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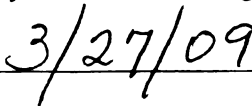
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**THE INTERPLAY BETWEEN THE ATTACHMENT, CAREGIVING, AND
EXPLORATORY BEHAVIORAL SYSTEMS WITHIN ADULT ROMANTIC
RELATIONSHIPS**

By

Robert Alfred Ackerman

A THESIS

**Submitted to
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ABSTRACT

THE INTERPLAY BETWEEN THE ATTACHMENT, CAREGIVING, AND EXPLORATORY BEHAVIORAL SYSTEMS WITHIN ADULT ROMANTIC RELATIONSHIPS

By

Robert Alfred Ackerman

The purpose of this research was to investigate the interplay between the attachment, caregiving, and exploratory behavioral systems from a dyadic perspective. In particular, this research sought to test whether individuals' attachment anxiety and avoidance are related to their partners' quality of exploration through corresponding differences in individuals' caregiving behaviors. Participants included approximately 99 romantic couples (196 participants) from a large Midwestern University that came to the laboratory one couple at a time. Upon arrival, they were separated, led into different rooms, and asked to complete measures regarding their goals, attachment, caregiving, the Big Five traits, and relationship quality. Participants next sat on a couch together to resolve a conflict and discuss goals. Afterward, they were separated, led into different rooms, and provided an opportunity to explore five puzzle games. Subsequently, participants completed a measure concerning exploration. Overall, the results of this study fail to provide support for the mediational hypothesis. Nonetheless, associations were found between individuals' attachment systems and their caregiving systems, individuals' attachment systems and their exploratory systems, and individuals' attachment systems and their partners' exploratory systems.

To my grandparents, Ana Cecilia and Alfredo Hernandez

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INTRODUCTION

If we are to navigate and adapt to the myriad activities and relationships in our lives effectively, it is important that we seize opportunities to further develop our competence and self-efficacy. Naturally, exploration and curiosity may lend themselves well to providing these opportunities to enhance our competence (see White, 1959). Indeed, exploration of the environment (i.e., inspection, manipulation, and command of the environment; Mikulincer & Shaver, 2007) has been found to provide individuals with increased competence in relating to peers as well as the physical environment (Ainsworth, Blehar, Waters, & Wall, 1978).

Although exploration has often been conceptualized as an individual-level process (e.g., Elliot & Reis, 2003; Green & Campbell, 2000), it is something that is actually fostered in most healthy close relationships (e.g., Feeney, 2007). When it comes to close relationships, we often turn to our partners for both support and encouragement. That is, not only do we rely on our partners to comfort us when we are distressed, but we also rely on our partners to encourage us when we are excited (Feeney & Collins, 2004). Far from being unrelated, close relationships should ideally foster exploration and promote growth outside of the relationship.

If a person's exploratory behavior is examined from a dyadic perspective, questions concerning the partner's role in fostering or inhibiting exploration arise. Research suggests that not every partner is equally skilled at understanding our needs (Kunce & Shaver, 1994; Crowell, Treboux, Gao, Fyffe, Pan, & Waters, 2002) or being effectively responsive (Feeney & Collins, 2001; Simpson, Rholes, & Nelligan, 1992). In fact, it is likely that certain attachment-related characteristics of the partner, such as a

tendency to experience fear of abandonment (anxiety) or experience discomfort with closeness (avoidance), may encourage or discourage exploration.

Although researchers have investigated the relation that one person's attachment style has with his or her *own* quality of exploration (e.g., Beck, 2006; Carnelley & Ruscher, 2000; Elliot & Reis, 2003; Green & Campbell, 2000; Hazan & Shaver, 1990; Johnston, 1999; Mikulincer, 1997), relatively little research has examined the relation between one person's attachment style and his or her *partner's* quality of exploration. Because previous research has found that attachment style is reliably related to styles of caregiving (Feeney & Collins, 2001; Kuncle & Shaver, 1994), and that one person's caregiving quality is reliably related to his/her partner's quality of exploration (Feeney, 2007), we can expect to find an association between one person's attachment style and his/her partner's quality of exploration when we look at this phenomenon from a dyadic perspective. That being said, the present research will investigate this mediational hypothesis by examining the relevant links between individuals' attachment-related dimensions, caregiving styles, and exploratory behaviors.

Attachment Theory

Originally proposed and developed by John Bowlby (1969/1997, 1973, 1988), attachment theory draws on ethology, cybernetics, and psychoanalysis to explain how and why infants develop deep emotional bonds to their caregivers. Recently, attachment theory has also been extended to romantic relationships to explain the bonds that are formed between two adults, and to account for individual differences in the quality of these bonds (Hazan & Shaver, 1987).

Attachment theory posits that infants are born with an innate tendency to maintain physical and psychological proximity to the caregiver when threatened (Mikulincer & Shaver, 2004). According to Bowlby (1969/1997), this tendency to seek out attachment figures when alarmed or threatened would have conferred humans an evolutionary advantage by providing them with protection when they were most vulnerable. Moreover, Bowlby (1988) argued that such proximity seeking is likely mediated by a hierarchy of separate but interdependent behavioral systems that together organize behavior. These include the attachment behavioral system, caregiving behavioral system, and exploratory behavioral system.

The Attachment Behavioral System

Bowlby (1969/1997, 1973, 1988) placed a great deal of emphasis on the attachment behavioral system. He argued that the biological function of attachment is protection. The attachment system achieves this function by motivating the infant (or adult) to seek protection from the caregiver when sufficiently alarmed or threatened (Mikulincer & Shaver, 2003). Behaviors that aim to maintain proximity or initiate contact with the caregiver are termed attachment behaviors (Ainsworth et al., 1978). Depending upon the intensity with which the attachment system is activated, set-goals will differ, and different attachment behaviors will result (Ainsworth et al., 1978). Once protection is obtained and the individual feels secure, the attachment system is terminated (Mikulincer & Shaver, 2003).

Importantly, behavioral systems can be modified in response to the actions of one's caregiver in order to keep the individual on track towards his/her system's set-goals (Shaver & Mikulincer, 2006). Indeed, individual differences in attachment are presumed

to result from the responsiveness of the caregiver to the infant's pleas for proximity (Mikulincer & Shaver, 2004). These internal working models then determine much of how the attachment behavioral system is expressed (Collins, Guichard, Ford, & Feeney, 2004). According to attachment theory, internal working models are cognitive-affective structures, comprised of content related to attachment-related memories, beliefs, goals, and action tendencies, that underlie individual differences in attachment (Collins et al., 2004). These internal working models are thought to remain influential throughout life (Collins et al., 2004). Attachment styles are believed to convey the internal working models that are most chronically accessible; in addition, they reflect the corresponding attachment strategies that an individual uses most (Mikulincer & Shaver, 2003).

Repeated interactions with the caregiver lead to internal working models of self and other (Mikulincer & Shaver, 2004). Consistent responsiveness on the part of the caregiver leads to feelings of security and an internal working model that reflects this positive relationship (Mikulincer & Shaver, 2004). Indeed, infants classified as secure generally receive parenting that is characterized by the consistent availability of the mother (Cassidy & Berlin, 1994). In contrast, when the caregiver can not be found or is not responsive to attempts for proximity, individuals learn that seeking proximity is not an effective strategy to reduce distress (Mikulincer & Shaver, 2003). Individuals also learn that attachment figures cannot be trusted to provide protection and safety (Mikulincer & Shaver, 2003). Consequently, repeated interactions characterized by rejection, neglect, and/or abandonment lead to the use of alternative attachment strategies (i.e., hyperactivation and deactivation) and an internal working model that reflects this negative relationship (Mikulincer & Shaver, 2004). To be specific, insecure/ambivalent

internal working models are believed to result from the inconsistency of maternal availability, whereas infants classified as insecure/avoidant generally receive parenting that is characterized by consistent rejection or unavailability of the mother (Cassidy & Berlin, 1994).

When the attachment system is hyperactivated, individuals intensify their attempts to maintain proximity and seek protection with the hope of eliciting care and support from the caregiver (Mikulincer & Shaver, 2003). This is characteristic of attachment-related anxiety, and preoccupied and anxious-ambivalent attachment styles. Conversely, when the attachment system is deactivated, individuals cease their attempts to seek proximity and instead choose to try to rely entirely on themselves (Mikulincer & Shaver, 2003). This is characteristic of attachment-related avoidance, and dismissive and avoidant attachment styles. It is believed that everyone is a mix of secure and insecure attachment; that is, everyone has developed strategies of attachment that may include hyperactivation and deactivation (Mikulincer & Shaver, 2003).

Mary D. S. Ainsworth (e.g., Ainsworth et al., 1978) developed the Strange Situation paradigm in order to empirically demonstrate these individual differences in attachment style. The Strange Situation paradigm is a laboratory procedure that involves a series of episodes wherein infants are repeatedly separated and reunited with their mothers and/or a stranger, and afforded an opportunity to explore with toys. By using this paradigm, Ainsworth was able to delineate the existence of three attachment styles (secure, avoidant, and anxious-ambivalent). Whereas the infants classified as securely attached were characterized by a desire for maternal proximity during reunion, distress upon her absence, and joy upon her return, those classified as avoidant were

characterized by their avoidance of maternal proximity during reunion, lack of distress upon her absence, and treatment of the stranger much like the mother (Ainsworth et al., 1978). Furthermore, anxious-ambivalent infants were characterized by their ambivalent desire for maternal proximity and angry or passive resistance to their mothers upon reunion (Ainsworth et al., 1978).

The Caregiving Behavioral System

The caregiving behavioral system refers to those behaviors that complement the infant's or adult partner's (hitherto known as the 'careseeker') attachment and exploration behaviors (Feeney & Collins, 2004). Some examples include consoling the careseeker during loss and comforting the careseeker when he/she is afraid. Thus, the function of the caregiving system is the provision of support and protection to those in need (Shaver & Mikulincer, 2006).

The caregiving system is activated when the careseeker expresses a need or the careseeker's attachment system is activated (Shaver & Mikulincer, 2006). Upon activation, there are two set-goals involved in the caregiving system: (a) reduce the careseeker's suffering (i.e., the safe haven function), and (b) support the careseeker's growth (i.e., the secure base function; Shaver & Mikulincer, 2006). Adopting an empathic orientation is the primary strategy to attain these two set-goals (Shaver & Mikulincer, 2006). Alternative strategies in the caregiving system involve hyperactivation or deactivation (Shaver & Mikulincer, 2006). The caregiving system is then terminated in response to the careseeker's attainment of security or his/her increase in well-being (Shaver & Mikulincer, 2006).

Hyperactivation of the caregiving system entails excessive and intrusive provision of support that is often out of sync with the careseeker's needs (Shaver & Mikulincer, 2006). Rather than aiming to alleviate the careseeker's distress, these strategies often have the ultimate aim of increasing the caregiver's feelings of competence and preventing the careseeker from becoming self-sufficient (Shaver & Mikulincer, 2006). Attainment of these modified goals is possible via increased hypervigilance towards the careseeker's distress, focusing exclusively on the careseeker's needs, overstating the extent to which the careseeker truly needs assistance, and acting in ways so as to persuade the careseeker to accept the caregiver's assistance (Shaver & Mikulincer, 2006).

Conversely, deactivation of the caregiving system entails the withdrawal of support in response to bids for proximity, and reduction in the ability to empathize (Shaver & Mikulincer, 2006). The actual deactivating strategies used by caregivers include minimization of the careseeker's distress, reduction in the ability to sympathize, suppression of thoughts pertaining to the careseeker's susceptibility to danger and his/her needs, and curtailment in overall attentiveness and responsiveness to the needs of the careseeker (Shaver & Mikulincer, 2006).

As is true of many of the behavioral systems closely tied to attachment, attachment style has an influence on the functioning of the caregiving system. For instance, Crowell et al. (2002) found that secure attachment is associated with effective provision of a secure base (operationalized as being interested in the partner, recognizing and interpreting his/her signs of distress or needs accurately, and being appropriately responsive to the partner's distress or needs in turn). Secure attachment is also known to be associated with the effective provision of a safe haven (Feeney & Collins, 2001).

Attachment-related avoidance, in contrast, is positively related to caregiving styles characterized by less responsiveness and more domination (Feeney & Collins, 2001). Because individuals high in attachment-related avoidance are likely to use alternative caregiving strategies such as deactivation, their caregiving style is likely to be characterized by withdrawal. Moreover, because of their reduced ability to empathize, caregivers high in attachment-related avoidance lack critical skills necessary for the provision of effective care (Collins, Guichard, Ford, & Feeney, 2006). Indeed, individuals high in attachment-related avoidance have been shown to provide more instrumental support when the careseeker expresses a low need for support than when the careseeker expresses a high need for support (Feeney & Collins, 2001). In light of this, it is expected that participants' attachment-related avoidance will be negatively related to the quality of caregiving they provide.

Moreover, attachment-related anxiety is positively related to compulsive caregiving and increased domination (Feeney & Collins, 2001). Although caregivers high in attachment-related anxiety may possess some of the skills necessary for effective caregiving, they often lack the resources and appropriate motivation to provide care that is responsive and effective (Collins et al., 2006). Moreover, caregivers high in attachment-related anxiety may not provide an effective secure base of support if they perceive the careseekers' exploratory behaviors as a potential threat to the relationship (Collins et al., 2006). For instance, Kobak, Ferenz-Gillies, Everhart, and Seabrook (1994) provide evidence for a relation between mothers' preoccupied attachment styles and a tendency to exhibit anxiety and intrusiveness when their older adolescent child is discussing his or her goals for the future. With this in mind, it is expected that

participants' attachment-related anxiety will be negatively related to the quality of their caregiving.

The Exploratory Behavioral System

In outlining some of what he considered to be the essential features of a theory for individual development, Sroufe (1979) discussed the need for such a theory to place some emphasis on the individual's adaptation to the environment. For Sroufe (1979), adaptation entails actively exploring the environment, modifying one's behavior to fit the environment, and using the environment in such a way as to satisfy existing goals or needs.

Similarly, Bowlby (1973) speaks of adaptability (measured by constructs such as competence and self-esteem) as a characteristic of individuals who are capable of surviving over extended periods of time in various physical and social contexts. He found that memories of family unity and outside activities with the father were common among those individuals who were considered well-adapted (Bowlby, 1973). In addition, these individuals were put into environments that were appropriately challenging, thus increasing their perceptions of efficacy and leading them to set higher goals (Bowlby, 1973).

Being an integral part of adaptation, the exploratory behavioral system refers to those behaviors that propel the organism into the environment to inspect it, manipulate it, and master it (Mikulincer & Shaver, 2007). According to Bowlby (1969/1997), there are three main forms of exploratory behavior: (a) orientation of the sense organs; that is, orienting the eyes, ears, nose, etc., in such a way as to optimally perceive the stimulus object and prepare the body for appropriate action; (b) physical locomotion towards the

stimulus object (thus permitting sense organs to obtain a more accurate picture); and (c) manipulation/investigation of the stimulus object.

The exploratory behavioral system is generally activated by novelty (Bowlby, 1969/1997). Similarly, Feeney (2004) states that the exploration system is activated whenever the individual is challenged and/or presented with potential opportunities to explore. The exploration system is then terminated by familiarity (Bowlby, 1969/1997). Interestingly, exploratory behavior of something novel always has as its consequence the transformation of this stimulus object into something familiar (Bowlby, 1969/1997). Hence, it appears that an essential function of exploration is to gain familiarity with the environment and to gain a sense of competence and mastery.

Vidler (1977) believed that the concept of curiosity is frequently used to describe this drive to obtain information. Interestingly, alarm and retreat are provoked by the same characteristics that promote curiosity (Bowlby, 1969/1997). In fact, before eliciting curiosity or interest, a novel or strange stimulus will often elicit alarm at first (Bowlby, 1969/1997). During the evolution of the human species, humans thrived on opportunity and were served well by being curious and exploring the unknown (Sroufe, 1979). At the same time, however, exploration sometimes brought about unforeseen dangers, and so being naturally wary of the unknown undoubtedly contributed to the survival of the human species as well (Sroufe, 1979). This delicate balance between the different behavioral systems is perhaps most clearly seen in the behavior of infants in Ainsworth's (e.g., Ainsworth et al., 1978) strange situation paradigm.

The Interplay among Behavioral Systems

Within the strange situation, the attachment system is in direct opposition to the exploration system because maintaining proximity to the mother precludes approach towards the novel toys at the other side of the room (Ainsworth et al., 1978). Ainsworth et al. (1978) state that an interlocking between the attachment and exploration systems would have afforded humans (a species with a prolonged stage of infancy) a survival advantage by promoting a balance between protection and exploration of the physical and social environment. This balance is maintained, for instance, whenever an infant ventures too far away from his or her caregiver; upon such a violation of the infant's set-goal for physical distance, his or her attachment system is likely to be activated, and the infant is subsequently motivated to move closer to his or her caregiver until his or her set-goal is reached (Ainsworth et al., 1978). Likewise, when the infant ventures too far (or too long) to explore and violates the mother's set-goal for spatial (or temporal) proximity, this behavior is likely to activate the mother's caregiving system and inhibit any behavior on her part antithetical to that system (Bowlby, 1969/1997). It is only when the attachment system is deactivated, or the individual feels secure, that exploration is possible (Feeney & Collins, 2004).

The attachment behavioral system is also believed to be intimately tied to the caregiving behavioral system because both are theorized to have developed within the context of the child-parent relationship. Children may learn about caregiving in part via observation and modeling of their own caregivers (Kunce & Shaver, 1994). There is evidence of intergenerational transmission of attachment such that parents' internal working models become transmitted to their children (Steele & Steele, 1994). To be sure, Steele and Steele (1994) propose that parents' internal working models influence their

caregiving behaviors in attachment-relevant contexts with their children, and that these caregiving behaviors then influence children's felt security and their own development of internal working models.

The following sections will help to highlight some of the major findings in the childhood and adulthood literature regarding the interplay among the attachment, caregiving, and exploratory behavioral systems. Given the dyadic focus of the present research, this review will borrow terms from the Actor-Partner Interdependence Model (see Kenny, Kashy, & Cook, 2006) to guide conceptual understanding of these processes. Accordingly, *actor effects* will refer to relations between different behavioral systems within the same person; conversely, *partner effects* will refer to associations between different behavioral systems across different persons. That being said, each section is divided into three parts: (a) the conceptualization of exploration within that given area of literature; (b) actor effects for attachment style (i.e., the connection between one person's attachment style and his or her own quality of exploration); and (c) partner effects for caregiving (i.e., the connection between one person's caregiving style and his or her partner's quality of exploration).

Research on Childhood Exploration

Conceptualization of Childhood Exploration

The developmental tasks that an individual faces play a vital role in determining which domains of exploration are of prime importance. According to Sroufe (1979), an important developmental issue for infants of 12 to 18 months is exploring the physical environment and developing a sense of mastery. Successful adaptation to the environment through active exploration then fosters the future development of autonomy

in toddlers (Matas, Arend, & Sroufe, 1978). Note that the roles of actor and partner are not interchangeable between child and parent; that is, it is always the child (or actor) that is exploring and the parent (or partner) that is providing care.

With this in mind, exploration is generally defined in childhood research as the infant's or child's investigation of the external environment via perception, locomotion, and manipulation (Aspelmeier & Kerns, 2003). Indeed, in Ainsworth et al.'s (1978) seminal work, exploration of toys and the environment was operationalized as infants' locomotion towards the toys, visual exploration of the toys, and manipulation of the toys.

Actor Effects

Generally speaking, children with a secure attachment to their parents have been found to explore more actively and independently (e.g., Bus & van IJzendoorn, 1988; Hazen & Durrett, 1982). In fact, at age three, securely attached children spend more time than insecurely attached children (both avoidant and anxious) studying novel aspects of the environment (Jacobson & Wille, 1986). Given that children with secure attachments to their parents seldom doubt the availability and security of their home base, their exploration is more likely to be productive and focused (Feeney & Collins, 2004).

In contrast, children with insecure/avoidant attachments to their parents often doubt the availability of their attachment-figures for protection and support. Consequently, infants who possess an avoidant attachment style generally attempt to deactivate the attachment system and rely on themselves for comfort and encouragement. One of the ways in which infants with avoidant attachment styles accomplish this is by devoting excessive amounts of time to objects in their environment (Grossmann, Grossmann, & Zimmermann, 1999). This is ironic because the objects that tend to elicit

attention for exploration are often novel and therefore potentially threatening (Bowlby, 1969/1997). This threat further exacerbates activation of the attachment system and prolongs the time needed to restore a sense of felt security and resume exploration (Sroufe, 1979).

On the other hand, infants who possess an anxious-ambivalent attachment style are restricted in their exploration because their preoccupation over the availability of their mothers promotes excessive proximity seeking and thus prevents them from being able to freely explore their environment (Grossmann et al., 1999). Of course, when the mother is considered to be unavailable, attentiveness to the mother is increased and exploration is decreased (Ainsworth & Wittig, 1969; Carr, Dabbs, & Carr, 1975; Sorce & Emde, 1981). Thus, it should come as no surprise that children classified as insecure/ambivalent show the greatest inhibition and fear when exploring novel environments, peers, and toys (Cassidy & Berlin, 1994; Hazen & Durrett, 1982).

Partner Effects

Competence in childhood exploration is said to be shaped by the quality of assistance that the attachment-figure provides (Grossmann et al., 1999). More often than not, when an infant explores the environment, he or she is apt to experience negative affect of some sort (e.g., frustration due to difficulty over manipulating objects; wariness or fear due to the novelty of some objects; Grossmann et al., 1999). Because this negative affect is likely to activate the attachment system, an important task for the caregiver is to help alleviate this negative affect whilst keeping the child focused on his or her exploratory goals (Grossmann et al., 1999).

Infants with secure attachments to their mothers and fathers often have parents who refrain from interfering in their exploration when they appear to be content or concentrating on a task (Grossmann et al., 1999). Nonetheless, these same parents are likely to intervene and comfort their infants when they evidence distress so that they could soon again resume their exploratory activities (Grossmann et al., 1999).

In contrast, infants with avoidant attachments to their mothers and fathers often have parents who interfere with their exploration. For instance, these parents may redirect their infants' attention to another object or activity, or prevent them from engaging in autonomous exploration by joining them in their activity, when their infants appear to be content or concentrating on a task (Grossmann et al., 1999). In addition, whenever infants become distressed to the point that the attachment system is activated, parents of avoidant children are likely to depart and leave the infants to soothe themselves (Grossmann et al., 1999). Needless to say, such behavior is likely to reinforce the belief that parents are unable to be relied upon as a safe haven or secure base for exploration.

Similarly, infants with anxious attachments to their mothers and fathers often have parents that interfere with their exploratory activities (Ainsworth et al., 1978). In addition, parents of anxious-ambivalent children are often inconsistently available when the child is distressed (Ainsworth et al., 1978), and often promote their own attachment needs over the exploratory needs of the child (Grossmann et al., 1999). Naturally, such compulsive and inconsistent caregiving is likely to encourage the child to become hypervigilant in regards to his/her attachment needs, and consequently inhibit his/her exploration.

Research on Adulthood Exploration

Conceptualization of Adulthood Exploration

Entrance into college represents a unique period of development in a young adult's life because it usually entails both separating from parental attachment figures and developing a sense of mastery in regards to the new environment (Kenny, 1987). In their review of how attachment security relates to self-regulation and personal growth, Mikulincer and Shaver (2007) touch on several important life tasks for adolescents and adults; these include forming an identity, developing a career, performing well at school and work, and exploring religion. Unlike how exploration is generally defined in childhood, exploration in adulthood tends to be rather abstract.

Indeed, some of the most frequently studied domains of exploration in adulthood include: environmental exploration (e.g., traveling to different countries; Green & Campbell, 2000; Reich & Siegel, 2002); social exploration (e.g., diversity in friends, willingness to meet new people; Aspelmeier & Kerns, 2003; Green & Campbell, 2000); leisure exploration (e.g., developing new hobbies; Carnelley & Ruscher, 2000; Hazan & Shaver, 1990); spiritual exploration (e.g., curiosity about religion; Beck, 2006); intellectual exploration (e.g., exploring novel ideas; Green & Campbell, 2000; Reich & Siegel, 2002); career exploration (e.g., exploring various career-related opportunities; Ketterson & Blustein, 1997; Ryan, Solberg, & Brown, 1996); cognitive exploration (e.g., openness to new information; Aspelmeier & Kerns, 2003; Johnston, 1999; Mikulincer, 1997; Mikulincer & Arad, 1999); goal exploration (e.g., adoption of mastery-approach goals; Elliot & Reis, 2003; Feeney, 2007); and self-exploration (e.g., self-assessment of attitudes, identity, or goals; Ketterson & Blustein, 1997). Note, however, that the roles of

actor and partner are parallel in adult romantic relationships; that is, both partners may serve in the roles of explorer and caregiver.

Actor Effects

For the most part, secure attachment is positively related to active and productive exploration in adulthood (e.g., Aspelmeier & Kerns, 2003; Beck, 2006; Ketterson & Blustein, 1997; Mikulincer, 1997; Mikulincer & Arad, 1999). Within the career exploration domain, for instance, researchers have found that secure parental attachment to one's mother is positively related to active exploration of career opportunities (Ketterson & Blustein, 1997). Research on cognitive exploration has also found that securely attached participants report significantly more curiosity than avoidantly attached participants (Johnston, 1999; Mikulincer, 1997). Attachment security is even positively related to preferences for social and environmental exploration (Green & Campbell, 2000).

In contrast, attachment-related avoidance is generally negatively related to active and productive exploration (e.g., Aspelmeier & Kerns, 2003; Beck, 2006; Mikulincer, 1997; Mikulincer & Arad, 1999; Reich & Siegel, 2002). For example, within the cognitive exploration domain, Mikulincer (1997) found that attachment-related avoidance is negatively related to curiosity and the ability to integrate new information into existing cognitive structures. Individuals' preferences for environmental and social exploration are also negatively related to their levels of attachment-related avoidance (Green & Campbell, 2000). Interestingly, men's attachment-related avoidance has even been found to be negatively related to the amount of time they spend manipulating novel puzzles (Aspelmeier & Kerns, 2003).

Similarly, attachment-related anxiety has been found to be negatively related to active and productive exploration (e.g., Aspelmeier & Kerns, 2003; Beck, 2006; Mikulincer, 1997; Mikulincer & Arad, 1999). Within the leisure exploration domain, for example, researchers have found a negative relation between thrill seeking activities, such as racing cars and parachute jumping, and attachment-related anxiety (Carnelley & Ruscher, 2000). Moreover, attachment-related anxiety is negatively related to preferences for intellectual exploration (Green & Campbell, 2000). Men's attachment-related anxiety is even negatively related to their rate of manipulation with puzzles and observed social exploration (Aspelmeier & Kerns, 2003).

Partner Effects

Just as competence in childhood exploration is believed to be influenced by the quality of parental caregiving, competence in adulthood exploration is thought to be related to the quality of the romantic partner's caregiving. To date, the most relevant research that has looked at this interplay between the caregiving and exploration behavioral systems has been that of Feeney (2007). Within her research, Feeney (2007) used both self-report and observational measures to assess the relation between participants' independent functioning and their partners' willingness to provide a secure base (i.e., dependency acceptance).

Self-reported dependency acceptance was operationalized in Feeney's research as partners' self-reported sensitivity to participants' distress and partners' self-reported responsiveness to participants' needs. Observed dependency acceptance was then operationalized as partners' communication of future availability, avoidance of dealing with goal-related problems (reverse scored), and sensitive-responsive support provision

to participants' discussion of personal goals. Finally, self-reported independent functioning was operationalized as participants' perceived self-efficacy, general engagement in independent exploration, and perceived ability to achieve independent goals; observed independent functioning was operationalized as participants' confident exploration of goals and avoidance of independent goal pursuit (reverse scored).

Feeney (2007) found that partners' self-reports of dependency acceptance were positively related to participants' self-reports of independent functioning. Similarly, observations of partners' dependency acceptance were found to be positively related to observations of participants' independent functioning. Interestingly enough, Feeney (2007) even provided evidence that partners' self-reports of dependency acceptance in the laboratory significantly predicted participants' self-reports of independent functioning on a 6-month follow-up survey.

Present Study

The current research aims to better understand the overall relation between the attachment, caregiving, and exploratory behavioral systems from a dyadic perspective. Figure 1 presents a simplified model of the associations to be tested. Because researchers have found that individuals' quality of exploration is connected to the quality of care that they receive from their partners (path p_{CE} ; Feeney, 2007) and that individuals' attachment styles are related to their own styles of caregiving (path a_{AC} ; Feeney & Collins, 2001; Kunc & Shaver, 1994), it is expected that partners' caregiving quality should partially mediate the association between the partners' attachment styles and individuals' quality of exploration (path p_{AE}). The following sections will outline the expected relations between these behavioral systems in more detail.

Relation between Participants' Attachment Styles and their Own Exploration

This study will attempt to replicate the findings of previous research by establishing a connection between individuals' attachment styles and their self-reported and observed quality of exploration. Self-reported exploration is defined in the current study as participants' self-reported desire for, and experience with, three exploration domains relevant to college: (a) social exploration; (b) intellectual exploration; and (c) environmental exploration. Moreover, observed exploration is defined as participants' observed quality of exploration with five puzzle games. It is worth mentioning that the present research makes a distinction between participants' self-reported 'desire for' and 'experience with' exploration. Because different studies have assessed exploration differently (e.g., assessing 'desire for' instead of 'experience with' exploration), drawing such a distinction facilitates the connection between past and present research.

Based on the results of previous research (e.g., Green & Campbell, 2000), high levels of attachment-related avoidance and anxiety are both expected to be negatively related to composite measures of desire for exploration. Although Green and Campbell (2000) did not explicitly test whether attachment-related dimensions of avoidance and anxiety would similarly be connected to participants' self-reported experience with exploration, it is expected that similar associations will be found. In addition to this, it is expected that attachment-related avoidance and anxiety will both be negatively related to behavioral measures of exploration (see Aspelmeier & Kerns, 2003).

Relation between Individuals' Exploration and their Partners' Attachment Styles

Feeney and Collins (2004) note that for exploration to be productive and focused, two conditions must be met: (a) the availability of the attachment figure is not in doubt;

and (b) the individual is not feeling threatened so as to return to the attachment figure—that is, the attachment system is not activated. Because having a partner with an insecure attachment style (especially avoidant attachment) may sometimes lead to perceptions of that partner as unsupportive (Feeney & Collins, 2001), it is expected that partners' insecure attachments will be negatively connected to individuals' quality of exploration. Specifically, it is expected that both the partners' attachment-related avoidance and anxiety will be negatively related to individuals' self-reported and observed quality of exploration.

Feeney and Collins (2004) further state that a major belief in attachment theory is that the people who flourish socially and emotionally have attachment figures who promote autonomy and provide sensitive caregiving. Because it has been shown that insecure attachment is reliably associated with maladaptive patterns of caregiving (Feeney & Collins, 2001; Kuncie & Shaver, 1994), the association between individuals' quality of exploration and their partners' attachment style is hypothesized to be mediated by their partners' self-reported caregiving. Specifically, the link between partners' attachment-related avoidance and individuals' quality of exploration will be mediated by individuals' reports of the partners' levels of proximity maintenance and controlling caregiving. Moreover, individuals' reports of their partners' levels of controlling and compulsive caregiving are predicted to mediate the association between partners' attachment-related anxiety and individuals' quality of exploration. Figure 2 depicts a more nuanced view of these hypothesized relations.

Notwithstanding these mediational hypotheses, there are still reasons to expect that the partners' attachment style, independent of the partners' caregiving quality, should

predict participants' quality of exploration (path p_{AE} in Figure 1). For example, although possession of high attachment-related anxiety may promote excessive and intrusive caregiving that negatively influences participants' quality of exploration, it is also plausible that some of the more purely careseeking aspects of attachment-related anxiety, such as anxious clinging, may also inhibit participants' exploration.

Eliminating Some Alternative Explanations for Findings

There has been some concern that some aspects of attachment-related anxiety and avoidance are very similar to the Big Five dimensions of extraversion, agreeableness, conscientiousness, neuroticism, and openness. Part of this concern may stem from the conceptual overlap in the descriptions of both sets of constructs. Perhaps more directly relevant, however, are the consistent empirical relations found between both sets of variables. Shaver and Brennan (1992) examined relations between the Big Five traits in the NEO Personality Inventory (Costa & McCrae, 1985) and attachment style and found that anxious attachment is moderately positively related to neuroticism and modestly negatively related to agreeableness; avoidant attachment, on the other hand, was found to have modest to moderate negative associations with extraversion, agreeableness, and conscientiousness, as well as a moderate positive relation with neuroticism. At the facet level, Shaver and Brennan (1992) even reported that openness to feelings and openness to values (both facets of openness) are moderately negatively correlated with avoidance and anxiety, respectively. Importantly, Nofle and Shaver (2005) reported similar associations using the Big Five Inventory (John & Srivastava, 1999) to assess the Big Five dimensions.

Despite these consistent associations, Shaver and Brennan (1992) and Nofle and Shaver (2005) have provided some evidence to suggest that attachment style is not simply synonymous with the Big Five dimensions. Using attachment style and the Big Five traits to predict relationship satisfaction, Shaver and Brennan (1992) demonstrated the unique explanatory power of attachment style. Similarly, Nofle and Shaver (2005) showed that attachment-related anxiety and avoidance account for a significant amount of variance in relationship quality over and above the Big Five dimensions. Because attachment researchers would generally like to conclude that the Big Five traits do not fully explain their results, it seems important to control for these variables in any analysis that intends to illustrate a connection between adult attachment and relationship outcomes. That being said, the present research will control for each of these Big Five variables in an effort to provide a more stringent test of the study hypotheses.

Aside from the Big Five traits, another potentially important construct to control for is relationship quality. Attachment anxiety and avoidance have been found to consistently predict individuals' satisfaction in relationships (e.g., Shaver & Brennan, 1992). In addition to the possibility that behaviors associated with anxiety and avoidance may cause a decline in relationship quality, the items associated with these attachment dimensions may also unintentionally capture the actual quality of the current relationship. To ensure that any relations shown in the current research demonstrate a connection between attachment and caregiving or exploration that is distinct from the quality of individuals' relationships, the present study will also control for individuals' relationship quality.

METHOD

Participants

Participants initially included approximately 102 heterosexual¹ romantic couples from a large Midwestern University. One participant had to be excluded from the study because he/she was under 18 years of age. Similarly, another participant did not report his/her age and this data was discarded because it was not possible to determine whether this person was 18 years of age or older. Finally, because it was mandatory that participants be dating for at least six months, three couples had to be dropped. Altogether, this reduced the sample to 196 participants (i.e., approximately 99 couples).

Half of the participants were recruited via the psychology subject pool. The other half included participants' significant others who were asked to participate in the study. The majority of the sample (84.2%) described themselves as dating exclusively; others described themselves as dating casually (8.7%), engaged (3.1%), or married (4.1%). Relationship length ranged from 6 to 180 months ($M = 22.28$, $SD = 23.05$). Men's ages ranged from 18 to 32 ($M = 20.39$, $SD = 2.08$); women's ages ranged from 18 to 30 ($M = 19.55$, $SD = 1.76$). The majority of participants were either White American (men: 74.5%; women: 72.4%) or African American (men: 12.2%; women: 11.2%). Moreover, most participants were college freshman (men: 21.4%; women: 28.6%), sophomores (men: 34.7%; women: 35.7%), juniors (men: 24.5%; women: 23.5%), and seniors (men: 12.2%; women: 7.1%).

Measures

¹ Ninety-six women and 98 men (i.e., 99% of the sample) described themselves as heterosexual; two women described themselves as bisexual.

Modified Experiences in Close Relationships Questionnaire-Revised (MECRR).

This questionnaire, based on Fraley, Waller, and Brennan's (2000) item response analysis of the Experiences in Close Relationships Questionnaire-Revised (ECR-R; Brennan, Clark, & Shaver, 1998), included those 20 items of the ECR-R that demonstrated the best psychometric properties. As such, it consisted of two subscales that assessed individuals' levels of attachment-related avoidance and attachment-related anxiety. Participants were asked to respond to each of the items on a 7-point Likert-type scale that ranged from 1 (*Disagree Strongly*) to 7 (*Agree Strongly*). Sample items from the avoidance subscale included, "I prefer not to show a partner how I feel deep down" and "I don't feel comfortable opening up to romantic partners." Each participant's score on the avoidance subscale was the mean of these 10 items, with higher scores indicating higher levels of attachment-related avoidance (women: $\alpha = .90$, average inter-item $r = .47$; men: $\alpha = .89$, average inter-item $r = .45$). Sample items from the anxiety subscale included, "I'm afraid that I will lose my partner's love" and "I worry a lot about my relationships." Each participant's score was the mean of these 10 items, with higher scores indicating higher levels of attachment-related anxiety (women: $\alpha = .86$, average inter-item $r = .38$; men: $\alpha = .88$, average inter-item $r = .40$).

Informant-Report of Partner's Caregiving Questionnaire (IRPCQ). The

Caregiving Questionnaire, developed by Kuncle and Shaver (1994), was modified in the current study to assess participants' perceptions of their partners' caregiving quality. This provided an informant report of the partner's caregiving quality. This modified scale included 32 items and consisted of four subscales that assessed participants' perceptions of their partners': (a) proximity maintenance—the propensity to approach and provide

care to the participant when needed; (b) sensitivity—the ability to recognize the participant’s needs; (c) controlling caregiving—the tendency to provide care in a domineering fashion; and (d) compulsive caregiving—the tendency to become over-involved when the participant is trying to solve a problem.

Participants were asked to respond to each of the items on a 6-point Likert-type scale that ranged from 1 (*Not at all descriptive of my partner*) to 6 (*Very descriptive of my partner*). Sample items from the proximity maintenance subscale included, “When I cry or am distressed, my partner’s first impulse is to hold or touch me” and “When I am troubled or upset, my partner moves closer to provide support and comfort.” Each participant’s score on the proximity maintenance subscale was the mean of these 8 items (women: $\alpha = .89$, average inter-item $r = .55$; men: $\alpha = .81$, average inter-item $r = .37$), with higher scores indicating a partner’s greater perceived propensity to approach the participant and provide care when it is needed. Sample items from the sensitivity subscale included, “My partner can always tell when I need comforting, even when I don’t ask for it” and “My partner is not very good at ‘tuning in’ to my needs and feelings” (reverse scored). Each participant’s score on the sensitivity subscale was the mean of these 8 items (women: $\alpha = .91$, average inter-item $r = .54$; men: $\alpha = .83$, average inter-item $r = .38$), with higher scores indicating a partner’s greater perceived ability to recognize the needs of the participant.

Sample items from the controlling caregiving subscale included, “My partner often ends up telling me what to do when I am trying to make a decision” and “My partner tends to be too domineering when trying to help me.” Each participant’s score was the mean of these 8 items (women: $\alpha = .86$, average inter-item $r = .45$; men: $\alpha = .82$,

average inter-item $r = .36$), with higher scores indicating a partner that is perceived to provide a more domineering and controlling form of caregiving. Sample items from the compulsive caregiving subscale included, “My partner helps me without becoming over-involved in my problems” (reverse scored) and “My partner tends to get over-involved in my problems and difficulties.” Each participant’s score was the mean of these 8 items (women: $\alpha = .75$, average inter-item $r = .29$; men: $\alpha = .69$, average inter-item $r = .24$), with higher scores indicating a partner that is perceived to provide a more intrusive and over-involved form of caregiving.

Big Five Inventory (BFI). This questionnaire, developed by John and Srivastava (1999), included 45 items that assessed individuals’ levels of extraversion, neuroticism, conscientiousness, agreeableness, and openness. Participants were asked to respond to all items on a 5-point Likert-type scale that ranged from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). Each participant’s score on the extraversion subscale was the mean of 8 items (women: $\alpha = .80$, average inter-item $r = .34$; men: $\alpha = .81$, average inter-item $r = .35$), with higher scores indicating greater levels of extraversion. Each participant’s score on the neuroticism subscale was the mean of 8 items (women: $\alpha = .81$, average inter-item $r = .35$; men: $\alpha = .81$, average inter-item $r = .35$), with higher scores indicating greater levels of extraversion. Each participant’s score on the conscientiousness subscale was the mean of 9 items (women: $\alpha = .79$, average inter-item $r = .30$; men: $\alpha = .80$, average inter-item $r = .33$), with higher scores indicating greater levels of conscientiousness. Each participant’s score on the agreeableness subscale was the mean of 9 items (women: $\alpha = .73$, average inter-item $r = .24$; men: $\alpha = .76$, average inter-item $r = .27$), with higher scores indicating greater levels of agreeableness. Each participant’s score on the openness

subscale was the mean of 10 items (women: $\alpha = .75$, average inter-item $r = .26$; men: $\alpha = .80$, average inter-item $r = .30$), with higher scores indicating greater levels of openness.

The Relationship Assessment Scale. This questionnaire, developed by Hendrick, Dicke, and Hendrick (1998), included 7 items that assessed individuals' relationship satisfaction. Participants were asked to respond to each of the items on a 5-point Likert-type scale that ranged from 1 (*Poorly/Unsatisfied/Poor/Never/Hardly at all/Not much/Very few*) to 5 (*Extremely well/Extremely satisfied/Excellent/Very often/Completely/Very much/Very many*). Sample items included, "How well does your partner meet your needs?" and "In general, how satisfied are you with your relationship?" Each participant's score on the Relationship Assessment Scale was the mean of these 7 items (women: $\alpha = .84$, average inter-item $r = .45$; men: $\alpha = .83$, average inter-item $r = .45$), with higher scores indicating greater levels of relationship satisfaction.

Self-Report of Exploration Scale. This questionnaire, developed by Green and Campbell (2000), was modified in the current study to assess both participants' self-reported desire for exploration and their self-reported experience with exploration. As such, it included 18 stems and 36 items. Participants were presented with stems that reflected various examples of social, intellectual, and environmental exploration. Sample stems included, "Have several friends who are very different from each other," "Take a class that is unrelated to my major just because it interests me," and "Travel overseas during the summer." Each stem was then followed by two items. The first item asked participants to report how much the following statement—I would like to do this in the future—described them on an 8-point Likert-type scale that ranged from 1 (*Does not describe me at all*) to 8 (*Very much describes me*). Each participant's score on the self-

reported desire for exploration scale was the mean of these 18 items (women: $\alpha = .83$, average inter-item $r = .22$; men: $\alpha = .85$, average inter-item $r = .25$), with higher scores indicating a greater desire for exploration. The second item asked participants to report how much they had engaged in the activity mentioned in the stem on an 8-point Likert-type scale that ranged from 1 (*Never*) to 8 (*Many times*). Each participant's score on the self-reported experience with exploration scale was the mean of these 18 items (women: $\alpha = .72$, average inter-item $r = .13$; men: $\alpha = .79$, average inter-item $r = .17$), with higher scores indicating greater experience with exploration.

Procedure

Participants were asked to come to the laboratory one couple at a time. Upon arrival, participants were separated and led into different rooms. While separated, participants were instructed to list as many of their personal goals as they could think of on sheets of paper (see Feeney, 2004). Personal goals were defined for the participants as "what you would like to do or who you would like to be." After listing each goal, participants were asked to rate the goal's importance on a 5-point Likert-type scale (1 = not that important to me at all; 5 = extremely important to me), as well as how likely they believed they were to achieve that goal on a 5-point Likert-type scale (1 = not at all likely to achieve that goal; 5 = almost certain that I'll achieve that goal). Participants were then instructed:

For another laboratory activity, please choose what you have listed as your most important goal. Please be sure that this goal does NOT involve your partner or the relationship. If you have assigned the same rating to two or more goals, please choose the goal which you consider to be the most important for you right now.

The participants' most important goal was used later in the study as a discussion topic in an observational procedure that assessed secure base caregiving behaviors. After completing this portion of the study, participants were asked to complete the Modified Experiences in Close Relationships-Revised (MECRR) questionnaire, the Informant-Report of the Partner's Caregiving Questionnaire (IRPCQ), the Big Five Inventory, and the Relationship Assessment Scale.

Because this research was concerned with investigating the interplay between the attachment, caregiving, and exploratory behavioral systems, it was important to activate the attachment behavioral system to properly examine these relations. Such activation of the attachment system makes participants' internal working models more salient and thus facilitates a clearer picture of the relations between attachment and the other behavioral systems. Therefore, before completing measures of exploration, participants were asked to sit on a couch together and engage in a conflict resolution task to activate their attachment systems (cf. Campbell, Simpson, Boldry, & Kashy, 2005). Specifically, participants were provided a blank piece of paper and instructed:

We would like both of you to select a problem area in your relationship, something that you may frequently disagree on and that can cause some friction in your relationship, to discuss for the next part of this study. It is important that both of you agree that this topic is a problem area in your relationship, and that it is something that is important to you and your relationship. The goal right now is not to discuss the problem area in detail, but to select a topic that you will discuss and briefly write it down on the blank piece of paper provided. Once you have

agreed on something to discuss, please let me know and I will provide further instruction.

Once participants decided on a problem, they were instructed:

Now that you have selected a topic to discuss, we would like you to discuss this problem area with each other. Discuss your thoughts and feelings, with the goal of attempting to resolve the conflict. You may or may not resolve the conflict during this discussion, but discuss the problem area like you are trying to resolve it. In 12 minutes I will come back and then ask you to begin the next lab activity.

Both the selection of the problem area in the relationship and the subsequent conflict resolution task were videotaped. After this conflict resolution task, participants were asked to discuss their most important personal goals using the stimuli constructed by them earlier for 7 minutes each. Because this part of the study was not coded for the current investigation, it will not be discussed further. Once couples completed discussing their lists of personal goals, they were again separated and led into different rooms.

While separated, participants were told, "Since it'll take me a few minutes to get stuff together for the next part of the study, we have some puzzles you can check out while you wait." During this time, participants were provided an opportunity to explore five puzzle games (i.e., two water cylinders and three cubes; Pavilion® 'Bafflers') and were unobtrusively videotaped for five minutes. This study adopted the observational procedure of assessing exploration used by Aspelmeier and Kerns (2003); that is, coders assessed both the quantitative and qualitative characteristics of participants' behavioral exploration in the videotapes.

For the quantitative part of the assessment, coders were asked to use a hand-held stopwatch to record the manipulation intervals for each participant with each of the puzzle games. Manipulation intervals were defined as the total number of seconds that elapsed between a participant picking up a puzzle game from the table and then returning it back. Coders were asked not to record participants' accidental interaction with the items; in other words, coders only recorded those interactions which appeared to have as their clear purpose the investigation and manipulation of the item. As Aspelmeier and Kerns (2003) note, it is possible to have more than one manipulation interval for each participant with the same item (implying that it was picked up more than once by the same participant); in this case, coders added the manipulation intervals together to obtain a single manipulation interval for that one item. A total manipulation time for each participant was created by summing all of his/her individual manipulation intervals with each of the puzzle games. This yielded a general score for behavioral exploration, and the inter-rater reliability for this measure was $ICC = .92$.

In addition to manipulation intervals, quantitative measures of perseverance and tempo of manipulation were gathered. Perseverance was defined as how long participants generally persevered in their manipulation of the items. It was calculated by taking the mean of each participant's two manipulation intervals that lasted the longest in time (Aspelmeier & Kerns, 2003). In addition, tempo of manipulation was defined as the general depth of participants' exploration. It was calculated by taking the quotient of the participants' total manipulation time over their total number of manipulation intervals (Aspelmeier & Kerns, 2003).

For the qualitative part of the assessment, coders were asked to judge the participants' level of involvement with all items for each minute of the five-minute session using a 5 category rating system. Like Aspelmeier and Kerns (2003), coders in this study used the following categories:

(1) No inspection = minimal looking at puzzles (less than 3-second intervals) and no touching of puzzles. (2) Visual inspection = sustained looking at puzzles (more than 3 seconds) and no touching of puzzles. (3) Minimal contact = sustained looking and brief touching of fewer than three of the five puzzles marked by gross motor manipulation only. (4) Contact with minimal involvement = looking at and touching four or more puzzles for purposes of identification (i.e., trying to see what the puzzle is, but not trying to solve it). (5) Contact with high involvement = employing fine and gross motor strategies to at least one puzzle in an effort to identify function (i.e., identify solution to puzzle) and/or to solve the puzzle.

(p.20)

Participants' final scores on this qualitative assessment of involvement (i.e., observed involvement) were the sum of each of their individual scores for each of the five minutes ($ICC = .81$).

After the 5 minutes transpired, the experimenter returned and apologized to the participants for taking so long. At this point, participants were given the Self-Report of Exploration Scale. After completing the questionnaire, the experimenter thanked the participants for their participation, provided them with video release forms, and debriefed them.

RESULTS

Table 1 presents means and standard deviations for all major variables in the study. Paired samples t-tests were conducted to detect any mean-level differences between men and women on the primary variables. As can be seen, men and women differed on more than half of the primary variables in the study. Women reported themselves as being more extraverted, agreeable, conscientious, and neurotic than men. Moreover, women reported themselves as having a greater desire for, and experience with, exploration than men. Men reported themselves as being more open to experience than women and were observed to engage in deeper exploration of the puzzles (as evidenced by a greater tempo score). In addition, men reported that their female romantic partners were more sensitive and compulsive in their caregiving behaviors than women reported their male romantic partners to be.

Each of the following correlation tables presents coefficients for men and women separately, such that correlations for men are located below the diagonal and correlations for women are located above the diagonal. Moreover, the bolded correlations along the diagonal represent the cross-dyad correlations. Table 2 presents the zero-order correlations between participants' attachment variables, participants' reports of their partners' caregiving behaviors, and partners' reports of the participants' caregiving behaviors. As Table 2 shows, the correlations between attachment-related anxiety and avoidance were positive and moderate in magnitude. In addition, the correlations between participants' attachment dimensions and their reports of their partners' proximity maintenance and sensitivity were negative and moderate in magnitude. This suggests that participants who possessed higher anxiety and/or avoidance levels tended to perceive

their partners to be less responsive and sensitive than participants who possessed lower anxiety and/or avoidance levels. The correlations between participants' attachment dimensions and their reports of their partners' controlling and compulsive caregiving behaviors, in contrast, were positive and moderate in magnitude (though it should be noted that the correlations with attachment avoidance tended to be stronger). This suggests that participants who possessed higher levels of anxiety and/or avoidance tended to perceive their partners to be more controlling and compulsive than participants who possessed lower levels of anxiety and/or avoidance.

Table 2 also shows that the correlations between participants' attachment dimensions and their partners' reports of the participants' proximity maintenance and sensitivity were negative and ranged in magnitude from weak to moderate. Generally speaking, participants who possessed higher levels of attachment-related anxiety and/or avoidance had partners that perceived them to be more insensitive and less likely to be responsive than participants who possessed lower levels of attachment-related anxiety and/or avoidance (note that these relations tended to be stronger for avoidance).

Table 3 presents the zero-order correlations for participants' attachment dimensions and their exploration variables. As can be seen, neither attachment dimension had especially strong relations with any of the exploration variables. Indeed, the only associations that appeared to be of moderate magnitude include the negative correlations between women's avoidance and their total manipulation time and observed involvement with the puzzles.

Table 4 presents the zero-order correlations between participants' reports of their partners' caregiving behaviors and participants' exploration variables. Men's reports of

their partners' degree of proximity maintenance and sensitivity were negatively related to their self-reported experience with exploration. Similarly, men's reports of their partners' sensitivity were negatively correlated with their self-reported desire for exploration. Thus, men who reported receiving sensitive caregiving from their partners were less experienced and less interested in exploration. In contrast, men's reports of their partners' degree of controlling caregiving were positively associated with their self-reported desire for and experience with exploration.

Women's reports of their partners' degree of proximity maintenance were positively correlated with the total amount of time they spent manipulating the puzzles, and so women who reported that their male partners maintained proximity spent more time with the puzzles. Moreover, women's reports of their partners' degree of sensitivity were negatively connected to their self-reported experience with exploration. Finally, women's reports of their partners' degree of compulsive caregiving were positively linked with their perseverance in trying to solve the puzzles, and so women who perceived their partners as giving more compulsive care, persevered more in their exploration of the puzzles. No other patterns of correlations were very consistent or strong between women's reports of their partners' caregiving variables and women's exploration variables.

Table 5 presents the zero-order correlations between participants' exploration variables and their partners' reports of the participants' caregiving behaviors. As shown, women with partners who perceived them to be more sensitive caregivers were found to spend more time manipulating the puzzles, persevere more in trying to solve the puzzles, exhibit a greater tempo ratio, and engage in a deeper level of involvement with the

puzzles than women with partners who perceived them to be less sensitive caregivers. Moreover, women with partners who perceived them to be more compulsive caregivers were found to spend less time manipulating the puzzles and persevere less in trying to solve the puzzles than women with partners who perceived them to be less compulsive caregivers.

Table 6 presents the zero-order correlations for participants' attachment-related dimensions, Big Five variables, levels of relationship quality, and their reports of their partners' caregiving variables. Participants' anxiety and avoidance levels were both moderately associated with agreeableness, conscientiousness, and neuroticism. This indicates that participants who rated themselves higher in attachment-related anxiety and avoidance were also less agreeable, less conscientious, and more neurotic. In addition, the correlations between these attachment dimensions and relationship quality were quite strong, thus illustrating that participants who had higher levels of attachment-related anxiety and avoidance also reported lower levels of relationship satisfaction.

Examination of Table 6 further shows that participants who were more agreeable, more conscientious, less neurotic, or more satisfied in their relationships, perceived greater levels of responsiveness from their partners. In addition, participants who were more agreeable, more conscientious, less extraverted, less neurotic, or more satisfied with their relationship, perceived greater levels of sensitivity from their partners. Participants perceived their partners to be more controlling when participants were more neurotic, less agreeable, less conscientious, and/or less satisfied in their relationships. Finally, participants with lower levels of agreeableness, conscientiousness, or relationship quality, perceived their partners to be more compulsive.

Table 7 presents the zero-order correlations between participants' attachment dimensions, Big Five variables, levels of relationship quality, and their partners' reports of the participants' caregiving variables. As can be seen, participants who were more agreeable, less neurotic, and/or more satisfied with their relationships were perceived by their partners to be more responsive in their caregiving style. Moreover, participants were perceived by their partners to be more sensitive when they had higher levels of agreeableness, conscientiousness, and relationship quality. Participants with higher levels of neuroticism, or lower levels of agreeableness or relationship quality, were perceived by their partners to be more controlling in their caregiving. Finally, participants with higher levels of neuroticism or lower levels of agreeableness were perceived by their partners to be more compulsive.

Primary Analyses

Multilevel Modeling (MLM) was used to estimate the parameters in each of the following models. In addition, the Actor-Partner Interdependence Model (APIM; Kenny, Kashy, & Cook, 2006) was used in many of the analyses to appropriately model the dyadic data. In the APIM, dyad is treated as the unit of analysis and the model provides independent estimates of actor effects (i.e., the effect of one member's behavior or traits on his or her own outcomes) and partner effects (i.e., the effect of one member's behavior or traits on his or her partner's outcomes). The present research used this model in two sets of analyses to estimate actor and partner effects for participants' attachment-related dimensions.

Altogether, three sets of analyses were performed. In each of these analyses, predictors were grand-mean centered prior to their inclusion in the model. The first set of

analyses used MLM to examine relations between participants' attachment styles and their caregiving quality. The second set of analyses used MLM to test associations between participants' quality of exploration and their partners' caregiving quality. The third set of analyses used MLM to look at connections between participants' attachment styles and their quality of exploration. Before performing these analyses, it was necessary to make sure that participant gender did not moderate any of the fixed or random effects in the models. Indeed, because only heterosexual couples were recruited for participation in the current study, the dyads may have been distinguishable by gender.

Sequential Chi-square difference tests of the deviances were performed to evaluate the distinguishability assumption wherein models with main effects and homogeneous compound symmetry were nested within models with main effects, interactions with gender, and heterogeneous compound symmetry (Kenny, Kashy, & Cook, 2006). This served as the omnibus test of gender moderation. If there was a significant difference between the models, further tests were performed to determine whether it was the fixed effects, the random effects, or both that were moderated by gender. Note that if the dyads are distinguishable by gender, there will be separate actor effects for women (a_w) and men (a_m). Likewise, there will be separate partner effects for women on men (p_w) and men on women (p_m). If the dyads are not distinguishable by gender, however, there will be only one actor effect and one partner effect estimated for each model.²

Overall, there was little evidence for distinguishability by gender. Because participants' gender did not moderate any of the fixed or random effects in the majority

² Note that this is not applicable to the second set of analyses. Because these models only predict the actor's quality of exploration from the partner's caregiving quality, there will be no actor effects.

of the models, the following models were run with compound symmetry and without gender interactions. However, because there was rather consistent evidence for a gender main effect, the gender main effect was retained. Given that these gender differences have already been discussed, they will not be described further in the analyses to follow.

Predicting Participants' Caregiving Variables as a Function of their Gender, their Attachment Style, and their Partner's Attachment Style

Table 8 presents four APIM analyses in which gender, attachment anxiety, and attachment avoidance were used to predict caregiving behavior. These analyses served to evaluate hypotheses concerning the connection between the attachment and caregiving behavioral systems. As seen in Table 8, each model consisted of the same five predictors entered simultaneously: (a) participants' gender; (b) participants' levels of anxiety; (c) participants' levels of avoidance; (d) partners' levels of anxiety; and (e) partners' levels of avoidance.³ In addition, each model tested a different caregiving outcome—partner's report of the participants' degree of proximity maintenance, sensitivity, controlling caregiving, or compulsive caregiving. Note that because these outcome measures of participants' caregiving behavior were reported by their partners, they are less susceptible to biases stemming from self-presentation.

As Table 8 shows, there emerged some consistent actor effects for avoidance. Specifically, participants' attachment-related avoidance was found to negatively predict their partners' perceptions of their proximity maintenance and sensitivity. Simply put, participants with higher levels of avoidance were perceived by their partners as being less responsive and sensitive than participants with lower levels of avoidance. Contrary to

³ No interactions between attachment-related anxiety and attachment-related avoidance were found to be significant.

what was expected, however, participants' anxiety levels did not significantly predict their partners' reports of any of their caregiving variables.

There also emerged some consistent partner effects for anxiety and avoidance. These effects reflect the association between the partners' attachment style and the partners' perceptions of the participants' caregiving quality. As can be seen, partners who were lower in attachment-related anxiety tended to perceive the participants as maintaining more proximity and providing more sensitive caregiving. Moreover, participants were perceived by their partners as being more controlling in their style of caregiving when their partners possessed higher anxiety levels. Participants with lower avoidance perceived their partners as maintaining more proximity and being more sensitive. In addition, participants were seen as being more controlling and compulsive in their style of caregiving by partners who possessed higher avoidance levels.

Because it is possible that some of these associations between attachment style and caregiving may have been driven by broader personality dimensions and relationship satisfaction, an important next step was to redo the APIM analyses controlling for these variables individually. Accordingly, each set of analyses was rerun while controlling for the participants' and their partners' standings on each of these variables one at a time. For instance, in controlling for extraversion, both participants' and their partners' levels of extraversion (and not any other control variables) were entered into the model. Parallel analyses were performed for agreeableness, conscientiousness, neuroticism, openness, and relationship satisfaction.

Several parameters changed when including these control variables. First, the connection between participants' avoidance levels and their partners' reports of

participants' proximity maintenance dropped to nonsignificance after controlling for relationship quality. Second, the effect between participants' avoidance levels and their partners' reports of participants' sensitivity was eliminated once agreeableness, conscientiousness, or relationship quality were controlled for in the analysis. Third, controlling for relationship quality or conscientiousness in the analysis involving participants' partners' avoidance levels and their reports of the participants' proximity maintenance resulted in the removal of the effect. Fourth, the inclusion of relationship quality when predicting partners' reports of the participants' sensitivity from participants' partners' avoidance levels removed the effect. Finally, the association between participants' partners' levels of anxiety and their reports of participants' degree of controlling caregiving became nonsignificant after controlling for conscientiousness, neuroticism, or relationship quality.

In sum, there was some evidence to suggest a connection between the attachment and caregiving behavioral systems. That is, participants perceived partners with higher levels of avoidance to be less responsive and less sensitive in their caregiving behaviors. However, after controlling for the effects of relationship satisfaction, agreeableness, or conscientiousness, these relations were no longer significant.

Predicting Participants' Exploration as a Function of their Gender and their Partner's Caregiving Quality

Six MLM analyses are presented in Table 9 that test hypotheses regarding the interplay between the caregiving and exploratory behavioral systems. These analyses entailed predicting different exploration outcomes for participants (i.e., desire for exploration, experience with exploration, total manipulation time with puzzles,

perseverance with puzzles, tempo of manipulation with puzzles, or observed involvement with the puzzles) from participants' gender and their reports of their partners' degree of proximity maintenance, sensitivity, controlling caregiving, and compulsive caregiving. Like the previous set of analyses, each model consisted of the same predictors entered simultaneously. Because assessments of the partners' caregiving behaviors were obtained from the participants as informant-reports, any effects obtained between the partners' caregiving behavior and the participants' self-reported exploration variables should be expected to be inflated due to shared method variance.

As Table 9 shows, participants' reports of their partners' levels of proximity maintenance and controlling caregiving were not significantly connected to any of the participants' self-reported or observed exploration variables. Similarly, participants' reports of their partners' levels of compulsive caregiving were not significantly associated with the majority of participants' self-reported and observed exploration variables; in fact, the only compulsive caregiving effect to attain statistical significance was the positive predictive relation between participants' reports of their partners' compulsive caregiving and participants' perseverance with the puzzles. This association indicates that participants who perceived their partners to possess a more compulsive style of caregiving persevered more in their exploration of the puzzles than participants who perceived their partners to possess a less compulsive style of caregiving. Aside from this, no other effects achieved significance. Nevertheless, there existed a trend such that greater perceived levels of partner sensitivity tended to be associated with less self-reported desire for and experience with exploration. To ensure that the link between compulsive caregiving and perseverance was not explained by current levels of

relationship satisfaction or any of the Big Five personality dimensions, these variables were individually controlled for in an additional set of analyses that mirrored those discussed in the previous section. Controlling for either neuroticism or relationship quality removed the effect.

In summary, little evidence emerged to suggest that participants' reports of their partners' caregiving variables are related to participants' self-reported and observed exploration variables. Analyses revealed that participant perceptions of their partners' proximity maintenance, sensitivity, and controlling caregiving did not significantly predict any of participants' exploratory variables. In fact, the only effect to attain statistical significance was the association between participants' reports of their partners' levels of compulsive caregiving and participants' perseverance with puzzles; however, this effect dropped to nonsignificance after controlling for relationship satisfaction or neuroticism.

Predicting Participants' Exploration as a Function of their Gender, their Attachment Style, and their Partners' Attachment Style

Table 10 presents six APIM analyses that use gender, attachment-related anxiety, and attachment-related avoidance to answer questions regarding the link between attachment and exploration. Relevant outcomes in these analyses include participants' self-reported and observed exploration variables. Participants' gender, as well as participants' and their partners' levels of anxiety and avoidance,⁴ were treated as predictors and entered simultaneously in each model.

⁴ No interactions between attachment-related anxiety and attachment-related avoidance were found to be significant.

Participants who possessed higher levels of anxiety reported having less experience with exploration than participants who possessed lower anxiety levels. In contrast, participants' anxiety did not negatively predict their self-reported desire for exploration or their observed exploration behaviors. Similarly, participants' avoidance levels did not consistently predict any of their self-reported or observed exploration behaviors.

In a pattern that was opposite to what was hypothesized, participants' partners' attachment-related anxiety was found to positively predict participants' self-reported desire for exploration; that is, participants whose partners possessed higher anxiety levels reported having more desire for exploration than participants whose partners possessed lower levels of anxiety. Aside from this, there was no indication that participants' partners' attachment-related anxiety is associated with participants' observed exploratory behaviors. There was also no evidence to suggest that participants' partners' attachment-related avoidance is connected to participants' self-reported or observed exploratory behaviors. Like the previous two sets of analyses, it was important to evaluate whether these relations would hold after individually controlling for each of the Big Five dimensions or relationship satisfaction. As it turns out, the association between participants' partners' anxiety levels and participants' self-reported desire for exploration drops to nonsignificance when extraversion, agreeableness, conscientiousness, or neuroticism are included in the model.

In summary, these APIM analyses revealed that participants with higher levels of anxiety reported having less experience with exploration than participants with lower anxiety levels. In addition, participants with partners who possessed higher anxiety levels

reported having a greater desire for exploration than participants with partners who possessed lower anxiety levels. Controlling for extraversion, agreeableness, conscientiousness, or neuroticism, however, eliminated this association between participants' desire for exploration and their partners' levels of attachment-related anxiety.

Mediational Analyses

According to Baron and Kenny (1986), support for a mediational process can be claimed when a series of specific conditions is met. The first condition requires that the independent variable in the causal chain be significantly related to the dependent variable. The second condition requires that the independent variable be significantly related to the mediator(s). The third condition necessitates that the mediator(s) be significantly related to the dependent variable after controlling for the independent variable. Mediation is then said to take place when the coefficient of the predictive relation between the independent variable and the dependent variable from the third condition is significantly smaller than the same coefficient from the first condition. Note that the logic of these steps applies similarly to the case of multiple mediators (see MacKinnon, 2008).

The mediational hypotheses for this research concerned the link between the partners' attachment dimensions and the participants' quality of exploration (see Figure 3). There were four sets of mediational hypotheses overall. First, it was hypothesized that participants' reports of their partners' degree of controlling caregiving and compulsive caregiving would mediate the association between partners' attachment-related anxiety and the participants' self-reported (i.e., desire and experience) quality of exploration. In

other words, this analysis tested the idea that the reason that individuals with more anxious partners tend to report less desire for (or experience with) exploration is because those partners provide flawed (controlling/compulsive) caregiving. Accordingly, to test this mediational hypothesis, it was first necessary that the participants' partners' anxiety levels be significantly predictive of participants' self-reported quality of exploration. As Table 10 shows, there was a significant positive association between participants' partners' attachment-related anxiety and participants' self-reported desire for exploration. The second condition in the Baron and Kenny (1986) framework then requires that participants' partners' attachment anxiety significantly predict participants' reports of their partners' degree of controlling and compulsive caregiving. As Table 8 demonstrates, however, participants' attachment-related anxiety was not significantly predictive of either of these caregiving variables. This finding thus rules out a possible mediational role for controlling and compulsive caregiving in the link between participants' partners' anxiety levels and participants' self-reported quality of exploration.

Second, it was hypothesized that the participants' reports of their partners' degree of controlling caregiving and compulsive caregiving would mediate the connection between the partners' attachment-related anxiety and the participants' observed (i.e., total manipulation time, persistence, tempo, and observed involvement) quality of exploration. That is, this analysis tested the idea that the reason that individuals with more anxious partners exhibited less exploration behavior was because those partners provided less effective caregiving. To test this second set of mediational hypotheses, it was first required that participants' partners' attachment-related anxiety significantly predict the participants' observed quality of exploration. As Table 10 shows, participants' partners'

anxiety levels did not significantly predict any of the participants' observed exploration variables. Nonetheless, because mediational processes are still possible without meeting this first condition, further steps were examined. The second step in this framework required that participants' partners' attachment anxiety be significantly related to participants' reports of their partners' degree of controlling and compulsive caregiving. Like before, no evidence was found for such an association. Altogether, these findings suggest that these variables are unlikely to be connected in a mediational sequence.

Third, it was hypothesized that the participants' reports of their partners' degree of proximity maintenance and controlling caregiving would mediate the link between the partners' attachment-related avoidance and the participants' self-reported quality of exploration. Thus, this analysis examines the notion that individuals with more avoidant partners tend to report less exploration because those partners fail to maintain effective proximity and/or provide excessively controlling caregiving. As in previous analysis, it was first necessary to establish a connection between the participants' partners' avoidance levels and the participants' self-reported quality of exploration. As Table 10 shows, however, participants' partners' attachment-related avoidance was not significantly related to either their self-reported desire for, or experience with, exploration. Nevertheless, like before, further steps were taken. The second step required that participants' partners' avoidance be significantly associated with participants' reports of their partners' degree of proximity maintenance and controlling caregiving. As seen in Table 8, participants' avoidance levels were a significant negative predictor of their partners' reports of proximity maintenance.

Next, the third step required that participants' reports of their partners' degree of proximity maintenance and controlling caregiving be significantly connected to participants' self-reported quality of exploration after controlling for participants' partners' levels of attachment-related avoidance. To test this, an MLM analysis was carried out in which participants' partners' avoidance levels and participants' reports of their partners' degree of proximity maintenance and controlling caregiving were used to predict participants' self-reported desire for exploration. It revealed that participants' reports of their partners' proximity maintenance, $b = .01$, $t(173.21) = 0.07$, $p = .948$, and controlling caregiving, $b = .07$, $t(187.70) = 0.70$, $p = .483$, did not exhibit significant relations with participants' self-reported desire for exploration while controlling for participants' partners' attachment-related avoidance. Likewise, an MLM analysis using the same variables to predict participants' self-reported experience with exploration revealed that participants' reports of their partners' degree of proximity maintenance, $b = .03$, $t(167.60) = 0.26$, $p = .792$, and controlling caregiving, $b = .13$, $t(184.78) = 1.43$, $p = .154$, did not attain significance. Given these findings, it is unlikely that participants' reports of their partners' degree of proximity maintenance and controlling caregiving play a mediating role between participants' partners' avoidance levels and participants' self-reported quality of exploration.

Fourth, it was hypothesized that the participants' reports of their partners' degree of proximity maintenance and controlling caregiving would mediate the association between the partners' attachment-related avoidance and the participants' observed quality of exploration. To test this final set of mediational hypotheses, it was first necessary to establish a significant predictive relation between participants' partners' avoidance levels

and participants' observed quality of exploration. Table 10 demonstrates no evidence for this connection. Further steps were taken nonetheless. The second step required that participants' partners' attachment avoidance be significantly associated with participants' reports of their partners' degree of proximity maintenance and controlling caregiving. As was discussed before, participants' attachment-related avoidance was a significant negative predictor of their partners' reports of proximity maintenance.

The third step required that participants' reports of their partners' degree of proximity maintenance and controlling caregiving be significantly related to participants' observed quality of exploration after controlling for participants' partners' avoidance levels. Accordingly, an MLM analysis was performed in which participants' partners' avoidance and participants' reports of their partners' degree of proximity maintenance and controlling caregiving were used to predict participants' total manipulation time with the puzzles. It revealed that participants' reports of their partners' proximity maintenance, $b = 10.63$, $t(140.02) = 1.17$, $p = .244$, and controlling caregiving, $b = 3.92$, $t(166.13) = 0.50$, $p = .621$, did not exhibit significant associations with participants' total manipulation time after controlling for participants' partners' attachment-related avoidance. The same analysis with participants' perseverance as a criterion also revealed that participants' reports of their partners' proximity maintenance, $b = 4.16$, $t(142.86) = 1.06$, $p = .293$, and controlling caregiving, $b = -.36$, $t(167.23) = -0.11$, $p = .916$, did not attain significance. Furthermore, the same analysis with participants' tempo of manipulation as a criterion showed that participants' reports of their partners' proximity maintenance, $b = 2.59$, $t(143.05) = 1.17$, $p = .244$, and controlling caregiving, $b = .25$, t

(166.25) = 0.13, $p = .895$, did not exhibit significant relations.⁵ Finally, the same analysis with participants' observed involvement with the puzzles as a criterion showed that participants' reports of their partners' proximity maintenance, $b = .43$, $t(149.70) = 0.98$, $p = .331$, and controlling caregiving, $b = .27$, $t(168.54) = 0.72$, $p = .476$, did not attain significance while controlling for participants' partners' avoidance levels. These sets of findings suggest that participants' reports of their partners' degree of proximity maintenance and controlling caregiving are unlikely to mediate the connection between participants' partners' attachment-related avoidance and participants' observed quality of exploration.

⁵ An outlier on tempo was excluded in this analysis.

DISCUSSION

The purpose of this research was to investigate the interplay between the attachment, caregiving, and exploratory behavioral systems from a dyadic perspective. In particular, this research sought to test whether individuals' attachment anxiety and avoidance are related to their partners' quality of exploration through corresponding differences in individuals' caregiving behaviors. Although the results of this study fail to provide support for this mediational hypothesis, evidence was found to suggest other relations between the behavioral systems. Specifically, associations were found between individuals' attachment systems and their caregiving systems, individuals' attachment systems and their exploratory systems, and individuals' attachment systems and their partners' exploratory systems. Much of the discussion will therefore be focused on highlighting each of these individual connections.

Connection between Attachment and Caregiving Behavioral Systems

One set of hypotheses in this research concerned the link between the attachment and caregiving behavioral systems. Effective caregiving, as Mikulincer and Shaver (2006) point out, entails appraising the partner's needs accurately and imparting appropriate care. Sensitivity and responsiveness are thus important components to consider when investigating caregiving behavior. In addition, participants' degrees of cooperative and compulsive caregiving are also important to examine as they reflect stylistic variation in the degree to which individuals are sensitive and appropriately responsive. Collins et al. (2006) argue that to provide effective caregiving, individuals need to possess appropriate skills, motivations, and resources. However, the behavioral tendencies associated with attachment-related avoidance and anxiety conflict with each of

these components in different ways. This research therefore expected that both avoidance and anxiety would be negatively related to the expression of effective caregiving.

Avoidance. The current study hypothesized that participants who possessed higher levels of avoidance would provide poorer quality care to their partners than participants who possessed lower levels of avoidance. As predicted, participants' avoidance levels were negatively related to their partners' reports of the participants' sensitive and proximity-maintaining behaviors. This set of findings is consistent with other research that has found avoidant individuals to exhibit a detached and ineffective approach towards caregiving (Feeney & Collins, 2001; Feeney & Hohaus, 2001; Fraley & Shaver, 1998; Kuncle & Shaver, 1994; Simpson et al., 1992; Simpson, Rholes, Orina, & Grich, 2002). Indeed, Feeney and Collins (2001) found that attachment-related avoidance was negatively associated with self-reported responsiveness, which in their research was a combination of proximity maintenance, sensitivity, and other caregiving measures. Moreover, research has shown that individuals with higher avoidance levels provide support at inappropriate times, or fail to provide support when it is actually needed (Feeney & Collins, 2001; Simpson et al., 1992), thus demonstrating a lack of sensitivity to their partners' needs.

As stated earlier, individuals with higher levels of attachment avoidance tend to exhibit deficits in skills, motivations, and resources pertaining to caregiving. Because avoidant individuals likely experienced caregiving that was neglectful and insensitive (Cassidy & Berlin, 1994), they probably did not observe and learn the skills necessary to provide empathic care early on. Due to their discomfort with intimacy, avoidant individuals' experiences in later relationships also probably did little to further develop

these skills. Aside from lacking the necessary skills, avoidant individuals have been shown to be less willing to respond to the needs of their partners because of a reduced ability to understand others' perspectives and consider their needs or desires in decision-making tasks (Feeney & Collins, 2001). In addition, avoidant individuals' chronic use of deactivation as an emotion regulation strategy is likely to deplete some of the resources necessary to provide effective care. In fact, one of the reasons that avoidant individuals may be less attuned to the attachment needs of their partners is because acknowledging their partners' distress will likely activate their own attachment systems. Such behavior is consistent with evidence showing that avoidant individuals are less likely to provide care to partners that are experiencing higher levels of distress (Simpson et al., 1992).

All that being said, it should be noted that when individually controlling for participants' and their partners' levels of relationship satisfaction, agreeableness, or conscientiousness, the effect between avoidance and caregiving sensitivity and proximity maintenance went away. Thus, it is the overlap between attachment avoidance and these constructs that is primarily driving the connection. Although it is easy to see why relationship satisfaction and agreeableness would be associated with perceptions of sensitivity and responsiveness, the reason for the relation between conscientiousness and these caregiving behaviors seems less clear. Future research will be needed to determine whether there is anything about attachment avoidance, apart from the tendency to be less satisfied in relationships, be less friendly, and act in a less responsible and thoughtful manner, that still predicts sensitivity and proximity maintenance behaviors in close relationships.

In contrast to what was hypothesized, participants' attachment-related avoidance was not significantly associated with their tendency to provide controlling or compulsive care. This is somewhat surprising given the findings of previous research that participants with higher levels of avoidance report providing greater levels of controlling care to their partners than participants with lower levels of avoidance (Feeney & Collins, 2001). One potential reason for this discrepancy is that the current study used informant-reports of caregiving in contrast to self-reports. Indeed, previous reports of connections between these variables may have been inflated because of shared method variance. Even so, the coefficient found in the present study was particularly small, and it is doubtful that the entirety of the relation found between avoidance and controlling caregiving in previous research was solely due to method overlap.

Alternatively, it may be that self-reports and partner-reports of controlling caregiving are not assessing the construct equally well; that is, it is possible that participants' partners may be in a better position to recognize these behaviors and thus provide a more unbiased rating (see e.g., Kolar, Funder, & Colvin, 1996). If true, this would suggest that previous findings regarding the association between avoidance and controlling caregiving have been spurious. However, this explanation is contradicted by evidence gathered by Kunce and Shaver (1994; p. 231) showing a moderate degree of agreement in romantic partners' ratings of each others' caregiving dimensions. That being said, it is unclear why evidence for this connection was not found in the present study.

Anxiety. In addition to avoidance, attachment theorists (e.g., Mikulincer & Shaver, 2007) posit that higher levels of attachment anxiety tend to be associated with

increased personal distress during stressful caregiving situations, thus impairing sensitivity to the partner's cues and appropriate responding. In light of this, the current study hypothesized negative relations between participants' anxiety levels and their partners' reports of the participants' proximity maintenance and sensitivity. However, the results did not confirm these expectations. That is, participants with higher levels of attachment-related anxiety were not perceived by their partners as exhibiting poorer caregiving behaviors than participants with lower levels of attachment-related anxiety.

This finding stands in contrast to questionnaire and observational research that has found an association between anxiety and caregiving behavior (Collins & Feeney, 2000; Kuncle & Shaver, 1994). Kuncle and Shaver (1994), for instance, found that individuals classified as having preoccupied or fearful attachment styles reported being significantly less sensitive to their romantic partners' needs than securely attached individuals. In addition, Collins and Feeney (2000) found that attachment-related anxiety was negatively related to the provision of responsive caregiving behaviors. Findings from the parent-infant literature also provide evidence that mothers with higher anxiety levels fail to pick up on their children's signals; this is subsequently reflected in caregiving that is often 'out of sync' with their children's needs (see George & Solomon, 1996).

Other empirical studies provide a more mixed picture regarding this connection. Although a connection is usually found between attachment anxiety and sensitive and responsive caregiving behaviors when self-reported caregiving measures are used (e.g., Kuncle & Shaver, 1994), the relation between these variables tends to be more elusive in observational studies (e.g., Fraley & Shaver, 1998; Simpson et al., 1992; but see Collins & Feeney, 2000). Simpson, Rholes, Orina, and Grich (2002) suggest that it may only be

situations that highlight the potential for abandonment that elicit caregiving behaviors from anxiously-attached individuals. They further suggest that the elicitation of contradictory approach and avoidance motives in caregiving contexts may be responsible for the failure to find a consistent relation between anxiety and caregiving. Needless to say, future research will be needed to better delineate the conditions under which an association between attachment anxiety and caregiving will be found.

Finally, participants' anxiety levels were predicted to be positively related to their degree of controlling and compulsive caregiving. Indeed, Feeney and Collins (2001) found that anxiety is positively linked to both controlling and compulsive caregiving. Moreover, Kuncie and Shaver (1994) found that participants classified as having preoccupied attachment styles reported significantly higher levels of compulsive caregiving than securely attached participants. However, these associations were not found in the current study.

As stated previously, one of the main differences between this study and other research is the use of informant-reports of caregiving. Because of this, one possible explanation for failing to find these effects is that the sizes of the effects in previous research have been artificially inflated due to shared method variance. Consequently, the current study may have been underpowered to detect these smaller effects. Generally speaking, one of the reasons that partner effects tend to be small in dyadic research is that the responses which comprise them do not come from the same source. Similarly, because the predictor variable was a self-report and the outcome variable was an informant-report, the power needed to detect actor effects in this context was likely greater than that possessed by the present study.

Connection between Caregiving and Exploratory Behavioral Systems

Another set of hypotheses in this research dealt with the association between individuals' caregiving quality and their partners' quality of exploration. It was expected that participants who provided caregiving that was characterized as being more responsive and sensitive, and less controlling and compulsive, would have partners who exhibited higher quality exploration. Unfortunately, the findings of this study fail to provide support for this idea. Indeed, only participants' partners' degree of compulsive caregiving was found to significantly predict participants' perseverance with the puzzles.

This finding came as a surprise because it was believed that excessive and intrusive caregiving should promote dependence and reduce autonomy. Perhaps the most plausible explanation for this association is that the effect is spurious. Given the lack of consistent effects found between compulsive caregiving and other exploration measures in the present study, this explanation seems to be the most likely. In fact, after individually controlling for relationship quality or neuroticism, the relation between compulsive caregiving and perseverance was no longer significant. Alternatively, it is possible that perceiving one's partner to place special values on one's own needs may actually facilitate the desire to explore. After all, it is the caregiver, and not the explorer, that is bearing much of the burden for this over-involvement (Feeney & Hohaus, 2001). Finally, it could be that such an intrusive style of caregiving was so aversive that the partner felt compelled to get away from the participant and explore. Of course, future research will be necessary to replicate this effect before any of these interpretations can be given serious thought.

Aside from this, no other significant findings emerged between the caregiving and exploratory behavioral systems. It is possible that one reason for the failure to find these effects had to do with the particular measure used for caregiving in the present study. As readers will recall, a modification of the Caregiving Questionnaire developed by Kunce and Shaver (1994) was used to assess participants' caregiving behaviors. It is plausible that the items making up this scale better reflect the safe haven function of caregiving as opposed to the secure base function. Indeed, a quick perusal of the items reveals that the majority of them relate to caregiving provided in response to distress. Although the safe haven function still serves an important purpose by providing the partner with feelings of security, the secure base function may have a more direct bearing on the initiation and encouragement of exploratory behaviors. Therefore, items that more directly assess such encouragement might exhibit a stronger link with exploration than behaviors indicative of providing physical and psychological comfort. This would explain the relations found between caregiving behaviors and exploration by Feeney (2007). Of course, future research will be needed to test this possibility.

Connection between Attachment and Exploratory Behavioral Systems

Actor Effects for Attachment. A third set of hypotheses regarded an association between individuals' attachment and exploratory behavioral systems. Participants' attachment anxiety was hypothesized to be negatively related to their own quality of exploration. The present findings provide some support for this relation. Participants' anxiety was found to negatively predict their self-reported experience with exploration. Thus, participants with higher levels of anxiety reported that they had fewer overall experiences in the realms of social, intellectual, and environmental exploration. Previous

research has met with similar results. For instance, Green and Campbell (2000) found that participants with higher anxiety levels reported a reduced overall desire for social, intellectual, and environmental exploration. Findings by Aspelmeier and Kerns (2003) also demonstrated a connection between men's anxiety and some observed indices of exploration.

Theoretically, individuals' attachment histories should have some bearing on how they pursue exploration. Because of their hypersensitivity to environmental danger and partner rejection, for instance, anxiously attached individuals likely approach exploratory opportunities with some trepidation. Indeed, whenever individuals encounter an activity or object that is unfamiliar, a critical balance takes place between wariness and curiosity (Grossmann et al., 1999). Anxiously attached individuals will be more prone to view these opportunities as sources of danger (e.g., Cassidy & Berlin, 1994; Hazen & Durrett, 1982), and thus fail to seize these opportunities for further growth.

Given this reasoning, it is unclear why participants' attachment anxiety did not exhibit an association with any of the other exploration measures used in the present study. It is especially surprising that anxiety was not related to the composite measure of desire for exploration, as this has been found in previous research. It is perhaps easier to explain why anxiety was not related to the observational measures of exploration. For one thing, these observational measures were narrowly defined and very context-specific. This, of course, contrasts with the attachment measures used in the current study that represent constructs with a wider bandwidth (see Epstein & O'Brien, 1985). It is possible that if these observational assessments of exploration were collected over multiple intervals in different contexts and then aggregated, that a significant connection could be

found. On the other hand, it could be that the observational measures used in the current study did not best capture exploration. Perhaps assessing exploration via more practical and socially relevant means would provide a better means to assess this link.

It was also hypothesized that participants' attachment-related avoidance would be negatively related to their own quality of exploration. Contrary to expectations, no association was found between these variables. This is inconsistent with other questionnaire and observational research documenting such a connection. For instance, Green and Campbell (2000) showed that avoidance was negatively correlated with a composite measure of exploration involving social, intellectual, and environmental exploration. Moreover, Aspelmeier and Kerns (2003) found that men's attachment-related avoidance was negatively linked with their observed manipulation of novel puzzles.

As was the case with attachment anxiety, it is possible that the failure to find a relation between avoidance and the observational measures of exploration could be attributed to dissimilarity in the bandwidth of the variables. However, the failure to find the effect for the self-reported measures of exploration is more difficult to explain. Given the shared method variance, it is surprising that the magnitude of the associations was not higher. The reliability of the measures used also did not impose an unreasonable upper limit for the parameter estimates. Because previous research has consistently demonstrated a connection between these two variables, the most plausible explanation for the current results is that they reflect something specific about the particular sample. Future research will be needed to verify whether similar results are obtained in other samples.

Partner Effects for Attachment. A final set of hypotheses concerned the link between individuals' attachment systems and their partners' exploratory behavioral systems. The current study predicted that participants' attachment-related dimensions would be negatively related to their partners' quality of exploration. Indeed, participants' levels of attachment-related anxiety and avoidance were expected to involve behaviors antithetical to the productive exploration of their partners.

In direct opposition to this, participants' partners' attachment anxiety was found to positively predict participants' self-reported desire for exploration. This relation is surprising given the tendency for individuals with attachment-related anxiety to engage in behaviors that oppose their partners' exploration. More likely than not, this effect is probably spurious. Indeed, this would fit well with the current study's failure to find associations between participants' partners' attachment style and participants' other exploration measures. In addition, the effect was removed after individually controlling for extraversion, agreeableness, conscientiousness, or neuroticism.

On the other hand, perhaps having an anxious partner drives individuals to desire social, intellectual, and environmental exploration even more than they would if there partner was not anxious. Caring for an anxiously attached partner is likely a labor intensive task that becomes tiresome. It is possible that participants viewed these exploration opportunities as a way to escape from this less than ideal situation. Unfortunately, this study did not assess participants' reasons for endorsing these items and is thus unequipped to provide answers at this time. Needless to say, replication of this effect would be wise before providing any definitive explanations for why it exists.

Aside from this, no connection was found between participants' avoidance levels and their partners' quality of exploration. Because participants with higher levels of avoidance likely convey to their partners that they are unavailable for comfort and support, it was expected that their partners' quality of exploration would be hindered. Given that these partner effects did not entail shared method variance, it is plausible that this study simply lacked the power to detect such effects. Then again, it is possible that attachment-related avoidance is simply not interpersonally related to the quality of exploration.

Strengths and Limitations

Perhaps the most notable strength of this study was its use of data from both partners. Having this type of data enabled the use of the APIM and thus afforded the opportunity to look at this phenomenon from a dyadic perspective. Much of the literature on attachment has suffered from an individual-oriented focus. Indeed, it is only recently that researchers have begun to study attachment processes as something truly dyadic (e.g., Campbell et al., 2005). Because many of the phenomenon related to attachment are likely to occur in situations with two people, it will be important for future research to better understand the ways in which the behavioral systems of two individuals in a relationship interact.

Unfortunately, there may not have been enough couples to have adequate power to detect the effects. In addition, the procedure used in the current study to activate the attachment system may not have been strong enough. This would help to explain the failure to detect associations between the attachment and exploratory behavioral systems. Finally, although the use of partner-reports was helpful for establishing empirical

connections between attachment style and caregiving that were free from shared-method variance, the use of this data precluded an analogously pure test of the association between participants' partners' caregiving variables and participants' self-reported quality of exploration. That being said, future research would benefit from recruiting more couples, using a better method to activate the attachment system, and collecting both self-reports and informant-reports of caregiving behavior.

Like other studies using the APIM with non-manipulated variables, the results provided here do not permit inferences of causation. Stronger evidence would be provided from experimental studies that manipulate attachment and caregiving behaviors. Indeed, work by Feeney and Collins (2001) has found that experimentally manipulating individuals' need for support is associated with increased responsiveness on the part of secure individuals. Future work would similarly benefit by taking a more experimental approach to the interplay between individuals' behavioral systems.

Future Directions

One important task for future research will be to develop a better measure of exploration. Current measures tend to be narrowly focused on specific avenues of exploration. It would be helpful if a more generalized measure of exploration was developed. Relative to childhood, the trajectories that development in emerging adulthood can take are quite diverse. Even though many of the participants likely faced similar life tasks revolving around social, intellectual, and environmental exploration, it may be that the items used to capture these constructs were not broad enough to accurately reflect the life experiences of many participants. In other words, adulthood exploration may be better thought of as an idiosyncratic activity; that is, the assessment

of exploration may be improved by assessing individuals' general eagerness, attentiveness, and absorption in unfamiliar and novel activities—whatever they may be.

Another important task for future research is to develop a more refined picture of the distinction between the safe haven and secure base functions of the caregiving behavioral system in their relation to the exploratory behavioral system. In the current study, the informant-reports of caregiving behavior were perhaps better reflective of the safe haven function. However, behaviors such as encouragement, attentiveness, and communication of future availability are likely to be more immediately important when partners are provided with exploratory opportunities. That being said, it may be beneficial for future research to examine similar mediational processes with these particular types of secure base behaviors.

Conclusions

Despite the seeming inconsistency of results, two findings seem to be worthy of mention. First, attachment-related avoidance was found to be negatively related to levels of sensitive caregiving and proximity maintenance. This finding highlights the intimate connection between the attachment and caregiving behavioral systems. Second, attachment-related anxiety was negatively associated with participants' self-reported experience with exploration. Though it is premature to place any great emphasis on this finding, it does lend some support to the contention that individuals' attachment histories are related to their future exploratory endeavors. Future research will be needed to see whether these particular findings replicate and to test whether the mediational hypotheses proposed in the current study hold up better with caregiving behaviors that are reflective of the secure base function.

APPENDICES

APPENDIX A

Tables

Table 1

Descriptive Statistics and Paired t-tests for Major Variables by Gender

Variable	Men		Women		Paired Samples	
	Mean	SD	Mean	SD	t-value	SE
Attachment Anxiety ^c	2.90	1.14	2.75	1.11	-1.61	0.09
Attachment Avoidance ^c	2.36	1.04	2.25	1.02	-0.91	0.09
Extraversion ^c	3.57	0.67	3.70	0.69	1.99*	0.07
Agreeableness ^c	3.76	0.56	3.95	0.55	3.65**	0.06
Conscientiousness ^c	3.58	0.65	3.73	0.61	2.30*	0.07
Neuroticism ^c	2.44	0.68	3.05	0.73	7.84**	0.08
Openness ^c	3.77	0.61	3.67	0.56	-2.10*	0.05
Relationship Quality ^b	4.27	0.62	4.31	0.58	0.95	0.04
Part's Proximity Maintenance ^b	5.13	0.76	5.21	0.87	0.96	0.08
Part's Sensitivity ^b	4.66	0.83	4.45	1.00	-2.90**	0.08
Part's Controlling Caregiving ^b	2.28	0.84	2.24	0.94	-0.53	0.08
Part's Compulsive Caregiving ^b	2.71	0.82	2.46	0.79	-3.10**	0.08
Desire for Exploration ^c	6.05	1.12	6.38	0.97	3.32**	0.09
Experience with Exploration ^c	4.76	1.04	4.99	0.90	2.55*	0.08
Total Puzzle Manip. Time ^a	283.10	92.44	275.80	74.35	-1.57	7.43
Puzzle Perseverance ^a	100.69	39.22	97.95	32.52	-1.14	3.31
Puzzle Tempo ^a	50.18	39.34	41.94	19.39	-2.52*	3.26
Observed Involvement ^d	21.77	4.51	21.80	3.31	-0.46	0.37

Note. Part = Partner. Paired t-tests for variables designated by the superscript "a" were calculated with $df = 167$; variables designated by the superscript "b" were calculated with $df = 194$; variables designated by the superscript "c" were calculated with $df = 195$; and variables designated by the superscript "d" were calculated with $df = 163$. * $p < .05$. ** $p < .01$.

Table 2

Correlations between Participants' Attachment Variables, Participants' Reports of their Partners' Caregiving, and Partners' Reports of Participants' Caregiving

Variable	1	2	3	4	5	6	7	8	9	10
1. Attachment Anxiety	.38**	.42**	-.49**	-.39**	.39**	.15	-.07	-.19	.09	.15
2. Attachment Avoidance	.30**	.26**	-.45**	-.37**	.45**	.37**	-.32**	-.18	-.03	-.02
3. P's Reports of Part's Proximity Maintenance	-.30**	-.12	.13	.67**	-.63**	-.12	.13	.30**	-.27**	-.31**
4. P's Reports of Part's Sensitivity	-.37**	-.30**	.54**	.33**	-.56**	-.21*	.27**	.35**	-.34**	-.32**
5. P's Reports of Part's Controlling Care	.19	.34**	-.40**	-.58**	.20**	.46**	-.22*	-.28**	.21*	.17
6. P's Reports of Part's Compulsive Care	.11	.42**	-.11	-.27**	.52**	-.01	-.15	.01	.05	.02
7. Part's Reports of P's Proximity Maintenance	-.24*	-.42**	.13	.30**	-.28**	-.31**	.13	.54**	-.40**	-.11
8. Part's Reports of P's Sensitivity	-.33**	-.42**	.28**	.35**	-.34**	-.32**	.67**	.33**	-.58**	-.28**
9. Part's Reports of P's Controlling Care	.27**	.34**	-.22*	-.28**	.21*	.17	-.63**	-.56**	.20**	.52**
10. Part's Reports of P's Compulsive Care	.17	.10	-.14	.01	.05	.02	-.13	-.21*	.46**	-.01

Note. P = Participant. Part = Partner. * $p < .05$. ** $p < .01$.

Table 3

Correlations between Participants' Attachment Variables and Participants' Exploration Variables

Variable	1	2	3	4	5	6	7	8
1. Attachment Anxiety	.38**	.42**	.09	-.15	-.14	-.11	-.02	-.12
2. Attachment Avoidance	.30**	.26**	.16	.02	-.24*	-.11	.09	-.21*
3. SR Desire for Exploration	.06	-.12	.19**	.66**	.04	.08	.10	-.02
4. SR Experience with Exploration	-.08	.02	.61**	.25**	.08	.09	.09	.06
5. Total Manipulation Time	.05	-.11	.26*	.03	.31**	.84**	.44**	.85**
6. Perseverance	.07	.02	.20	.05	.88**	.28**	.57**	.71**
7. Tempo	.12	.06	.05	.11	.42**	.55**	.08	.48**
8. Observed Involvement	.08	-.09	.32**	.12	.95**	.83**	.38**	.26**

Note. SR = Self-reported. * $p < .05$. ** $p < .01$.

Table 4

Correlations between Participants' Reports of their Partner's Caregiving and Participants' Exploration Variables

Variable	1	2	3	4	5	6	7	8	9	10
1. Part's Proximity Maintenance	.13	.67**	-.63**	-.12	-.02	.03	.23*	.17	.07	.11
2. Part's Sensitivity	.54**	.33*	-.56**	-.21*	-.09	-.15	.11	.02	-.03	.06
3. Part's Controlling Care	-.40**	-.58**	.20*	.46**	-.05	.03	-.08	-.05	-.02	-.03
4. Part's Compulsive Care	-.11	-.27**	.52**	-.01	.01	.01	.02	.16	.06	.06
5. Desire for Exploration	-.06	-.18	.15	.04	.19*	.66**	.04	.08	.10	-.02
6. Experience with Exploration	-.20*	-.22*	.22*	.12	.61**	.25*	.08	.09	.09	.06
7. Total Manipulation Time	.06	.01	-.01	-.01	.26*	.03	.31*	.84**	.44**	.85**
8. Perseverance	.06	.07	-.09	.04	.20	.05	.88**	.28*	.57**	.71**
9. Tempo	-.03	.01	-.10	.04	.05	.11	.42**	.55**	.08	.48**
10. Observed Involvement	.09	.01	.02	.03	.32**	.12	.95**	.83**	.38**	.26*

Note. Part = Partner. * $p < .05$. ** $p < .01$.

Table 5

Correlations between Partners' Reports of the Participants' Caregiving Behaviors and Participants' Exploration Variables

Variable	1	2	3	4	5	6	7	8	9	10
1. P's Proximity Maintenance	.13	.54*	-.40*	-.11	.02	-.03	.14	.09	.14	.20
2. P's Sensitivity	.67*	.33*	-.58*	-.28*	-.10	-.08	.26*	.30*	.22*	.26*
3. P's Controlling Caregiving	-.63*	-.56*	.20*	.52*	-.09	.02	-.14	-.17	-.09	-.05
4. P's Compulsive Caregiving	-.13	-.21*	.46*	-.01	-.13	-.02	-.20	-.18	-.15	-.09
5. Desire for Exploration	-.04	-.03	-.04	-.04	.19*	.66*	.04	.08	.10	-.02
6. Experience with Exploration	-.14	-.19	.10	.07	.61*	.25*	.08	.09	.09	.06
7. Total Manipulation Time	.12	-.05	-.12	-.05	.26*	.03	.31*	.84*	.44*	.85*
8. Perseverance	-.01	-.18	-.02	-.03	.20	.05	.88*	.28*	.57*	.71*
9. Tempo	.10	-.11	.09	.03	.05	.11	.42*	.55*	.08	.48*
10. Observed Involvement	.10	-.05	-.13	-.06	.32*	.12	.95*	.83*	.38*	.26*

Note. P = Participant. * $p < .05$. ** $p < .01$.

Table 6

Correlations between Participants' Attachment Variables, Participants' Big Five Variables, Participants' Relationship Quality, and Participants' Reports of their Partners' Caregiving Behavior

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Anxiety	.38**	.42**	.04	-.12	-.33**	.31**	.01	-.48**	-.49**	-.39**	.39**	.15
2. Avoidance	.30**	.26**	.11	-.16	-.32**	.00	.08	-.66**	-.45**	-.37**	.45**	.37**
3. Extraversion	.02	-.14	-.05	.32**	.07	-.12	.26*	-.06	-.08	-.14	-.04	.17
4. Agreeableness	-.43**	-.40**	.24*	-.03	.37**	-.11	.03	.22*	.10	.19	-.24*	-.12
5. Conscientiousness	-.27**	-.22*	.28**	.27**	-.10	-.19	.02	.35**	.32**	.27**	-.39**	-.27**
6. Neuroticism	.55**	.23*	-.20	-.54**	-.40**	-.23**	-.10	-.11	-.19	-.26**	.25*	.04
7. Openness	.06	-.23*	.21*	-.02	.13	.02	.17*	-.01	-.05	-.02	-.02	.05
8. Relationship Qual.	-.39**	-.59**	.06	.35**	.10	-.17	.13	.56**	.53**	.51**	-.53**	-.40**
9. Part's Prox. Main.	-.30**	-.12	-.16	.19	.24*	-.27**	.09	.39**	.13	.67**	-.63**	-.12
10. Part's Sensitivity	-.37**	-.30**	-.12	.27**	.14	-.15	.02	.47**	.54**	.33**	-.56**	-.21*
11. Part's Control.	.19	.34**	.13	-.16	-.25*	.10	-.05	-.39**	-.40**	-.58**	.20**	.46**
12. Part's Comp.	.11	.42**	-.12	-.22*	-.31**	.08	-.22*	-.39**	-.11	-.27**	.52**	-.01

Note. Qual = Quality. Part = Partner. Prox = Proximity. Main = Maintenance. Control = Controlling Caregiving. Comp = Compulsive Caregiving. * $p < .05$. ** $p < .01$.

Table 7

Correlations between Participants' Attachment Variables, Participants' Big Five Variables, Participants' Relationship Quality, and Partners' Reports of the Participants' Caregiving Behavior

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Anxiety	.38**	.42**	.04	-.12	-.33**	.31**	.01	-.48**	-.07	-.19	.09	.15
2. Avoidance	.30**	.26**	.11	-.16	-.32**	.00	.08	-.66**	-.32**	-.18	-.03	-.02
3. Extraversion	.02	-.14	-.05	.32**	.07	-.12	.26*	-.06	.14	.01	.11	.11
4. Agreeableness	-.43**	-.40**	.24*	-.03	.37**	-.11	.03	.22*	.31**	.15	-.21*	-.16
5. Conscientiousness	-.27**	-.22*	.28**	.27**	-.10	-.19	.02	.35**	.15	.15	-.06	-.08
6. Neuroticism	.55**	.23*	-.20	-.54**	-.40**	-.23**	-.10	-.11	-.05	-.01	.08	.17
7. Openness	.06	-.23*	.21*	-.02	.13	.02	.17*	-.01	.07	-.06	-.02	-.08
8. Relationship Qual.	-.39**	-.59**	.06	.35**	.10	-.17	.13	.56**	.28**	.24*	-.12	-.13
9. P's Prox. Main.	-.24*	-.42**	.01	.32**	-.01	-.24*	.03	.58**	.13	.54**	-.40**	-.11
10. P's Sensitivity	-.33**	-.42**	.10	.31**	.29**	-.26**	.15	.46**	.67**	.33**	-.58**	-.28**
11. P's Control.	.27**	.34**	.03	-.37**	.02	.24*	-.04	-.43**	-.63**	-.56**	.20**	.52**
12. P's Comp.	.17	.10	-.11	-.31**	-.12	.36**	-.13	-.12	-.13	-.21*	.46**	-.01

Note. Qual = Quality. Part = Partner. Prox = Proximity. Main = Maintenance. Control = Controlling Caregiving. Comp = Compulsive Caregiving. * $p < .05$. ** $p < .01$.

Table 8

Predicting Partners' Reports of the Participants' Caregiving Measures as a Function of Gender, Attachment-related Anxiety, and Attachment-related Avoidance

Variable	Gender Effects		Anxiety Effects				Avoidance Effects			
	Actor		Actor		Partner		Actor		Partner	
	b	SE	b	SE	b	SE	b	SE	b	SE
Proximity Maintenance	.046	.105	.075	.054	-.197**	.054	-.210**	.057	-.131*	.057
Sensitivity	-.239*	.108	-.038	.060	-.190**	.060	-.137*	.065	-.174**	.065
Controlling Caregiving	-.007	.110	-.015	.060	.128*	.060	.019	.064	.293**	.064
Compulsive Caregiving	-.228*	.105	.016	.055	-.000	.055	-.059	.058	.328**	.058

Note. SE = Standard Error. * $p < .05$. ** $p < .01$.

Table 9

Predicting Participants' Self-Reported and Observed Exploration Measures as a Function of Gender and Participants' Reports of their Partners' Caregiving Variables

Variable	Gender Effects		Partner Effects for Proximity Maintenance		Partner Effects for Sensitivity		Partner Effects for Controlling Caregiving		Partner Effects for Compulsive Caregiving	
	b	SE	b	SE	b	SE	b	SE	b	SE
SR Desire for E	-.293*	.140	.066	.120	-.181†	.109	-.004	.118	.025	.107
SR Experience with E	-.193	.126	.062	.110	-.169†	.100	.059	.108	.013	.098
Total Manipulation Time	9.050	11.081	13.345	9.675	-1.040	8.944	2.684	9.557	2.656	8.580
Puzzle Perseverance	1.839	4.758	3.594	4.142	-1.367	3.825	-4.864	4.088	7.704*	3.670
Puzzle Tempo ^a	4.422†	2.643	2.313	2.344	-.483	2.140	-1.176	2.317	2.065	2.062
Observed Involvement	-.019	.543	.464	.474	-.007	.430	.170	.465	.214	.422

Note. Gender refers to gender of the actor (women were coded as 0; men were coded as 1). SE = Standard error. SR = Self-reported. E = Exploration. Variables with the superscript "a" denote analyses wherein an outlier was excluded. † $p < .10$. * $p < .05$.

Table 10

Predicting Participants' Self-Reported and Observed Exploration Measures as a Function of Gender, Attachment-related Anxiety, and Attachment-related Avoidance

Variable	Gender Effects		Anxiety Effects				Avoidance Effects			
	Actor		Actor		Partner		Actor		Partner	
	b	SE	b	SE	b	SE	b	SE	b	SE
SR Desire for E	-.314*	.135	.049	.076	.153*	.075	-.062	.081	-.043	.081
SR Experience with E	-.184	.116	-.175*	.069	.105	.068	.020	.074	.095	.074
Total Manipulation Time	7.920	10.508	5.672	6.172	-4.859	6.056	-12.496†	6.626	-8.647	6.539
Puzzle Perseverance	2.332	4.683	1.067	2.707	-3.169	2.655	-.426	2.901	-1.321	2.862
Puzzle Tempo ^a	4.385†	2.564	-.338	1.511	-.755	1.486	1.645	1.622	.008	1.629
Observed Involvement	-.012	.519	.281	.297	-.147	.290	-.548†	.317	-.284	.313

Note. Gender refers to gender of the actor (women were coded as 0; men were coded as 1). SE = Standard error. SR = Self-reported. E = Exploration. Variables with the superscript "a" denote analyses wherein an outlier was excluded. † $p < .10$. * $p < .05$. ** $p < .01$.

APPENDIX B

Figures

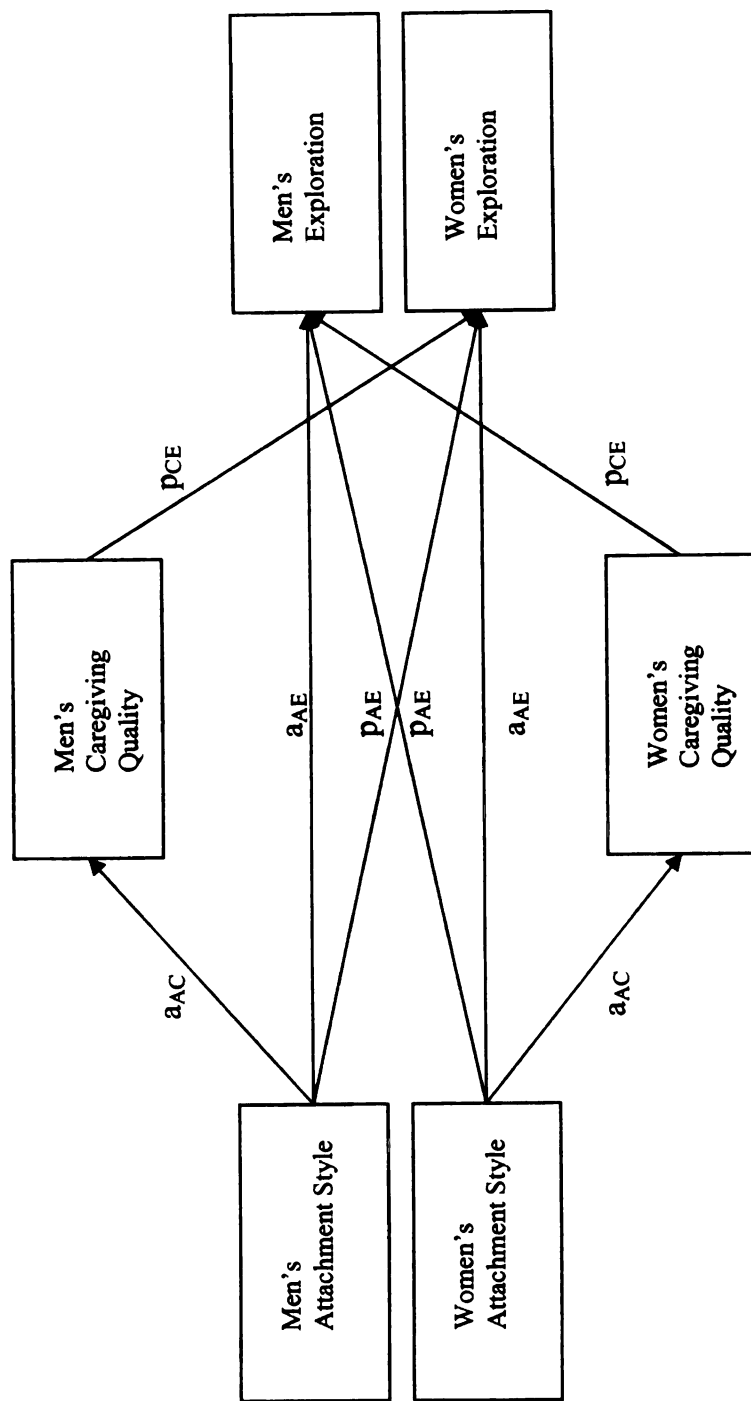


Figure 1. Simplified Model Depicting the Interplay between Attachment, Caregiving, and Exploration.

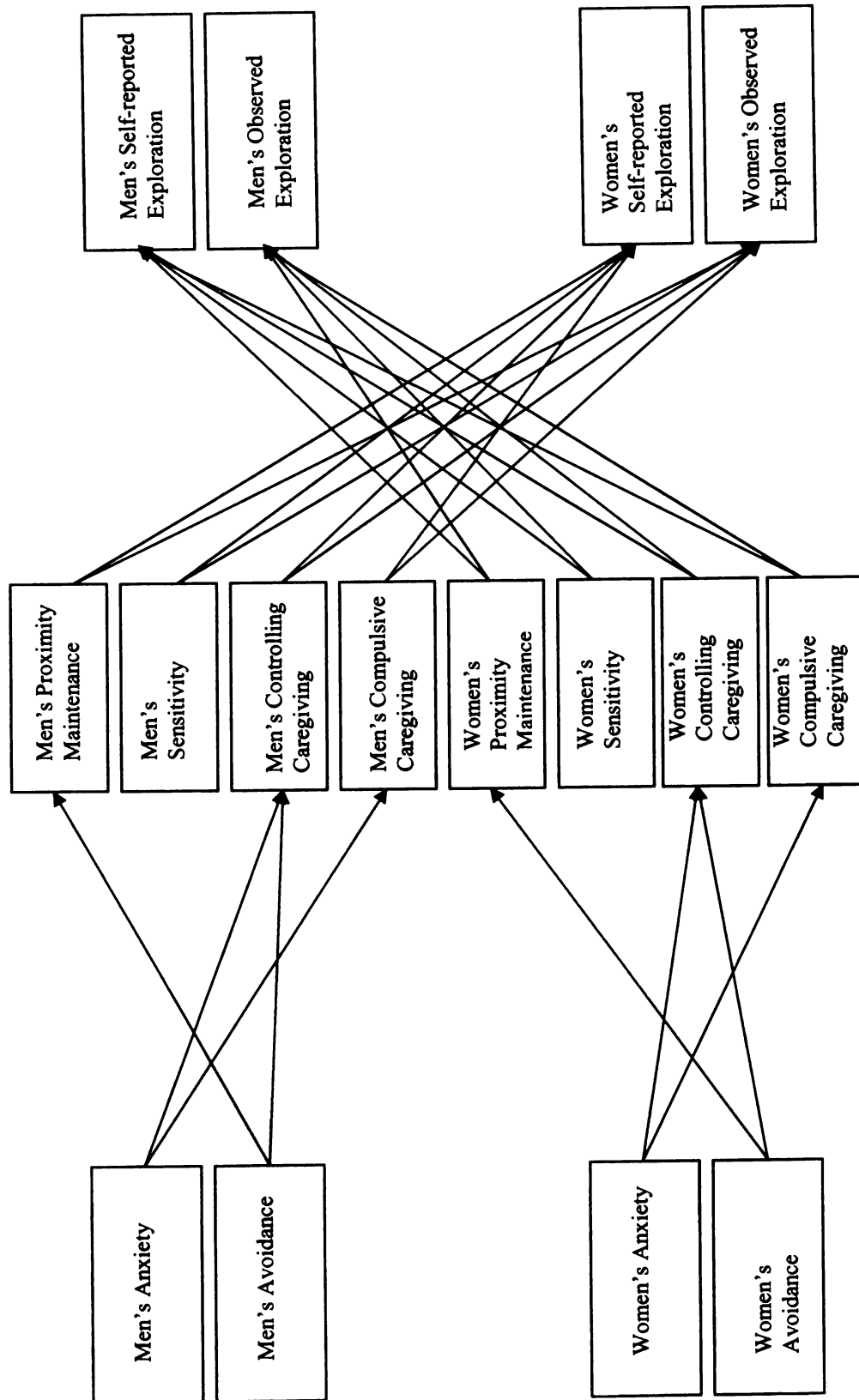


Figure 2. *Full Model of the Interplay between Attachment, Caregiving, and Exploration.*
 Note. Direct actor and partner effects between attachment and exploration not drawn.

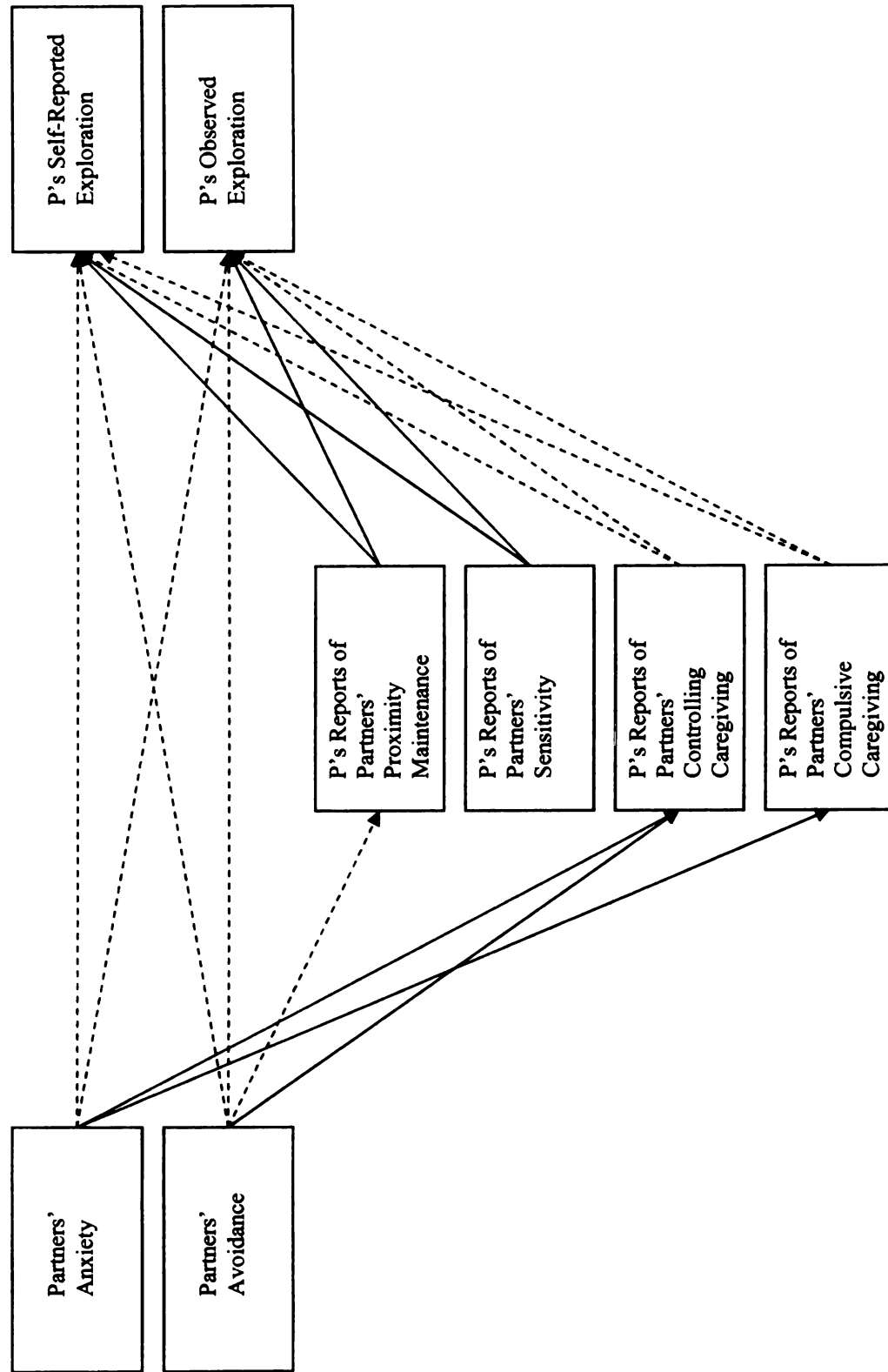


Figure 3. *Schematic model of mediational analyses.*
 Note. P = Participant. Dashed lines indicate negative hypothesized relations and the unbroken lines indicate positive hypothesized relations.

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