security predicts peer and romantic relationship characteristics by investigating the mediating role of social anxiety. Prior research investigating the influence of parental attachment security on relationship outcomes has not considered the influence of emotional tendencies in this manner. Finally, this study is unique in that it considers these processes

in a panel rather than concurrent research design with a sample of both Black and White college students.

Implications

This study has implications for university counselors working with freshmen. Because relationship outcomes have been linked to academic experiences and psychological well being, it is important for counselors to consider precursors of these types of social experiences. Findings from this study can be utilized in efforts to identify students who are at risk for difficulties initiating new relationships and who may become less satisfied in their relationships once they are developed. First, the results suggest that students at risk for adjustment difficulties could be identified prior to beginning college by assessing attachment to parents or social anxiety. Second, this study suggests that developing interventions which address social anxiety may be effective in reducing relationship problems. Addressing social anxiety over the transition to college is much more feasible than changing the nature of the parent child relationship or the manner in which students think about their childhood experiences with their parents in an effort to modify attachment security.

REFERENCES

- Abby, A., Abramis, D.J., & Caplan, R.D. (1985). Effects of different sources of social support and social conflict on emotional well-being. *Basic and Applied Social Psychology, 6*, 111-129.
- Ainsworth, M. D. S., Blehar, M. D., Waters, E., & Wall, E. (1978). *Patterns of Attachment: Assessed in the Strange Situation and at Home*. Hillsdale, NJ: Lawrence Earlbaum Associates.
- Allen, J. P., Moore, C., Kuperminc, G., & Bell, K. (1998). Attachment and adolescent psychosocial functioning. *Child Development, 69*, 1406-1419.
- Armsden, G. C., & Greenberg, M. T. (1987). The inventory of parent and peer attachment: Individual differences and their relationship to psychological well-being in adolescence. *Journal of Youth and Adolescence, 16*, 427-453.
- Armsden, G. C., McCauley, E., Greenberg, M. T., Burke, P. M., & Mitchell, J. R. (1990). Parent and peer attachment in early adolescent depression. *Journal of Abnormal Child Psychology, 18*, 683-697.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.

- Bartholomew, K., & Horowitz, L. (1991). Attachment styles among young adults: A test of a four category model. *Journal of Personality and Social Psychology, 61*, 226-244.
- Bowlby, J. (1969). *Attachment and Loss: Vol. I. Attachment*. New York: Basic Books.
- Bowlby, J. (1973). *Attachment and Loss: Vol. 2. Separation*. New York: Basic Books.
- Bowlby, J. (1980). *Attachment and Loss: Vol. 3. Loss*. New York: Basic Books.
- Boyer, S. P., & Sedlacek, W. E. (1988). Noncognitive predictors of academic success for international students: A longitudinal study. *Journal of College Student Development, 29*, 218-223.
- Bretherton, I., & Munholland, K. A. (1999). Internal working models in attachment relationships: A construct revisited. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of Attachment: Theory, Research and Clinical Applications* (pp. 89-111). New York: Guilford Press.
- Brooks, J. H., & DuBois, D. L. (1995). Individual and environmental predictors of adjustment during the first year of college. *Journal of College Student Development, 36*, 347-360.
- Buhrmester, Furman, Wittenberg, & Reis. (1988). Five domains of interpersonal competence in peer relations. *Journal of Personality and Social Psychology, 55*, 991-1008.

- Cohn, D. A. (1990). Child-mother attachment of six-year-olds and social competence at school. *Child Development, 61*, 152-162.
- DeWolff, M. , & van IJzendoorn, M. (1997). Sensitivity and attachment: A meta-analysis on parental antecedents of infant attachment. *Child Development, 68*, 571-591.
- Erikson, E.H. (1982). *The Life Cycle Completed*. New York: Norton.
- Fass, M. E. & Tubman, J. G. (2002). The influence of parental and peer attachment on college students' academic achievement. *Psychology in the Schools, 39*, 561-573.
- Feeney, J. A. (1996). Attachment, caregiving, and marital satisfaction. *Personal Relationships, 3*, 401-416.
- Feeney, J. A., & Noller, P. (1990). Attachment style as a predictor of adult romantic relationships. *Journal of Personality and Social Psychology, 58*, 281-291.
- George, C., Kaplan, N., & Main, M. (1984). *Adult Attachment Interview Protocol*. Unpublished manuscript, University of California at Berkeley.
- Glickman, A. R., & La Greca, A. M. (2004). The dating anxiety scale for adolescents: Scale development and associations with adolescent functioning. *Journal of Clinical Child and Adolescent Psychology, 33*, 566-578.

- Griffin, D. W., & Bartholomew, K. (1994). Models of self and other: Fundamental dimensions underlying measures of adult attachment. *Journal of Personality and Social Psychology, 67*, 430-445.
- Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology, 52*, 511-524.
- Hendrick, S.S. (1988). A generic measure of relationship satisfaction. *Journal of Marriage and the Family, 50*, 93-98.
- Hesse, E. (1999). The adult attachment interview. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of Attachment: Theory, Research and Clinical Applications* (pp. 395-443). New York: Guilford Press.
- Kerns, K. A. (1994). A longitudinal examination of links between mother-child attachment and children's friendships in early adulthood. *Journal of Social and Personal Relationships, 11*, 379-381.
- Kerns, K. A., & Stevens, A. C. (1996). Parent-child attachment in late adolescence: Links to social relations and personality. *Journal of Youth and Adolescence, 25*, 323-342.
- Kirkpatrick, L. A., & Hazan, C. (1994). Attachment styles and close relationships: A four-year prospective study. *Personal Relationships, 1*, 123-142.
- Kobak, R. R., & Sceery, A. (1988). Attachment in late adolescence: Working models, affect regulation, and representations of self and others. *Child Development, 59*, 135-146.

- Ladd, G. W. (1992). Themes and theories: perspectives on processes in family-peer relationships. In R. D. Parke & G. W. Ladd (Eds.), *Family-Peer Relationships: Modes of Linkage* (pp. 3-34). New Jersey: Lawrence Erlbaum Associates.
- LaFreniere, P. J., & Sroufe, L. A. (1985). Profiles of peer competence in the preschool: Interrelationships between measures, influence of social ecology, and relation to attachment history. *Developmental Psychology*, *21*, 56-69.
- La Greca, A. M., & Lopez, N. (1998). Social anxiety among adolescents: Linkages with peer relations and friendships. *Journal of Abnormal Child Psychology*, *26*, 83-94.
- Lapsley, D. K., Rice, K. G., & Fitzgerald, D. P. (1990). Adolescent attachment, identity, and adjustment to college: Implications for the continuity of adaptation hypothesis. *Journal of Counseling and Development*, *68*, 561-565.
- Larose, S., & Boivin, M. (1998). Attachment to parents, social support expectations, and socioemotional adjustment during the high school-college transition. *Journal of Research on Adolescence*, *8*, 1-27.
- Levenson, R. W., & Gottman, J. M. (1978). Toward the assessment of social competence. *Journal of Consulting and Clinical Psychology*, *46*, 453-462.

- Lieberman, M., Doyle, A., & Markiewicz, D. (1999). Developmental patterns in security of attachment to mother and father in late childhood and early adolescence: Associations with peer relations. *Child Development, 70*, 202-213.
- Main, M., & Solomon, J. (1990). Procedures for identifying infants as disorganized/disoriented during the Ainsworth Strange Situation. In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in the preschool years: Theory, research, and intervention* (pp. 121-160). Chicago: University of Chicago Press.
- Mattick, R. P. & Clarke, J. C. (1998). Development and validation of measures of social phobia scrutiny fear and social interaction anxiety. *Behaviour Research and Therapy, 36*, 455-470.
- Mikulincer, M. (1998). Adult attachment style and individual differences in functional versus dysfunctional experiences of anger. *Journal of Personality and Social Psychology, 74*, 513-524.
- Montague, D. P. F., Magai, C., Consedine, N. S., & Gillespie, M. (2003). Attachment in African American and European American older adults: The roles of early life socialization and religiosity. *Attachment and Human Development, 5*, 188-214.
- Park, K. A., & Waters, E. (1989). Security of attachment and preschool friendships. *Child Development, 60*, 1076-1081.

- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers*, *36*, 717-731.
- Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, *1*, 385-401.
- Raja, S. N., McGee, R., & Stanton, W. R. (1992). Perceived attachments to parents and peers and psychological well-being in adolescence. *Journal of Youth and Adolescence*, *21*, 471-485.
- Rholes, W. S., Simpson, J. A., & Oriña, M. M. (1999). Attachment and anger in an anxiety-provoking situation. *Journal of Personality and Social Psychology*, *76*, 940-957.
- Roisman, G. I., Collins, W. A., Sroufe, L. A., & Egeland, B. (2005). Predictors of young adults' representations of and behavior in their current romantic relationship: Prospective tests of the prototype hypothesis. *Attachment and Human Development*, *7*, 105-121.
- Rydell, A., Bohlin, G., & Thorell, L. B. (2005). Representations of attachment to parents and shyness as predictors of children's relationships with teachers and peer competence in preschool. *Attachment and Human Development*, *7*, 187-204.
- Scharfe, E., & Bartholomew, K. (1994). Reliability and stability of adult attachment patterns. *Personal Relationships*, *1*, 23-43

- Shaver, P. R. & Mikulincer, M. Attachment-related psychodynamics. *Attachment and Human Development*, 4, 133-161.
- Simpson, J. A. (1990). Influence of attachment styles on romantic relationships. *Journal of Personality and Social Psychology*, 59, 971-980.
- Sorokou, C. F., & Weissbrod, C. S. (2005). Men and women's attachment and contact patterns with parents during the first year of college. *Journal of Youth and Adolescence*, 34, 221-228.
- Spanier, G. B. (1976). Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. *Journal of Marriage and the Family*, 38, 15-28.
- Spielberger, C. D. (1988). State-Trait Anger Expression Inventory. Odessa, FL: Psychological Assessment Resources, Inc.
- Spitzer, R., Endicott, J., and Robins, E. (1978). Research diagnostic criteria: Rationale and reliability Archives of General Psychiatry, 35, 773-782.
- Tabachnick, B.G., & Fidell, L.S. (1996). *Using Multivariate Statistics* (3rd ed.). New York: Harper Collins College Publishers.
- Tucker, J. S., & Anders, S. L. (1998). Adult attachment style and nonverbal closeness in dating couples. *Journal of nonverbal behavior*, 22, 109-124.
- Upcraft, M. L., & Gardner, J. N. (1989). A comprehensive approach to enhancing freshman success. In M. L. Upcraft & J. N. Gardner (Eds.), *The freshman year experience* (pp. 1-12). San Francisco: Jossey-Bass.

- Waters, E., Merrick, S., Treboux, D., Crowell, J., & Albersheim, L. (2000). Attachment security in infancy and early adulthood: A twenty-year longitudinal study. *Child Development, 71*, 684-689.
- Watson, D., & Friend, R. (1969). Measurement of social-evaluative anxiety. *Journal of Consulting and Clinical Psychology, 33*, 448-457.
- West, M. L., & Sheldon-Keller, A. E. (1994). *Patterns of Relating: An Adult Attachment Perspective*. New York: Guilford Press.
- West, M. L., Sheldon, A. E. R., & Reiffer, L. (1987). An approach to the delineation of adult attachment: Scale development and reliability. *Journal of Nervous and Mental Disease, 175*, 738-741.
- Zea, M. C., Jarama, S. L. & Bianchi, F. T. (1995). Social support and psychosocial competence: Explaining the adaptation to college of ethnically diverse students. *American Journal of Community Psychology, 23*, 509-531.

APPENDIX A: TABLES

Table 1: Descriptive Statistics of Major Variables

| | Mean | SD | Range | n |
|---|-------|-------|--------------|-----|
| Parental Attachment | 57.30 | 20.90 | -11.00-92.00 | 168 |
| Social Anxiety | 1.41 | .68 | .00-3.26 | 168 |
| ICQ-Initiation with a Friend | 3.73 | .84 | 1.63-5.00 | 168 |
| ICQ- Initiation with a Dating Partner | 3.40 | .98 | 1.00-5.00 | 168 |
| Relationship Satisfaction with Best Friend | 4.16 | .69 | 2.00-5.00 | 168 |
| Relationship Satisfaction with Closest Group of Friends | 3.82 | .77 | 1.30-5.00 | 168 |
| Relationship Satisfaction with Dating Partner | 4.39 | .62 | 2.43-5.00 | 97 |

Table 2: t-Tests of Major Variables by Gender

| | <i>t</i> | Standard Error of Difference | Males Mean (SD) | Females Mean (SD) |
|---|----------|------------------------------|-----------------|-------------------|
| Parental Attachment | -.26 | 4.79 | 56.23 (16.01) | 57.47 (21.58) |
| Social Anxiety | -.78 | .16 | 1.31 (.67) | 1.43 (.69) |
| ICQ-Initiation with a Dating Partner | .02 | .22 | 3.96 (.69) | 3.70 (.86) |
| ICQ- Initiation with a Friend | 1.32 | .19 | 3.40 (1.16) | 3.40 (.95) |
| Relationship Satisfaction with Best Friend | -1.38 | .16 | 3.97 (.68) | 4.19 (.70) |
| Relationship Satisfaction with Closest Group of Friends | -.62 | .18 | 3.72 (.71) | 3.83 (.79) |
| Relationship Satisfaction with Dating Partner | -.46 | .22 | 4.30 (.77) | 4.40 (.61) |

Note: n=168 except Relationship Satisfaction with Dating Partner (n=97)

Table 3: t-Tests of Major Variables by Race

| | <i>t</i> | Standard Error of Difference | Black Mean (SD) | White Mean (SD) |
|---|----------|------------------------------|-----------------|-----------------|
| Parental Attachment | 2.68** | 4.03 | 48.56 (23.91) | 59.36 (19.66) |
| Social Anxiety | .11 | .13 | 1.40 (.72) | 1.42 (.68) |
| ICQ-Initiation with a Dating Partner | -.81 | .19 | 3.72 (1.09) | 3.74 (.78) |
| ICQ- Initiation with a Friend | .09 | .20 | 3.53 (.10) | 3.37 (.98) |
| Relationship Satisfaction with Best Friend | 3.32** | .13 | 3.81 (.76) | 4.25 (.65) |
| Relationship Satisfaction with Closest Group of Friends | 2.74** | .15 | 3.48 (.93) | 3.89 (.71) |
| Relationship Satisfaction with Dating Partner | 1.32 | .17 | 4.20 (.50) | 4.43 (.64) |

Note: n=168 except Relationship Satisfaction with Dating Partner (n=97)

Table 4. Hierarchical Regressions Testing Interactions between Attachment Security and Race in Relation to Social Anxiety and Relationship Outcomes

| Predictors | <u>Satisfaction</u> | <u>Relationship</u> | | | <u>Initiating Relationships</u> | |
|----------------------------------|---------------------|---------------------|---------------|----------------|---------------------------------|-----------------|
| | Social Anxiety | Best Friend | Closest Group | Dating Partner | Friends | Dating Partners |
| 1. Attachment Security | .01 | .15 | -.02 | -.00 | -.12 | .14 |
| 2. Race | -.06 | -.19* | -.16* | -.09 | .08 | .12 |
| 3. Attachment Security x Race | -.21 | .11 | .20 | .21 | .42 ^t | .11 |

Note: Standardized betas are presented when the attachment security variable, race variable, and interaction term were entered simultaneously. For Relationship Satisfaction with Dating Partner n=97. For all other analyses n=168.

^t p < .10; *p < .05; **p < .01

Table 5. Correlations Among Major Variables and Covariates

| <u>Variables</u> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|--------|--------|--------|--------|------|-------|------|------|-------|----|
| 1. Parental Attachment | -- | | | | | | | | | |
| 2. Social Anxiety | -.18* | -- | | | | | | | | |
| 3. Satisfaction with Best Friends | .29** | -.17* | -- | | | | | | | |
| 4. Satisfaction with Closest Group of Friends | .19* | -.20** | .59** | -- | | | | | | |
| 5. Satisfaction with Dating Partner | .21* | -.25* | .25* | .21* | -- | | | | | |
| 6. ICQ-Initiation with a Friend | .25** | -.62** | .30** | .35** | .21* | -- | | | | |
| 7. ICQ- Initiation with a Dating Partner | .22** | -.67** | .23** | .20* | .21* | .72** | -- | | | |
| 8. Race | -.20** | -.01 | -.25** | -.21** | -.13 | -.01 | .06 | -- | | |
| 9. Gender | .02 | .06 | .11 | .05 | .05 | -.10 | -.00 | -.04 | -- | |
| 10. Parental Educational Attainment | .09 | .07 | .17* | -.01 | -.00 | .04 | .02 | -.04 | -.19* | -- |

Note: n=168 except for correlations with satisfaction with dating partner (n=97)

Race was scored as 1=White 2=Black; Gender was scored as 1=Male 2=Female

^t $p < .10$; * $p < .05$; ** $p < .01$ (two-tailed)

Table 6a.: Hierarchical Regressions Testing Mediation of Parental Attachment Security and Relationship Satisfaction with Best Friend by Social Anxiety

| Variable | Model 1 | | | Model 2 | | | Model 3 | | |
|--------------------------------|----------|-------------|---------|----------|-------------|----------|----------|-------------|--------------------|
| | <i>B</i> | <i>SE B</i> | β | <i>B</i> | <i>SE B</i> | <i>B</i> | <i>B</i> | <i>SE B</i> | β |
| Race | -0.44 | 0.13 | -0.25** | -0.35 | 0.13 | -0.20** | -0.36 | 0.13 | -0.20** |
| Attachment security | | | | 0.01 | 0.00 | 0.25** | 0.01 | 0.00 | 0.23** |
| Social Anxiety | | | | | | | -0.14 | 0.08 | -0.14 ^t |
| Adjusted R ² Change | | 0.06 | | | 0.05 | | | 0.02 | |
| Total Adjusted R ² | | | | | | | | 0.13** | |

Note: Mean indirect effect was .0009 with a 90% bias corrected confidence interval of .0001 to .0023

n=168

^t p < .10 ; *p < .05; **p < .01

Table 6b.: Hierarchical Regressions Testing Mediation of Parental Attachment Security and Relationship Satisfaction with Closest Group of Friends by Social Anxiety

| Variable | Model 1 | | | Model 2 | | | Model 3 | | |
|--------------------------------|----------|-------------|---------|----------|-------------|---------|----------|-------------|---------|
| | <i>B</i> | <i>SE B</i> | β | <i>B</i> | <i>SE B</i> | β | <i>B</i> | <i>SE B</i> | β |
| Race | -0.41 | 0.15 | -0.21** | -0.35 | 0.15 | -0.18* | -0.36 | 0.15 | -0.19* |
| Attachment security | | | | 0.01 | 0.00 | 0.16* | 0.01 | 0.00 | 0.12 |
| Social Anxiety | | | | | | | -0.21 | 0.09 | -0.18* |
| Adjusted R ² Change | | 0.04 | | | 0.02 | | | 0.02 | |
| Total Adjusted R ² | | | | | | | | 0.08** | |

Note: Mean indirect effect was .0013 with a 90% bias corrected confidence interval of .0003 to .0030

n=168.

^t p < .10 ; *p < .05; **p < .01

Table 6c.: Hierarchical Regressions Testing Mediation of Parental Attachment Security and Relationship Satisfaction with Dating Partner by Social Anxiety

| Variable | Model 1 | | | Model 2 | | | Model 3 | | |
|--------------------------------|----------|-------------|---------|----------|-------------|-------------------|----------|--------------------|---------|
| | <i>B</i> | <i>SE B</i> | β | <i>B</i> | <i>SE B</i> | β | <i>B</i> | <i>SE B</i> | β |
| Race | -0.23 | 0.17 | -0.13 | -0.19 | -0.17 | -0.10 | -0.15 | 0.17 | -0.09 |
| Attachment security | | | | 0.01 | 0.00 | 0.20 ^t | 0.01 | 0.00 | 0.15 |
| Social Anxiety | | | | | | | -0.21 | 0.10 | -0.20* |
| Adjusted R ² Change | | 0.01 | | | 0.03 | | | 0.03 | |
| Total Adjusted R ² | | | | | | | | 0.07* | |
| Indirect Effects | | | | | | | | .0014 ^t | |

Note: Mean indirect effect was .0014 with a 90% bias corrected confidence interval of .0003 to .0037

n=97

^t p < .10 ; *p < .05; **p < .01

Table 6d.: Hierarchical Regressions Testing Mediation of Parental Attachment Security and Interpersonal Competence Initiating Friendships by Social Anxiety

| Variable | Model 1 | | | Model 2 | | | Model 3 | | |
|-------------------------------|----------|-------------|---------|----------|-------------|---------|----------|-------------|---------|
| | <i>B</i> | <i>SE B</i> | β | <i>B</i> | <i>SE B</i> | β | <i>B</i> | <i>SE B</i> | β |
| Race | -0.02 | 0.17 | -0.01 | 0.10 | 0.17 | 0.05 | 0.04 | 0.13 | 0.02 |
| Attachment security | | | | 0.01 | 0.00 | 0.26** | 0.01 | 0.00 | 0.15* |
| Social anxiety | | | | | | | -0.74 | 0.08 | -0.60** |
| Social Anxiety | | -0.01 | | | 0.06 | | | 0.35 | |
| Total Adjusted R ² | | | | | | | | 0.40** | |
| Indirect Effects | | | | | | | | .0045* | |

Note: Mean indirect effect was .0045 with a 90% bias corrected confidence interval of .0015 to .0076

n=168.

^t p < .10 ; *p < .05; **p < .01

Table 6e.: Hierarchical Regressions Testing Mediation of Parental Attachment Security and Interpersonal Competence Initiating Romantic Relationships by Social Anxiety

| Variable | Model 1 | | | Model 2 | | | Model 3 | | |
|--------------------------------|----------|-------------|---------|----------|-------------|---------|----------|-------------|---------|
| | <i>B</i> | <i>SE B</i> | β | <i>B</i> | <i>SE B</i> | β | <i>B</i> | <i>SE B</i> | β |
| Race | 0.16 | 0.19 | 0.06 | 0.28 | 0.19 | 0.11 | 0.20 | 0.15 | 0.08 |
| Attachment security | | | | 0.01 | 0.00 | 0.24** | 0.01 | 0.00 | 0.12* |
| Social Anxiety | | | | | | | -0.93 | 0.08 | -0.65** |
| Adjusted R ² Change | | 0.00 | | | 0.05 | | | 0.41 | |
| Total Adjusted R ² | | | | | | | | 0.46** | |
| Indirect Effects | | | | | | | | .0057* | |

Note: Mean indirect effect was .0057 with a 90% bias corrected confidence interval of .0022 to .0097

n=168.

^t p < .10 ; *p < .05; **p < .01

APPENDIX B. FIGURE

Figure 1: Theoretical Model of Parental Attachment Security and Social Anxiety as Predictors of Relationship

Outcomes

