THE USE OF THE FORMER PARTNER AS A SECURE BASE: THE EFFECTS OF PERCEPTION OF PERMANENCE AND ATTACHMENT STYLE

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THE USE OF THE FORMER PARTNER AS A SECURE BASE: THE EFFECTS OF PERCEPTION OF PERMANENCE AND ATTACHMENT STYLE

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Though much research explores the use of a romantic partner as an attachment figure during the course of a romantic relationship, there is little research assessing whether individuals use their former partners as attachment figures following relationship breakup. The three studies specifically examined whether individuals use their former partners to fulfill the attachment function of secure base, as measured by willingness to explore and feelings of felt security, and which factors may affect the ability to use the former partner as a secure base. The first study examined whether individuals used their former partners to fulfill the attachment function of secure base, compared to close friends or acquaintances. The second study examined whether perception of permanence of the breakup influenced the ability for individuals to use the former partner as a secure base. Finally, the third study examined whether individual differences in attachment style underlie an individual's perception of permanence of the breakup. Findings indicated that older individuals experiencing high levels of negative affect do indeed use the former partner as a secure base compared to an acquaintance and close friend and younger individuals experiencing lower levels of negative affect. Individuals primed to feel high perception of permanence with regard to the former relationship used the former partner as a secure base compared to individuals who were primed to feel low perception of permanence, who experienced lower levels of felt security. Finally, individual differences in attachment style did not predict differences in perception of permanence, though insecure attachment styles were associated with changes in partner perception, which has implications for secure base use. Results are discussed in the terms of adaptiveness of maintaining a tie to the former partner following loss, and the implications

of this tie with regard to an individual's changing attachment hierarchy following relationship

breakup.

BIOGRAPHICAL SKETCH

Daphna Ram received her B.A. with High Honors in Psychology from UC Berkeley in 2004 and her M.A. from Cornell University in 2008. Her current research focuses on the use of a former partner as an attachment figure following relationship breakup. She hopes to eventually expand this research to include whether maintaining a tie to a former partner is adaptive, and the implications this may have for future relationships.

To Diego Danner-Casasola, who makes me laugh, and who at the age of two was so excited by his own accomplishments that he reminded me of the happiness and joy that one should feel when saying "I did it!"

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Introduction

Relationship dissolution can be a distressing experience (Stroebe & Stroebe, 1986). Non-marital relationship breakup increases vulnerability to developing Major Depressive Disorder (Monroe, Rohde, Seeley, & Lewinsohn, 1999) and depression, especially among adolescent women (Joyner & Udry, 2000), and negatively impacts physical health and mental well-being (Chung et al., 2002; Davis, Shaver, & Vernon, 2003; Mearns, 1991). Research has identified characteristics of the relationship itself that may affect level of distress after breakup (e.g., investment in the former relationship, perception of quality of alternatives) (Barbara & Dion 2000; Feeney & Noller, 1992; Frazier & Cook, 1993; Simpson, 1990; Sprecher, 1994). However, relatively little is known about (i) whether maintaining a tie to the former partner helps or hinders recovery, and (ii) whether all ties to former partners are equally adaptive. The present studies shed light on these questions by examining whether an individual's tie to his or her former partner provides certain emotional benefits, such as increased feelings of security, and which factors affect these feelings of security.

Study 1 Introduction

Previous work has raised a question about whether having a tie to a former romantic partner is adaptive. Some past research has characterized falling in love as an addiction (e.g., Insel, 2003; Fisher, 2004; Fisher, 2006a), because the neural circuitry activated when having thoughts of and interacting with a romantic partner involve the reward pathways activated during substance abuse (Aron et al., 2005; Bartels & Zeki, 2000; Insel, 2000). This has led some researchers to encourage individuals dealing with a romantic breakup to eliminate reminders of the former partner as a way to cope and facilitate recovery from romantic breakups (Fisher, 2006b).

In contrast to the addiction perspective, from the perspective of attachment theory, eliminating all possible reminders of a former partner may, somewhat paradoxically, hinder an individual's ability to

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recover from the breakup (Bowlby, 1980). According to the theory, attachment figures in dating

relationships create a dyadic system (Zayas, Shoda, & Ayduk, 2002) in which each partner provides the

other with physiological and psychological benefits, such as comfort and security (Bowlby 1969;

Diamond & Hicks, 2005) and facilitates emotion regulation (see Mikulincer, Shaver, & Pereg, 2003, for a

review). Several studies have also documented the use of romantic partners as sources of caregiving,

comfort and security in relationships (e.g., Crowell et. al., 2002; Davila & Kashy, 2009; Feeney, 2004;

Feeney, 2007; Feeney & Thrush, 2010; Mikulincer et al., 2002). Thus, it is possible that one may use the

former partner as a source of comfort, and that this may in fact help the individual in the recovery

process (Field, Gao, & Paderna, 2005).

Attachment relationships in particular may offer a source of comfort because these

relationships are considered emotionally significant, and an individual consistently turns to and prefers

the attachment figure over others in times of distress (Hazan, Campa, & Gur-Yaish, 2006). In order for an

individual to be considered an "attachment figure", one must direct all four attachment behaviors

toward this person: proximity maintenance, in which an individual desires to be close to the attachment

figure; safe haven, in which the individual retreats to the attachment figure in times of distress;

separation distress, during which the individual resists separation from the attachment figure; and

secure base, in which the individual uses the comfort and security from the attachment figure as a base

from which to explore the environment. Critically, as people grow older they are better able to mentally

represent the attachment figure and no longer need to be within physical proximity to display

attachment "behavior". Indeed studies have shown that thinking of an attachment figure yields feelings

of comfort and security (Mikulincer, Gillath, & Shaver, 2002; Baldwin et al., 1993; Baldwin et al., 1996).

This is especially important when considering attachment between former relationship partners,

because even though the couple may no longer be spending time together an attachment may still exist.

Though attachment theory predicts that an individual will derive comfort and security from a lost person (e.g., Bowlby, 1980), this proposition remains to be tested empirically. Indirect support that a bond with the former partner is beneficial comes from studies showing that individuals may maintain some type of relationship with the former partner after the breakup (see Masuda, 2006, for a review) and that sometimes these relationships take the form of high quality friendships (Kaplan & Keys, 1997). Also, long after divorcing some ex-spouses derive comfort and security from each other (Ahrons & Wallisch, 1985; Masheter, 1997; Masheter & Harris, 1986) and, after the death of a loved one, behaviors and thoughts relating to the deceased can be adaptive in some instances (see Field et al., 2005, for a review).

Given that attachment theory dictates that a bond with the lost attachment figure should be beneficial, the present study is a first step in directly empirically assessing the adaptiveness of the bond between former partners. In this study, "adaptive" was defined as using the former partner as a secure base.

Attachment and Secure Base

There are two reasons that the secure base function of the attachment relationship is of particular interest in this study. First, there is evidence that secure base is the last of the attachment behaviors to be directed toward new attachment figures, even if other behaviors have been directed toward the new figures (Hazan & Zeifman, 1994; Fraley & Davis, 1997). For example, studies examining how attachment transfers from parents to peers during adolescence have shown that proximity maintenance and safe haven behaviors transfer first—adolescents prefer to be around their peers and go to their peers when distressed (Hazan & Ziefman, 1994). However they still are upset by separations from their parents (separation distress) and use their parents as bases from which to explore (secure base). According to the theory, individuals are still attached to their parents in this instance. These adolescents still use their parents for safe haven and separation distress, even if they are more likely to

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go to their friends to fulfill these functions. This also speaks to the role that mental representation plays in the theory because even if these adolescents are not behaviorally going to their parents for safe haven and proximity maintenance, there is still the possibility that they are mentally representing their parents in these functions. In terms of relationship breakup, this would mean that individuals may still direct secure base behavior toward their former partner (indicating that they are still attached) even while they are more explicitly directing proximity maintenance and safe haven behaviors toward others in the attachment network.

Second, one may use the former partner as a secure base from which to explore future relationships, and therefore, somewhat paradoxically, feeling a connection to the former partner may actually be helpful. Indeed, a central tenet of attachment theory is that individuals need a secure base in order to function optimally in all aspects of life and that we all function best with the support of others (Bowlby, 1988). This is what Feeney (2007) refers to as the "dependency paradox", so named because it encapsulates the idea that feeling a sense of support from and feeling able to rely on the attachment figure enables one to be successful in endeavors outside the relationship.

Secure base is an important element when coping with the loss of a loved one. According to Bowlby (1980), a necessary component of healthy mourning is a comforting sense of the deceased's presence. Presumably, this is due to maintaining a strong sense of felt security that functions almost as a "secure base" which allows the bereaved individual to "explore" by moving forward with life. Widows who had a secure relationship with their husband, for example, had a more comforting sense of the deceased compared to widows who had anxious and ambivalent relationships with their husbands (and perhaps were less able to use their husbands as a secure base).

Therefore the present study assessed whether individuals use their former partners as a secure base--whether thinking of a former partner promotes feelings of security and willingness to explore. It was hypothesized that, compared to individuals who were asked to think of a close friend or an

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acquaintance, individuals who were thinking of a former partner would use the former partner as more of a secure base. That is, the group of individuals who think of a former partner would have the highest scores on security and exploration measures compared to individuals who think of a close friend or acquaintance.

Method

Participants.

Participants were told that they must have experienced at least one relationship breakup to be eligible for the study. The sample consisted of 176 adults (71 males, 105 females) recruited from Cornell University and Amazon Mechanical Turk (Mturk) (mean age 25.12 years). Participants from Cornell University were given one credit for participation and Mturk participants were given $2 as compensation. Participants in this sample had been broken up with their partner for an average of 30 months, and had been in the former relationship for an average of 19.63 months.

Cornell participants were recruited through the SUSAN website. Mturk participants were recruited through the Amazon Mechanical Turk website.

Procedure.

Cornell participants were provided with a link to the study website from the SUSAN website, while Mturk participants were provided with a link to the study on the Mturk website.

After clicking on the link to the study, participants were directed to the webpage with the study consent form. After completing measures assessing attachment style, (see materials section) participants were then given the secure base manipulation, which was designed to elicit differences in feelings of security after thinking of the former partner compared to a friend or an acquaintance. Following the manipulation participants were given measures of emotion, exploration, and state attachment security (see below).

Participants in each of the three conditions received the same questionnaires except for the secure base manipulation. Upon completion of the questionnaires, participants were directed to a debriefing page and thanked for their participation. Mturk participants were then given a codeword to enter on the Mturk webpage in order to ensure that they received compensation.

Materials.

Secure base manipulation.

In order to prompt individuals to think of their former partners as a secure base, participants were given a secure base manipulation. Previous secure base inductions (e.g., Mikulincer et al., 2003) have asked people to imagine a distressing situation followed by imagining being surrounded by responsive, supportive people who help with this problem. In these previous studies, however, the goal was to prime secure base in general rather than using a particular person as a secure base. Given that the point of the study was to assess an individual's use of his or her former partner as a secure base, a modified version of the previous secure base inductions was used such that turning to the former partner was specified. The secure base prompt was adapted from Mikulincer and Arad (1999) as follows:

"Imagine a situation in which you deal with a life problem that you cannot solve on your own. Close your eyes, try to visualize such a situation, and write a brief description of what you are seeing on the computer screen in front of you." After this visualization and writing task participants were prompted: *"*Now, imagine that your former partner is sensitive and responsive to your distress. Close your eyes, try to picture your former partner and imagine how you feel. Please write a description of how you feel on the computer screen in front of you*."*

In the close friend and acquaintance control conditions, the words "former partner" were replaced with "close friend" and "acquaintance", respectively. The condition to which participants were randomly assigned is referred to as "condition". There were 60 participants in the acquaintance

condition, 60 participants in the former partner condition, and 60 participants in the close friend condition.

Demographics.

Participants completed questionnaires asking about their relationship with their most recent former partner (e.g., "Would you consider this relationship a 'serious' relationship?") and entire relationship history (e.g., "How many relationship partners have you had?"). Characteristics of their most recent relationship breakup were also assessed (e.g., "Who initiated the breakup?")

Attachment style.

A measure of attachment style was included in order to control for the possibility that individual differences in attachment style influenced an individual's willingness to explore and feelings of attachment security. The 36-item Experiences in Close Relationships (ECR; Fraley, Waller, Brennan, 1998) questionnaire measures the two underlying dimensions of individual differences in attachment style: attachment anxiety and attachment avoidance. Eighteen items assess attachment anxiety (e.g., "I'm afraid I will lose my partner's love") and eighteen items assess attachment avoidance (e.g., "I get uncomfortable when a romantic partner wants to be very close"). Participants rate on a scale from 1 (strongly agree) to 7 (strongly disagree) how much they agree with each statement.

Positive and negative emotions.

A measure of positive and negative emotions was included in order to control for the possibility that feelings of exploration and security were a result of emotion rather than secure base per se (Fredrickson, 2001). The Positive Affect and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988) measures positive and negative affect by asking participants to rate, on a scale of 1 (very slightly or not at all) to 5 (extremely), the extent to which they feel each positive (e.g., "interested") or negative (e.g., "frustrated") emotion at the moment.

State attachment security.

Attachment security was assessed through the State Adult Attachment Measure (SAAM; Gillath, Hart, Noftle & Stockdale, 2009). The SAAM is a 21-item measure is designed to assess an individual's current level of attachment security, anxiety, and avoidance (compared to chronic levels of attachment security, and avoidance). Seven items assess attachment security (e.g., "I feel like I have someone to rely on") seven items assess attachment anxiety (e.g., "I wish someone close could see me now") and seven items assess attachment avoidance (e.g., "I'm afraid someone will want to get too close to me"). Participants rate how much they agree with each statement on a scale from 1 (Disagree strongly) to 7 (Agree strongly). In the present study, state levels of attachment security are referred to as SAAMSecurity, while state levels of attachment avoidance are referred to as SAAMAvoidance, and state levels of attachment anxiety are referred to as SAAMAnxiety.

Exploration.

Participants were asked to complete an 18-item measure designed to assess willingness to explore (Green & Campbell, 2000). This measure assesses social exploration (e.g., "I would like to have the chance to meet strangers"), environmental exploration ("I would like to explore someplace I have never been before") and intellectual exploration (e.g., "I would like to take a class that is unrelated to my major just because it interests me"). Participants rate on a scale of 1 (does not describe me at all) to 7 (very much describes me) how much each statement describes them. For the present study, scores on all 18 items were combined for a composite exploration score called Exploration.

Results

Study 1 Entire Sample.

A multiple regression analysis was performed for each of the outcome variables (SAAMSecurity and Exploration.) The condition to which participants were assigned is referred to as "condition". Though there were no a priori hypotheses regarding state level attachment anxiety and state level

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attachment avoidance, a multiple regression analysis was also performed for SAAMAnxiety and SAAMAvoidance.

All independent variables of interest were placed in the model and each was interacted with condition (the main variable of interest).Non-significant effects were removed from the model and only the significant results most relevant to the present study and hypotheses are discussed. A complete list of the independent variables is available in tables 1 and 2.

SAAMSecurity.

There was a three-way interaction between negative affect, age, and condition such that older individuals with higher scores on negative affect had higher state attachment security from the former partner than from the close friend ($p=.028$; closefriendcondition as reference level, formerpartnerconditionXnegativeaffectXage b=.066, SE=.029, $p=..026$; acquaintancconditionXnegativeaffectXage b=-.022, SE=.032, $p=.501$). However this effect disappeared with lower levels of negative affect and with younger individuals (see figure 1). There was no significant difference in state security between the acquaintance and former partner condition or the acquaintance and close friend condition. That is older individuals with high negative affect felt more secure when thinking of a former partner compared to when thinking of a close friend.

SAAMAvoidance.

There was an interaction between condition and positive affect ($p=.014$; see figure 2) such that state level of attachment avoidance was lower in the close friend condition than in the former partner condition when there was low positive affect (Close friend condition as reference level; acquaintanceconditionXpositiveaffect, b=-.274, SE=.190,$p=.151$; formerpartnerconditionXpositiveaffect, b=-.549, SE=.186, $p=.004$). That is, individuals who were thinking of a close friend were less avoidant than individuals who were thinking of their former partner.

There were no significant results of interest for Exploration and SAAMAnxiety.

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Experiment 1 Additional Analyses, Former Partner Condition.

Certain independent variables, such as length of relationship and time since relationship breakup, were only relevant to those participants asked to think of their former partner (former partner condition). In order to assess the effect of these variables, separate models were run with only those participants in the former partner condition.

SAAMSecurity.

There was a main effect of attachment avoidance such that an increase in attachment avoidance predicted a decrease in state attachment security (b=-.470, SE=.108, p<.001). There was also a main effect of attachment anxiety such that an increase in attachment anxiety predicted a decrease in state attachment security (b=-.319,SE=.100 p=.002).

Exploration.

The longer the person has been broken up with the former partner, the less they explore (b=-.004, SE=.002, p=.016). There was also a main effect of negative affect such that the higher the negative affect, the lower the scores on exploration (b=-.265, SE=.108, p=.018). Also, higher scores on positive affect predicted higher scores on exploration (b=.270, SE=.088, p=.003).

SAAMAvoidance.

The longer the individual had been in the former relationship, the higher the state level of avoidance (b=.008, SE=.003, p=.032). The longer the individual had been broken up with the former partner, the lower their state attachment avoidance (b=-.006, SE=.002, p=.005). There was also a main effect of positive affect such that the higher the positive affect, the lower they scored on state attachment avoidance (b=-.288, SE=.100, p=.006). There was also a main effect of attachment avoidance such that the higher the attachment avoidance, the higher the state attachment avoidance (b=.804, SE=.108, p<.001).

SAAMAnxiety.

There was a main effect of attachment anxiety such that higher scores on attachment anxiety predicted higher scores on state attachment anxiety (b=.436, SE=.141, p=.003). There was also a main effect of attachment avoidance such that higher scores on attachment avoidance predicted lower scores on state attachment anxiety (b=-.570, SE=.154, p<.001). There was also a main effect of negative affect such that higher negative affect predicted higher scores on state attachment anxiety (b=.376, SE=.177, p=.038).

Study 1 Additional Analyses, Current Status Subsample.

Because the variable current length of a current relationship was only relevant to participants who were in an exclusive relationship, separate multiple regression analyses were performed with the subsample of individuals in a current exclusive relationship.

SAAMSecurity.

There was a three-way interaction between condition, attachment avoidance, and attachment anxiety such that higher levels of attachment anxiety and lower levels of attachment avoidance yielded higher security from a close friend than acquaintance (p=.038; closefriendcondition as reference level; formerpartnerconditionXattachmentanxietyXattachmentavoidance, b=.335, SE=.300, p=.269; acquaintanceXattachmentanxietyXattachmentavoidance, b=.520, SE=.201, p=.012). This effect went away with an increase in attachment avoidance and a decrease in attachment anxiety (see figure 3). There was also a significant main effect of current length on state attachment security such that the longer an individual was in the current relationship the lower they scored on state security (b=-.004, SE=.002, p=.031).

Attachment avoidance.

The main effect of attachment anxiety on state attachment avoidance was marginal but individuals who scored higher on attachment anxiety had higher scores on state attachment avoidance (b=.156, SE=.082, p=.059). With the marginal effect of attachment anxiety in the model, there was a

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main effect of condition such that the close friend condition predicted lower state attachment avoidance than acquaintance (p=.036; see figure 4; closefriendcondition as reference level; formerpartnercondition, b=.058, SE=.212, p=.787; acquaintancecondition, b=.493, SE=.201, p=.016). Participants felt lower avoidance after thinking about a close friend compared to thinking about an acquaintance. There were no significant effects for individuals in the former partner condition.

Study 1 Discussion

This study provided preliminary evidence that individuals use their former partners as sources of secure base. Specifically, older individuals who were thinking of their former partner did indeed have higher feelings of security than younger individuals and individuals who were thinking of a close friend or acquaintance. There was also some evidence, however, that individuals are beginning to shift from whom they receive feelings of security. For example, individuals in new relationships (in the current relationship subsample) did not feel secure after thinking of the former partner. Instead, these individuals felt the most security from a close friend. This is consistent with theoretical assumptions that individuals are attached to more than one person and that these attachments are arranged in a hierarchy-- an individual may seek felt security from multiple people, yet the ability for these people to provide the security may vary. When one individual is not available to fulfill attachment functions, others in the hierarchy fulfill these attachment needs (Bowlby, 1969; Cassidy, 2008). Furthermore, the longer participants had been broken up with the former partner, the less they explored, indicating that they felt less secure. Taken together, these findings suggest that after a certain period of time following a breakup, individuals may not be using their former partners to fulfill certain functions of secure base.

However the question of how exactly an individual is rearranging the attachment hierarchy remains unclear, and though the present study was not designed to answer this question, it highlights several possibilities. As stated previously, the finding that individuals in new relationships felt most security from a close friend suggests that individuals are in the process of transferring their attachment

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from the former partner. Perhaps this is an indication that they are gaining more security from their current relationship partner instead of the former partner. The close friend may serve as a better attachment figure during this process. This notion is supported by the finding that individuals in new relationships did not feel any additional security when thinking about the former partner when compared to thinking about an acquaintance or close friend.

Alternatively, it is possible that the "close friend" that participants are thinking of during the manipulation is indeed the current relationship partner. However this study did not measure attachment to a new partner explicitly, and the finding that there was no effect of the length of the current relationship on the level of security from the former partner suggests that individuals are not necessarily attached to their current partner. Taken together, these findings suggest that individuals who are currently in new relationships may be transferring their attachment to close friends before they presumably transfer them to their new partner. However in order to gain a better understanding of how individuals become attached to new partners and the implication that this has for their attachment to a previous partner, future studies should more explicitly examine feelings of security and exploration from thoughts of a current partner and compare these to thoughts of others in the attachment hierarchy.

The finding that only older individuals with higher negative affect felt more security when thinking of the former partner than close friend or acquaintance is somewhat surprising. From the perspective of attachment theory, one would expect that thoughts of the former partner would lead to higher security, regardless of age or affect. However, given that negative affect triggers the attachment system (Bowlby, 1980) and leads one to seek out the attachment figure, it is plausible that individuals who had greater negative affect were more susceptible to feelings of security when thinking of the former partner. It is also possible that these older participants had longer, more meaningful

relationships and were therefore more likely to have been attached to their former partners. But, as there was no significant interaction between relationship length and age in the former partner condition, and since there was no significant effect of relationship length on security in the former partner condition, it seems unlikely that the effect of age is attributable to length of relationship. Since relationship length did not significantly predict secure base use, a more explicit examination of the importance and seriousness of the relationship would perhaps be a better indicator of an individual's ability to use the former partner as a secure base.

The length of the former relationship or length of time the participant had been broken up with the former partner did not have an effect on security from the former partner. The reason for this finding remains unclear. Attachment theory suggests that, because attachments take time to develop, the longer a person was in the relationship, the more likely that he or she would be attached (Zeifman & Hazan, 2008), and therefore we would expect that person to feel higher levels of security from the former partner after the breakup. Again, however, perhaps seriousness and meaningfulness of the relationship would be a better indicator of a person's ability to use the former partner as a secure base, as opposed to simply assessing the length of the relationship. It is possible, for example, that individuals in shorter relationships may have spent more time with the partner and were attached, whereas individuals in longer relationships may not have spent as much time with the partner and not have been attached. Using length of relationship therefore is not necessarily an adequate substitute for measuring whether individuals were attached. Also, the finding that length of time since breakup predicted less willingness to explore after thinking about the former partner, in combination with the finding that length of relationship and time since breakup had no effect on feelings of security, may indicate that individuals are simply no longer attached to the former partner.

From this study it is clear that only some individuals use the former partner as a secure base. The question of what differentiates these individuals from those who are unable to use the former

partner as a secure base still remains. Though this study lends evidence to the notion that certain personal characteristics-- one's level of affect and age—may play role, it is possible that the nature of one's relationship with the former partner—both past and current-- is a more useful determinant of whether individual use the former partner as an attachment figure. The second study explores the possibility that characteristics of the post-breakup relationship affect use of the former partner as a secure base.

Study 2 Introduction

As mentioned previously, the use of the partner as a secure base is, by definition, adaptive: an individual's connection with the former partner helps him or her explore and this connection may even help the individual advance his or her recovery post-breakup. However, it is possible that in order for the individual to use the former partner as an effective secure base, one must understand that the breakup is final ("permanent"). For example, if an individual hopes for reconciliation with the former partner (therefore not acknowledging that the loss of the relationship partner is permanent), a connection with the former partner may fuel hope for reconciliation instead of promoting exploration.

The notion that perception of permanence of a loss is an important part of recovery from the loss is supported by attachment theory. According to Bowlby (1980), there are four stages that adults progress through before realizing that a loss that is permanent: numbing, searching and yearning ("protest"), despair and disorganization ("despair"), and reorganization. Protest and despair are likely a result of disbelief, whether conscious or subconscious, that the loss is permanent.

During "protest", and individual has emotions and engages in behaviors that arise out of an effort to attract the lost person. This attempt at recovery can be conscious or subconscious, even if an individual is aware that the loss is permanent and such searching is futile. Ex-spouses, for example, will often engage in activities in an attempt to ensure the accessibility of the former spouse by driving by the house of the ex-spouse, or hoping to run into the ex-spouse when dropping off the children, even if

there is no hope for reconciliation (Weiss, 1975). Following protest, an individual will enter a state of "despair" (Bowlby, 1980; Vormbrock, 1993; Weiss, 1975), a period characterized by inactivity, hopelessness, and sleep disturbances. The final phase, "reorganization", encompasses acknowledgement of the permanence of the loss and being able to move on with life. Therefore acknowledgment that a loss is permanent enables recovery from the loss.

Relatedly, perception of permanence of loss may also explain when and whether certain behaviors related to the lost figure are adaptive. For example, Bowlby (1980) acknowledged the difference between the anxiety that accompanies mistakenly seeing the lost person at an early point following the loss and the comfort that may come from imagining the lost person in a familiar place. Therefore, a given behavior that may seem like "search" behavior that is part of the "protest" phase may actually be indicative of having a comforting sense of the lost person (part of the "reorganization" phase), depending on an individual's perception of permanence of loss. Therefore an individual's belief in the permanence of a loss is theoretically linked to adaptive recovery following a loss.

Empirical work supports this view. Some bereavement studies show that continuing bonds are adaptive (e.g., Field, Gao, & Paderna, 2005), while others show that they lead to worse grief outcomes (see Stroebe, Schut, & Stroebe, 2005, for a review). However it appears that bonds with the lost figure may become maladaptive if they are indicative of failure to acknowledge the permanence of the loss (Field et al., 1999). Consistent with this view, those who received comfort from the use of the deceased's possessions had more grief symptoms than those who were comforted from the memories of the deceased, presumably because the latter group failed to incorporate the reality of the loss (Field et al., 1999). Furthermore, individuals engaging in bonds (behaviors and emotions) related to the deceased for an extended period of time experienced worse grief outcomes, again because perhaps engaging in these bonds is indicative of a failure to acknowledge the permanence of the loss (Field, Gal-Oz, and Bonanno, 2003).

Difficulty believing that a loss is permanent may lead to pathological trajectories of mourning such as chronic grief or absence of conscious grieving (Bowlby, 1980). Bowlby believed that chronic grief was an extension of yearning, searching, disorganization, and despair, and absence of conscious grieving was an extension of the numbing phase. Mikulincer and Shaver (2007) describe the components of chronic mourning as "pervasive presence of negative beliefs about the self, one's life, and the future," along with an increased sensitivity to any stimuli that may be reminiscent of the deceased coupled with a difficulty in managing the distress that arises from these memories (p.101). Absence of conscious grieving, however, refers to behaviors and thoughts that serve to avoid reminders of the loss or downplay its importance (Bowlby, 1980; Mikulincer & Shaver, 2007). Individuals experiencing the loss may not cry or appear outwardly upset, or want to discuss the loss.

Therefore the purpose of this study was to assess the role of perception of permanence of loss in an individual's ability to use the former partner as a secure base. Participants were manipulated to believe that reconciliation with the former partner was either likely (low perception of permanence) or unlikely (high perception of permanence). Individuals who believe that the loss is permanent should be better able to use the former partner as a secure base (have higher scores on measures of willingness to explore and security) compared to those who have low perception of permanence.

Study 2 Method

Participants.

Participants must have experienced at least one relationship breakup in order to be eligible for the study. Participants were 114 young adults (31 male, 83 female, mean age 20.13 years) recruited from Cornell University. Participants were given one unit of course credit as compensation for participating in the study. Participants in this sample had been broken up with their partner for 11.26 months, and had been in the former relationship for 13.63 months.

Participants were recruited through the SUSAN website where they were provided with a link to the online study.

Procedure.

After clicking on the link, participants were directed to the webpage with the study consent form. After completing measures assessing attachment style (see materials section), participants were then given the secure base prime. Unlike the secure base prime in Study 1 where participants were randomly assigned to think of an acquaintance, their former partner, or a close friend, in this study participants were all asked to think of their former partner. Participants were then assigned to one of four conditions of the perception of permanence manipulation (see below). Following the manipulation participants were given measures of emotion, exploration, and state attachment. Upon completion of the questionnaires, participants were directed to a debriefing page and thanked for their participation.

Materials.

Secure base prime. The secure base prime was designed to have participants think of their former partner before the manipulation of perception of permanence. The secure base prime was the following:

"Imagine a situation in which you deal with a life problem that you cannot solve on your own. Close your eyes, try to visualize such a situation, and write a brief description of what you are seeing on the computer screen in front of you. Now, imagine that your former partner is sensitive and responsive to your distress. Close your eyes, try to picture your former partner, and imagine how you feel. Please write a description of how you feel on the computer screen in front of you."

Perception of permanence manipulation. The perception of permanence manipulation was adapted from Spielmann, Macdonald, and Wilson (2009). For this manipulation, participants were randomly assigned to one of four conditions. In two of the conditions, participants were asked to list reasons that they should get back together with the former partner ("reasons 'why' condition"). In the

other two groups, participants were asked to list reasons that they should not get back together with the former partner ("reasons 'why not' condition").

Based on the notion that the ease with which things come to mind makes them seem more likely to happen (availability heuristic; Tversky & Kahneman, 1974), participants listed either many or few reasons in order to achieve differing levels of perception of permanence. The idea here was that in general it would be easier to come up with few reasons than many reasons for something. Therefore participants in the few reasons conditions would think that what they are listing reasons for would be more likely to happen, whereas those in the many reasons conditions would think that they what they are listing reasons for would be less likely to happen.

The number of reasons participants were asked to list was based on a pilot study in which participants were asked to list reasons they would get back together with their former partner and reasons they would not get back together with their former partner. The majority of participants listed less than 15 reasons, so this was set as the upper limit for the present study. However, there was a difference between the minimum number of reasons individuals could come up with for getting back together with the former partner or not getting back together with the former partner. Most participants could list more than four reasons they would get back together with the former partner, so this was set as the lower limit for reasons why to get back together in the present study. Most participants could list more than three reasons they would not get back together with the former partner, so this was set as the lower limit for reasons why they would not get back together in the present study.

To prime high permanence, participants were asked to either list many reasons they would get back together with the former partner (15; reasonswhy15 condition) or few reasons they would not get back together with their form partner (3; reasonswhynot3 condition). To prime low permanence, participants were asked to either list few reasons they would get back together with the former partner

(4; reasonswhy4 condition) or many reasons they would get back together with the former partner (15; reasonswhynot15 condition).

These conditions as a whole will be referred to as "perception of permanence condition". There were 27 participants in the reasonswhy15 condition, 27 participants in the reasonswhy3 condition, 28 participants in the reasonwhynot4 condition, and 27 participants in the reasonwhynot15 condition.

Demographics. Participants completed questionnaires asking about their relationship with their most recent former partner (e.g., "Would you consider this relationship a 'serious' relationship?") and entire relationship history (e.g., "How many relationship partners have you had?"). Characteristics of their most recent relationship breakup were also assessed (e.g., "Who initiated the breakup?")

Attachment style. A measure of attachment style was included in order to control for the possibility that individual differences in attachment style influenced an individual's willingness to explore and feelings of attachment security. Attachment style was assessed via the Experiences in Close Relationships (ECR) questionnaire, a 36-item questionnaire that measures the two underlying dimensions of attachment style: attachment anxiety and attachment avoidance. Eighteen items assess attachment anxiety (e.g., "I'm afraid I will lose my partner's love") and eighteen items assess attachment avoidance (e.g., "I get uncomfortable when a romantic partner wants to be very close"). Participants rate on a scale from 1 (strongly agree) to 7 (strongly disagree) how much they agree with each statement.

Positive and negative emotions. A measure of positive and negative emotions was included in order to control for the possibility that feelings of exploration and security were a result of feeling positive emotion rather than secure base per se (e.g., Fredrickson, 2001).The Positive Affect and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen 1988) measures positive and negative affect by asking participants to rate, on a scale of 1 (very slightly or not at all) to 5 (extremely), the extent to which they feel each positive (e.g., "interested") or negative (e.g., "frustrated") emotion at the moment.

State attachment security. Attachment security was measured via the State Adult Attachment Measure (SAAM; Gillath, Hart, Noftle, Stockdale, 2008). SAAM is a 21-item measure is designed to assess an individual's current level of attachment security, anxiety, and avoidance (compared to chronic levels of attachment security, and avoidance). Seven items assess attachment security (e.g., "I feel like I have someone to rely on") seven items assess attachment anxiety (e.g., "I wish someone close could see me now") and seven items assess attachment avoidance (e.g., "I'm afraid someone will want to get too close to me"). Participants rate how much they agree with each statement on a scale from 1 (Disagree strongly) to 7 (Agree strongly). State levels of attachment security are referred to as SAAMSecurity, while state levels of attachment avoidance are referred to as SAAMAvoidance, and state levels of attachment anxiety are referred to as SAAMAnxiety.

Exploration. Participants were asked to complete an 18-item measure assessing willingness to explore (Green & Campbell, 2000). This questionnaire measures social exploration (e.g., "I would like to have the chance to meet strangers"), environmental exploration ("I would like to explore someplace I have never been before") and intellectual exploration (e.g., "I would like to take a class that is unrelated to my major just because it interests me"). Participants rate on a scale of 1 (does not describe me at all) to 7 (very much describes me) how much each statement describes them. For the present study, scores on all 18 items were combined for a composite exploration score named Exploration.

Study 2 Results

A multiple regression analysis was performed for each of the outcome variables (SAAMSecurity and Exploration.) Though there were no a priori hypotheses regarding state level attachment anxiety and state level attachment avoidance, a multiple regression analysis was also performed for SAAMAnxiety and SAAMAvoidance.

All independent variables of interest were placed in the model and each was interacted with perception of permanence condition (the main variable of interest).Non-significant effects were removed from the model, and only the significant results most relevant to the present study and hypotheses are discussed. A complete list of the independent variables is available in tables 3 and 4.

SAAMSecurity.

There was a significant interaction between positive affect and perception of permanence condition (p=.001) such that when positive affect was low, reasonswhynot4 predicted higher security than reasonswhy3 (reasonswhynot15 as reference level; reasonswhynot4, b=-.112, SE=.269, p =.678; reasonswhy3, b=.788, SE=.246, p=.002; reasonswhy15, b=.150, SE=.278, p=.590). However this significance disappeared with an increase in positive affect (see figure 5). This finding indicates that when perception of permanence was high (reasonswhynot4 condition) participants did feel higher levels of security (and therefore used the former partner more as a secure base) compared when perception of permanence was high (reasonswhynot3 condition).

There were no other significant findings of interest in study 2.

Study 2 Discussion

There was partial support for the hypothesis that manipulation of perception of permanence would influence ability to use the former partner as a secure base, at least with regard to feelings of security. When there was low positive affect, compared to individuals in the two 15-reason conditions, individuals who came up with four reasons not to reconcile with the former partner (high permanence) had higher security than those who came up with three reasons why they should reconcile with the former partner (low permanence). With regard to the availability heuristic (Tversky & Kahneman, 1973), these conditions seem to be the most salient out of the four conditions-- an individual can presumably most easily come up with a shorter list of reasons for something than a longer list (which could be the

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reason that there were no differences between the conditions where individuals were required to list 15

reasons).

Unfortunately there was no indication that manipulating perception of permanence influences

individuals' willingness to explore. The reason for this remains unclear. Perhaps the measure of

exploration was too general and examining one of the measure's subscales, such as social exploration,

would be more relevant for the purpose of determining whether perception of permanence influences

exploration.

This study also did not examine which factors may affect the ability for an individual to use the

former partner as a secure base. It is possible, for example, that the characteristics of the relationship or

characteristics of the individual may affect the likelihood that he or she believes reconciliation is

possible. The next study examined how an individual characteristic—attachment style—influences an

individual's perception of permanence.

Study 3 Introduction

Whereas the previous study examined the effect of perception of permanence on ability to use

the former partner as a secure base, there is reason to believe that perception of permanence may also

underlie the attachment-related individual differences in recovery from loss. . Based on early

experiences with a caregiver in the home, individuals vary in how confident they are in the availability

and accessibility of their attachment figure. Secure individuals, whose attachment figures respond

consistently to them, are confident in the accessibility and reliability of others, view themselves as

worthy of care, and are willing to ask others for help in times of need. Ambivalent individuals, whose

attachment figures were inconsistently responsive to them, feel that their needs are not important and

expect others will be inconsistently responsive to them as well. These individuals will attempt to

exaggerate their needs in order to ensure that they elicit care. Avoidant individuals, whose attachment

figures were unresponsive, feel that others will be unresponsive and learn to rely on themselves. These avoidant individuals distance themselves from attachment-related stimuli (Mikulincer et al., 2003).

These individual differences in attachment style also affect an individual's recovery trajectory following relationship loss (Fraley & Bonanno, 2004; Fraley et al., 2006; Wayment & Vierthaler, 2002). Anxious-ambivalent individuals, who have learned to be weary of the accessibility of the attachment figure, have a difficult time accepting the loss. This difficulty can lead to preoccupation with the lost figure, as well as increased sensitivity to any stimuli that can trigger memories of the loss (Mikulincer & Shaver, 2007). Avoidant individuals, who tend to avoid or distance themselves from attachment-related stimuli (Mikulincer et al., 2003), down-play the importance and reality of loss. Anxiously attached individuals are more likely to exhibit "chronic grief" whereas avoidantly attached individuals are more likely to exhibit "absence of conscious grieving", both of which are believed to occur due to not acknowledging the permanence of the loss (Bowlby, 1980).

An objective of the present study is, however, to challenge and extend this theoretical assumption by assessing whether avoidant individuals are not denying the permanence of the loss but instead are *better* able to acknowledge the permanence. Explanations of emotion regulation strategies employed by avoidant individuals show that avoidant individuals, based on their previous experiences, are more likely to believe that proximity to an attachment figure is unattainable in times of stress (Mikulincer et al., 2003). This suggests that avoidant individuals may be more likely to believe that a loss is permanent once it occurs. Therefore this study assessed whether avoidant individuals are more likely than less avoidant individuals to think that a breakup is permanent.

Study 3 Method

  Participants.

Participants were 191 individuals (54 males, 137 females, mean age 25.89 years) recruited from Cornell University and Amazon Mechanical Turk (Mturk). Participants from Cornell University were given one credit for participation and Mturk participants were given $2 as compensation.

Procedure.

Cornell students were given the link to the online questionnaire from the SUSAN website. Mturk participants were given the link through the Mturk website. Upon arriving at the study website, participants were directed to the consent form study questionnaires. After completing questionnaires assessing attachment style participants then read one of four stories about a relationship breakup and answered questions about the story. Upon completion of the questionnaires, participants were debriefed. Mturk participants were also given a code

Materials.

Attachment style.

Attachment style was assessed via the Experiences in Close Relationships (ECR) questionnaire, a 36-item questionnaire measures attachment anxiety and attachment avoidance. Eighteen items assess attachment anxiety (e.g., "I'm afraid I will lose my partner's love") and eighteen items assess attachment avoidance (e.g., "I get uncomfortable when a romantic partner wants to be very close"). Participants rate on a scale from 1 (strongly agree) to 7 (strongly disagree) how much they agree with each statement.

Relationship breakup stories.

Participants were asked to read stories about relationship breakups. These stories were based on pilot studies where participants were asked to describe a previous relationship and relationship breakup

Perception of permanence breakup story questions.

The breakup story questions were a series of 14 questions assessing the individuals' perception of characteristics of the relationship described in the breakup story. Some questions explicitly asked about the permanence of the breakup (e.g., How likely do you think it is that these people will get back together?) while others assessed more general perceptions of the relationship, such meaningfulness of the relationship (e.g., How meaningful was their relationship?). The variation in types of questions was designed to illicit a more thorough examination about which all factors that may affect perception of permanence. Participants rated their perceptions on various scales.

Study 3 Results

Factor analysis.

To assess whether there were underlying factors in the breakup story questions, a factor analysis with principal component extraction and varimax rotation was conducted on all questions about the breakup story (see table 7 for all questions). This yielded four factors named "Current Liking"(e.g., "How likely do you think it is that these two people will be friends?"), "Partner change" (e.g., "Compared to during the relationship, how much do you think the partner changed during the breakup?"), "Author Change" (e.g. "Compared to during the relationship, how much do you think the author changed during the breakup?"), and "Relationship Liking" (e.g. "How much do you think these two people liked each other during the relationship?"). The items for each of the factors and the factor loadings are displayed in table 8.

Multiple regression analysis.

Factor scores for each factor were then saved and used as outcome variables for the regression analyses. A complete list of the independent variables is available in tables 5 and 6.

Current liking.

For Current Liking, there was a significant effect attachment anxiety such that an increase in attachment anxiety predicted a decrease in scores on Current Liking (b=-.125, SE=.055, p=.026). There

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was also a significant effect of participant's current status on Current Liking (p=.008) such that

individuals who were currently seeing more than one person scored higher on Current Liking than

individuals who were seeing one person exclusively (seeing one person exclusive as reference level;

seeing more than one person, b=.554, SE=.202, p=.007; seeing no one, b=.323, SE=.141, p=.024). In

addition, there was a significant difference on Current Liking depending on which story participants read

(p=<.001l story 4 as reference; story 3, b=01.012, SE=.172, p<.001; story 2, b=.274, SE=.176, p=.121;

story 1, b=-.814, SE=.175, p<.001).

Author change.

There was a significant effect of attachment anxiety on Author Change such that an increase of

attachment anxiety predicted an increase on Author Change (b=.132, SE= .056, p=.019). Males also

scored lower than females on Author Change (b=-.317, SE=.144, p=.029) . There was also a significant

difference on Author Change depending on which story participants read (p<.001; story 4 as reference;

story 3, b=-.653, SE=.185, p=.001; sotry 2, b=.442, SE=.188, p=.02; story 1, b=.405, SE=.187, p=.032).

Partner change.

There was a significant effect of attachment anxiety such that higher scores on attachment

anxiety predicted higher scores on PartnerChange (b=.571, SE=.157, p<.001). However this was qualified

by an avoidanceXanxiety interaction such that an increase in attachment avoidance per unit of

attachment anxiety predicted a decrease of -.137 (SE-.055, p=.014).

Relationship liking.

There were no significant effects on RelationshipLiking.

Study 3 Discussion

There was little support that individual differences in attachment style predicted differences in

perception of permanence. Specifically, the main factor assessing reconciliation (current liking) did not

yield expected attachment-style differences. In fact, individuals high on avoidance and anxiety were

actually *less* likely to think that the couples would reconcile, a finding that runs counter to the

hypothesized relationship. The reason for this may be that participants were asked to read stories about

other people's breakups, which may have made them identify less with their personal breakup situation.

In future work, a better assessment of attachment-style differences in perception of permanence may

be to ask individuals the likelihood that they themselves will reconcile with their former partner, which

would make the breakup situation more salient.

However, there were attachment-style differences in the factors that assessed person

perception (Author Change and Partner Change). Individuals who were higher on attachment anxiety

reported increased perception that the author of the story had changed. These individuals also the

former partner changed, but this was qualified by an attachment avoidanceXattachment anxiety

interaction—as attachment avoidance increased in this group, there was a decrease in the influence of

attachment anxiety on perception of partner change.

These findings are consistent with previous literature examining attachment style and person

perception. Previous work has shown that anxiously attached individuals are less able to integrate

information about others (Graham & Clark, 2006), that anxiously attached individuals are more likely to

change their perception of another (Zhang & Hazan, 2000), and that avoidant and anxious individuals

are less able to incorporate incongruent information into the perception of another individual

(Mikulincer & Arad, 1999).

More relevant to the present study, however, is the implication that these differences in person

perception has for using a former partner as a secure base. Change in perception of the former partner

may cause the individual to feel unsure of who their secure base is, leading to lower feelings of security

and less exploration when primed with thoughts of this former partner. Because anxious individuals are

more likely to change their perception of others (Zhang & Hazan, 2000), and that anxiously attached

individuals experienced greater levels of grief symptoms following a breakup, (Barbara & Dion, 2000) it

is possible that anxiously attached individual's grief following breakup could be a result of difficulty from not being able to use their former partner as a secure base. Future studies should explore this idea by either asking people how their perception of the former partner has changed since the breakup, or by manipulating one's perception of the former partner and assessing whether person perception change is related to exploration and feelings of security.

General Discussion

The objective of the three studies was to assess whether 1) individual use their former partner as a secure base, 2) perception of permanence affects use of the former partner as a secure base, and 3) whether attachment patterns, particularly the avoidant attachment pattern, influence perception of permanence. There was preliminary evidence that individuals do indeed use their former partner as a secure base—older individuals who had high negative affect felt most secure when thinking of the former partner. There was also preliminary evidence that perception of permanence affects use of the former partner as a secure base—when individuals were manipulated to believe that perception of permanence was high they had higher security from the former partner compared to individuals who were manipulated to believe that perception of permanence was low . However there was no evidence that avoidant individuals were more likely to think that a loss is permanent.

Though hypotheses in these studies were only partially supported, there are still several important implications. There was some evidence that individuals still use their former partner as a secure base, which indicates that attachment relationships do not necessarily end when a relationship breaks up. Also, the finding that higher perception of permanence predicted higher feelings of attachment security when compared to lower perception of permanence suggests that feeling a connection with the former partner may not necessarily be maladaptive under certain conditions. This supports and extends findings from the continuing bonds work in the bereavement literature, which suggests that having continuing bonds with the lost person may only be maladaptive if one does not

acknowledge the permanence of the loss (Field et al., 1999). However, to truly understand whether a connection to a lost attachment figure is adaptive, future work should more explicitly measure whether certain behaviors or thoughts that are indicative of feeling a connection to the former partner vary in adaptiveness (measured through feelings of security and willingness to explore) based on whether an individual believes that the relationship breakup is permanent.

Individuals who were in new relationships also felt more secure after thinking of a close friend compared to thinking of an acquaintance, and there was also no effect on security after thinking of a former partner. This suggests that individuals in these new relationships were not necessarily using their former partner as a secure base and were instead using their close friend. This finding has implications for the attachment hierarchy—perhaps after a breakup an individual uses a close friend as an attachment figure while transitioning from the former partner. Indeed, there is some evidence that turning to others in the attachment hierarchy aids with feelings of distress stemming from a loss; a review of the separation responses of spouses separated due to work demands showed that spending time with parents (presumably secondary attachment figures) during separation from the spouse aided in the separation distress, but did not completely alleviate it (Vormbrock, 1993).

Although the only explicit hypothesis about the effect of condition involved state attachment security and willingness to explore, condition also influenced one additional outcome—state attachment avoidance. When reported positive affect as low, participants reported lower levels of avoidance when thinking about a close friend compared to a former partner or acquaintance. Given that avoidant individuals tend to distance themselves from attachment-related stimuli (Mikulincer et al., 2003), it is possible that the low positive affect and thoughts of the former partner triggered the attachment system, and that this led the individual to feel more avoidant. This idea is supported by the finding that within the former partner condition, feelings of state avoidance increased the longer the individual had

been in the relationship, whereas scores on avoidance decreased the longer the individual had been out of the relationship.

There are two additional points of interest related to these findings. First, condition had a significant effect on state levels of security and avoidance, but had no effect on exploration or anxiety. Since the definition of secure base is that one feels a sense of security from the person and can better explore when thinking of that person (Bowlby, 1988), these findings indicate that perhaps individuals are not using their former partner as a truly effective secure base.

Alternately, it is also possible individuals do not use their former partner to promote exploration. However, individuals also did not report more exploration when asked to think about a close friend (who may, presumably, serve attachment needs), which suggests that this null effect was possibly more of a characteristic of the measure used than a characteristic of the attachment relationship per se. This may also indicate that feelings of attachment security occur before exploration. Some support for this idea comes from the notion of the attachment-exploration continuum (Ainsworth, Bell & Slayton, 1971), which specifies that when the attachment system is activated, an individual first seeks proximity in order to feel secure and will then explore once felt security is obtained. This is also supported by a line of work which suggests that seeking security from an attachment figure may be categorized as a "safe haven behavior" which *then* leads to the ability to use the former partner as a secure base from which to explore (Feeney & Thrush, 2010). It is therefore possible that the manipulation in this study only primed the safe haven component of feeling secure rather than the secure base component of exploration.

It is also possible that the measure of exploration used was too general to account for the influence of a former partner, and that a more specific subscale of the measure, such as social exploration, should have been examined instead. Finally, since none of these reasons explain why there

were no significant effects on state level of anxiety, this effect in particular should be examined in a future study.

The second point of note is that even within these conditions, effects only became salient when it appeared that the attachment system was triggered, such as instances in which reported negative affect was high (Bowlby, 1980). This may indicate that prior to measuring attachment-related phenomena, it is important to ensure that the attachment system is sufficiently activated.

Lastly and most surprising were the findings from the third study which showed that individual differences in attachment style did not influence perception of permanence. However the findings were consistent with previous literature that showed that attachment styles affect person perception (e.g., Zhang & Hazan, 2000). Differences in person perception, however, may still have important implications with regard to use of the former partner as a secure base. As stated previously, if an individual's perception of their former partner changes drastically, he or she could perhaps no longer view them as a secure base, and this may affect recovery. Future studies should more explicitly manipulation a person's perception of a former partner in order to assess the relationship of person perception to ability to use the former partner as a secure base.

Findings Consistent with Previous Work

Although they did not all support the hypotheses of this study, several findings did support previous work on individual differences in attachment, suggesting that such individual differences are salient. First, individuals who were asked to think of their former partner (i.e., those in the former partner condition) who also had higher levels of attachment avoidance and attachment anxiety reported feeling less security; this finding is supported by attachment theory, which suggests that higher levels of avoidance and anxiety correspond to lower security (Fraley, Waller, & Brennan, 2000). Second, findings also suggest that perhaps priming or inductions do not necessarily override individuals' chronic inclinations. In the full sample, we found that there was a relationship between feelings of state

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attachment anxiety and chronic attachment anxiety, such that higher chronic attachment anxiety

predicted state anxiety, and higher chronic avoidance predicted state attachment avoidance, even

across priming conditions. This indicates that attachment-related individual differences are pervasive

even across situational priming conditions.

Thirdly, while condition did not explicitly influence levels of exploration, we found that higher

levels of attachment avoidance did predict a decrease in exploration. Though this finding did not confirm

the hypothesis that individuals would be willing to explore more when primed with thoughts of their

former partner compared to an acquaintance or close friend, it is consistent with the literature on

attachment and exploration—individuals who have lower levels of avoidance have been found to

explore more (Aspelmeier & Kerns, 2003; Green & Campbell, 2000). Attachment anxiety also predicted

less exploration, further supporting previous work regarding the relationship between attachment

anxiety and exploration (Green & Campbell, 2000). In addition, individuals with higher negative affect

reported less willingness to explore, while individuals with higher positive affect reported greater

willingness to explore. These findings are consistent with the previous theories about the role of

emotion and exploration—namely, broaden and build theory (Fredrickson, 2001), which says that that

compared to negative emotions that "narrow", making individuals think of a specific action (Fredrickson,

2001), positive emotions broaden, causing individuals to engage in exploration and behaviors that

broaden their ways of thinking.

However, attachment avoidance did not influence exploration for those individuals in the

former partner condition. In this subsample, individuals reported less exploration the longer they had

been broken up with the former partner, regardless of chronic levels of attachment anxiety and

avoidance. This finding is somewhat surprising, as it is plausible that having distance from the

relationship would perhaps make one more likely to use the former partner as a secure base, or at least

feel that one could use the former partner as a secure base, as negative memories of the relationship

may tend to fade over time (Ritchie, Skowronski, Hartnett, Welss, & Walker, 2009). Instead, however, this finding suggests that the longer someone has been broken up with the former partner, the weaker emotional connection that individual feels to the former partner, and therefore the less likely they are to use that person as a secure base. This possibility should be explored in a future study, perhaps by following individuals who have recently broken up for an extended period of time and tracking their attachment hierarchy.

Limitations

Several limitations of this study should be noted. Firstly, there are erasons to believe that the security manipulation was not salient because differences existed among conditions only when the individual's feelings seemed to trigger the attachment system (i.e., situations where individuals felt high anxiety, high negative affect, or low positive affect). For example, the former partner provided greater feelings of security when compared to a close friend or an acquaintance only when negative affect was high, and higher perception of permanence only predicted higher levels of security when positive affect was low. This suggests that a manipulation which would more strongly and explicitly trigger the attachment system, such as one that is designed to create more anxiety, fear, and negative affect, might lead to greater individual differences. Also, previous studies have found that having individuals generally think of attachment patterns, such as remembering a relationship in which they felt avoidant (Baldwin et al., 1996), or having them think of a more general situation in which one needed a secure base (e.g., Mikulincer & Arad, 1999), are effective ways of manipulating state attachment levels. The difference between these manipulations and the manipulation used in the present study was that, in the present study, individuals had to think of a specific person in a very specific situation (i.e, a former partner, close friend, or an acquaintance helping during a troubling life situation). Therefore, it seems possible that the manipulation used in this study was too specific to elicit substantial attachment differences.

Secondly, this study also did not assess the type of attachment relationship an individual had with the former partner, which could have affected whether an individual felt security from the former partner, as well as the amount of security the individual felt (Baldwin et al., 1996). Future studies should assess the type of attachment relationship individuals had with the former partner in order to gain a better understanding of the role that this type of relationship might play in predicting use of the former partner as a secure base post breakup.

Lastly, contrary to the a priori hypothesis, there were no differences in feelings of security from an acquaintance compared to the former partner or the close friend in the full sample. One would expect that acquaintances would provide the least amount of security compared to former partners or close friends. The fact that there was no effect may suggest that the manipulation was not effective or valid. For example, asking someone to think of an acquaintance may not be explicit enough, as individuals may differ in who they think qualifies as an acquaintance; one person might think an acquaintance as someone they know but do not think of as a close friend, while another might think of someone whom they barely know or speak to but see quite often. This difference in interpretation could lead to a great deal of variability in responses. One way to alleviate this potential problem would be to use condition as a within-person factor, so that differences in security as a function of condition would account for comparisons within person—that is, an individual would serve as his or her own basis of comparison which would eliminate difficulties stemming from different interpretations.

Conclusion

To summarize, the study set out to understand whether individuals used their former partner as a secure base following relationship breakup—specifically, whether individuals felt more secure and explored more when thinking of their former partner compared to when thinking of a close friend or an acquaintance. There was partial support for this hypothesis, specifically that older individuals who were feeling high levels of negative affect felt more secure after thinking of their former partner. Second, the

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study set out to understand whether higher perception of permanence of the breakup would lead

individuals to be less able to explore and feel secure after thinking of their former partner compared to

having a lower perception of permanence. Again there was some support for this hypothesis; individuals

who listed reasons why they would get back together with their former partner felt less security from

thoughts of the former partner than individuals who listed reasons why they would not get together

with the former partner. Finally, the study set out to understand whether there were attachment-style

related differences in perception of permanence following relationship breakup, a notion which was not

supported by this study. Nevertheless, this study was an important first step in establishing what

happens to an attachment relationship once a couple breaks up, and could pave the way for a better

understanding of the adaptiveness of feeling a connection to a former partner.

Table 1 Experiment 1 Categorical Independent Variables

Condition	N
Acquaintance	60
Former Partner	60
Close Friend	60
Sex	**N**
Male	71
Female	105
Current Relationship Status	**N**
Not seeing anyone	62
Seeing one or more persons casually	23
Seeing one person exclusively	99
Who initiated the breakup?	**N**
Self	99
Former partner	63
Mutual	21

Table 2 Experiment 1 Continuous Variables

Continuous Independent Variables	N	Minimum	Maximum	Mean	Std. Deviation
How old are you (years)?	175	18	57	25.12	7.964
How long have you been in your current relationship (months)?	86	0	360	38.02	55.958
How long ago did you break up (in months)?	184	0	204	30.03	37.641
How long were you together (in months)?	183	1	144	19.62	22.383
Negative Affect (PANAS)	180	1.00	4.30	1.988	.835
Positive Affect (PANAS)	180	1.00	4.88	2.932	.866
Attachment Avoidance	182	1.00	6.44	3.013	1.053
Attachment Anxiety	182	1.00	6.94	3.489	1.150
Outcome Variables	N	Minimum	Maximum	Mean	Std. Deviation
State Attachment Security (SAAMSecurity)	176	1.29	7.00	5.342	1.117
State Attachment Avoidance (SAAMAvoidance)	176	1.00	6.57	3.053	1.208
State Attachment Anxiety (SAAMAnxiety)	176	1.14	7.00	4.510	1.230
Exploration (Exploration)	176	2.06	5.00	3.559	.629

Table 3 Experiment 2 Categorical Independent Variables

Perception of Permanence Condition	N
Reasons why 15	27
Reasons why 3	27
Reasons why not 4	28
Reasons why not 15	27
Sex	**N**
Male	31
Female	83
Current Relationship Status	**N**
Not seeing anyone	53
Seeing one or more persons casually	30
Seeing one person exclusively	32
Who initiated the breakup?	**N**
Self	68
Former Partner	32
Mutual	16

Table 4 Experiment 2 Continuous Variables

Continuous Independent Variables	N	Minimum	Maximum	Mean	Std. Deviation
How old are you (years)?	109	18	28	20.13	1.441
How long ago did you break up (in months)?	116	0	90	11.26	12.17
How long were you together (in months)?	116	1	60	13.63	11.54
Negative Affect (PANAS)	114	1.00	4.00	1.938	.752
Positive Affect (PANAS)	114	1.00	4.63	2.878	.951
Attachment Avoidance	117	1.06	5.78	3.193	1.051
Attachment Anxiety	117	1.00	6.28	3.466	1.124
Outcome Variables	N	Minimum	Maximum	Mean	Std. Deviation
State Attachment Security (SAAMSecurity)	114	1.71	7.00	5.476	1.152
State Attachment Avoidance (SAAMAvoidance)	114	1.00	6.29	2.926	1.152
State Attachment Anxiety (SAAMAnxiety)	114	1.43	6.71	4.450	1.165
Exploration (Exploration)	114	3.00	6.78	5.097	.865

Table 5 Experiment 3 Categorical Independent Variables

Which Story	N	
Story 1	27	
Story 2	27	
Story 3	28	
Story 4	27	
Sex	**N**	
Male	54	
Female	137	
Current Relationship Status	**N**	
Not seeing anyone	64	
Seeing one or more persons casually	23	
Seeing one person exclusively	110	
Who initiated the breakup?	**N**	
Self	102	
Former Partner	68	
Mutual	18	

Table 6 Experiment 3 Continuous Independent Variables

Continuous Independent Variables	N	Minimum	Maximum	Mean	Std. Deviation
How old are you (years)?	189	18	67	25.89	9.455
How long have you been in your current relationship (months)?	77	1	480	64.31	94.961
How long ago did you break up (in months)?	197	0	6000	68.13	429.626
How long were you together (in months?)	195	0	804	19.17	59.734

Table 7 Experiment 3 Items in factor analysis

Questions put into factor analysis	N	Minimum	Maximum	Mean	Std. Deviation
How likely do you think it is that these people will get back together?	191	1	7	2.39	1.420
How much do you think they like each other now?	191	1	7	3.23	1.288
How much do you think they liked each other during the relationship?	191	2	7	5.58	1.062
How likely do you think it is that they will be friends?	191	1	7	2.97	1.467
-How likely do you think it is that they will never speak again?	191	1	7	3.77	1.707
How likely do you think it is that they will rekindle their relationship at some point?	191	1	6	2.77	1.501
How emotionally difficult was their breakup?	191	1	7	4.77	1.332
How mutual was their breakup?	190	1	7	2.34	1.572
How often do you think they will talk after their breakup?	190	1	6	2.92	1.192
How meaningful was their relationship?	191	1	7	4.07	1.427
Compared to during the relationship, how much do you think the author changed during the breakup?	191	1	7	3.98	1.579
Compared to during the relationship, how much do you think the author changed after the breakup?	191	1	7	3.97	1.675
Compared to during the relationship, how much do you think the partner changed during the breakup?	190	1	7	4.14	1.804
Compared to during the relationship, how much do you think the partner changed after the breakup?	190	1	7	4.25	1.678

Table 8 Experiment 3 Factor Loadings
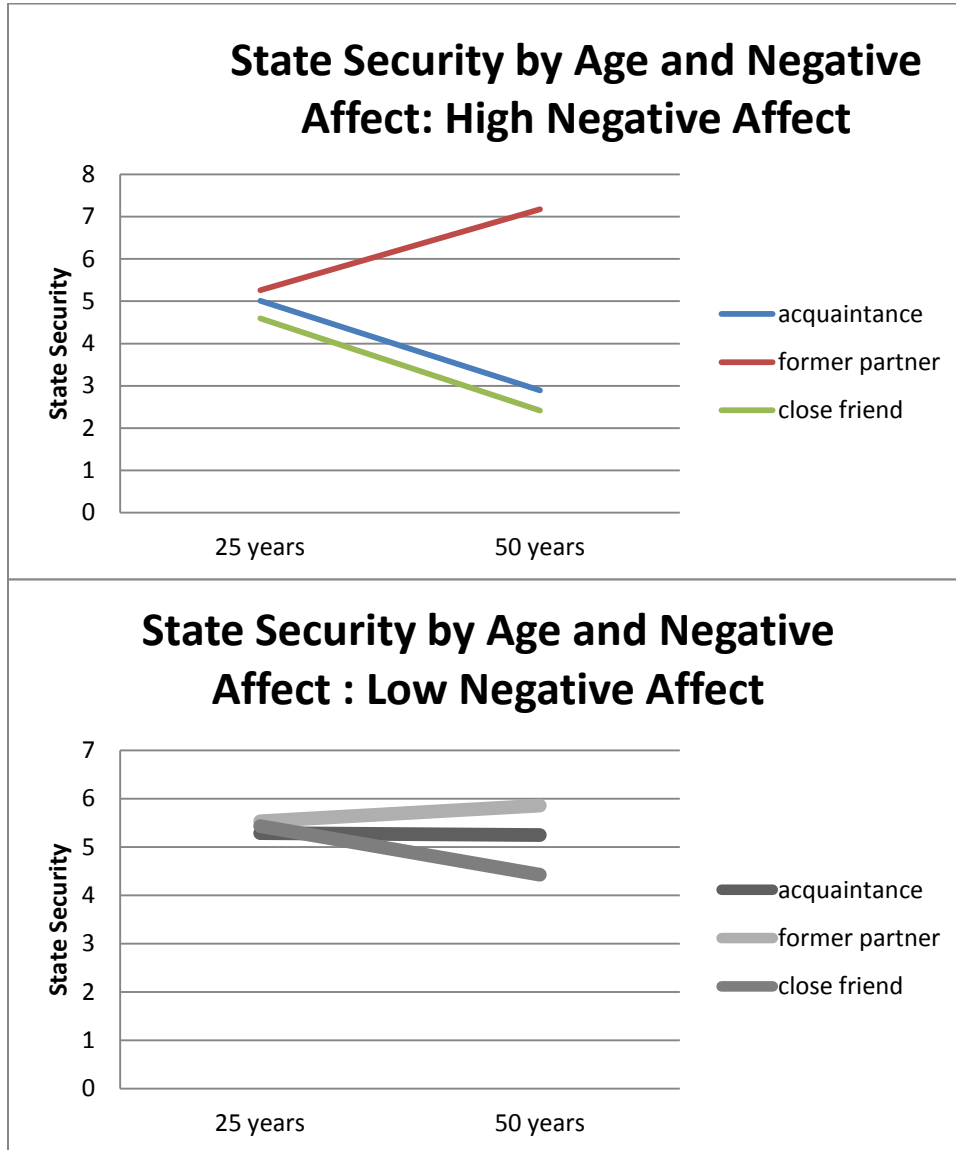
	Factor			
	Current Liking	Author Change	Partner Change	Relationship Liking
How likely do you think it is that they will rekindle their relationship at some point?	.820	.102	.095	-.147
How often do you think they will talk after their breakup?	.784	.141	.026	.088
How likely do you think it is that they will be friends?	.728	.018	-.066	.245
How likely do you think it is that these two people will get back together?	.701	.166	.077	-.208
How much do you think they like each other now?	.643	-.168	-.161	.351
How likely do you think it is that they will never speak again?	-.571	-.007	-.106	.041
How mutual was their breakup?	.478	.407	.146	-.071
Compared to during the relationship, how much do you think the author changed during the breakup?	.094	.899	-.098	.099
Compared to during the relationship, how much do you think the author changed after the breakup?-	.057	.852	-.006	.225
Compared to during the relationship, how much do you think the partner changed during the breakup?	.057	.028	.888	.071

Compared to during the relationship, how much do you think the partner changed after the breakup?	.106	-.084	.865	.091
How much do you think they liked each other during the relationship?	.204	.163	-.085	.771
How meaningful was their relationship?	-.006	-.116	-.098	-.627
How emotionally difficult was their breakup?	-.283	.007	.227	.525

Figures

Figure 1

State Security by Age and Negative Affect: High Negative Affect

**State Security by Age and Negative Affect : Low Negative Affect**

The three-way interaction of age, negative affect, and condition on state security (p=.028). There is a significant difference between the former partner condition and close friend condition in state security when age and negative affect are high.
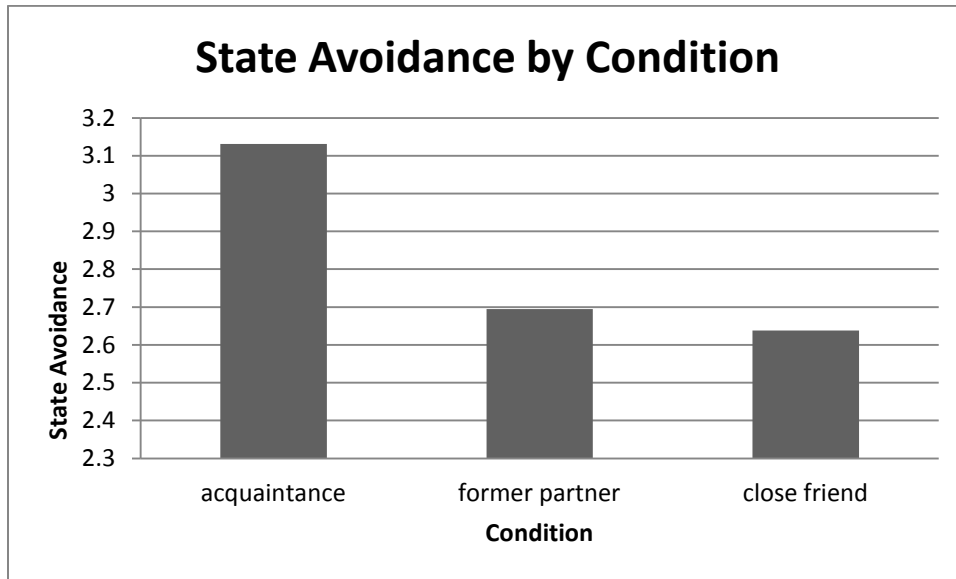
Figure 2

State Avoidance by Positive Affect and Condition
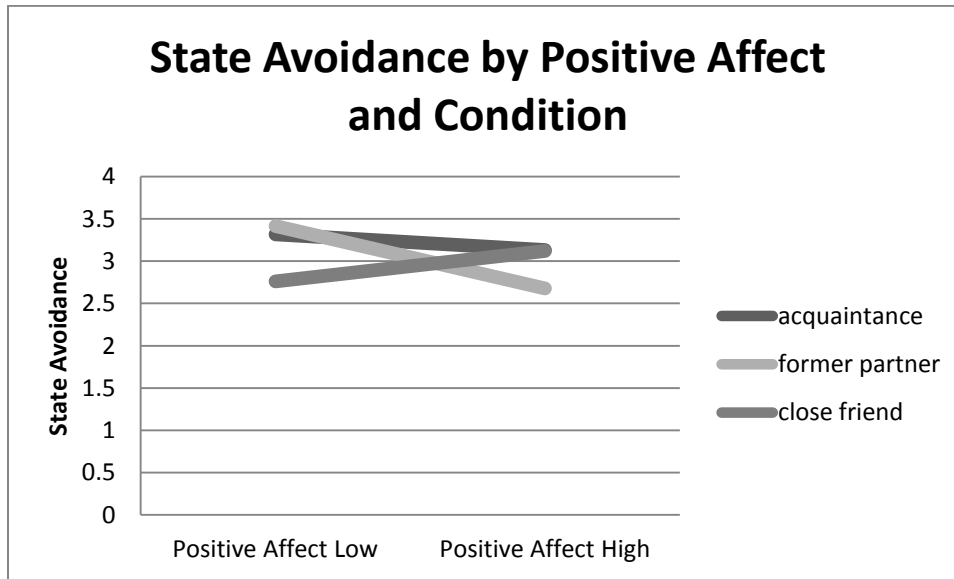
The interaction between positive affect and condition on state attachment avoidance (p=.014). There was higher state attachment avoidance in the close friend condition than the former partner condition when positive affect was low.

Figure 3
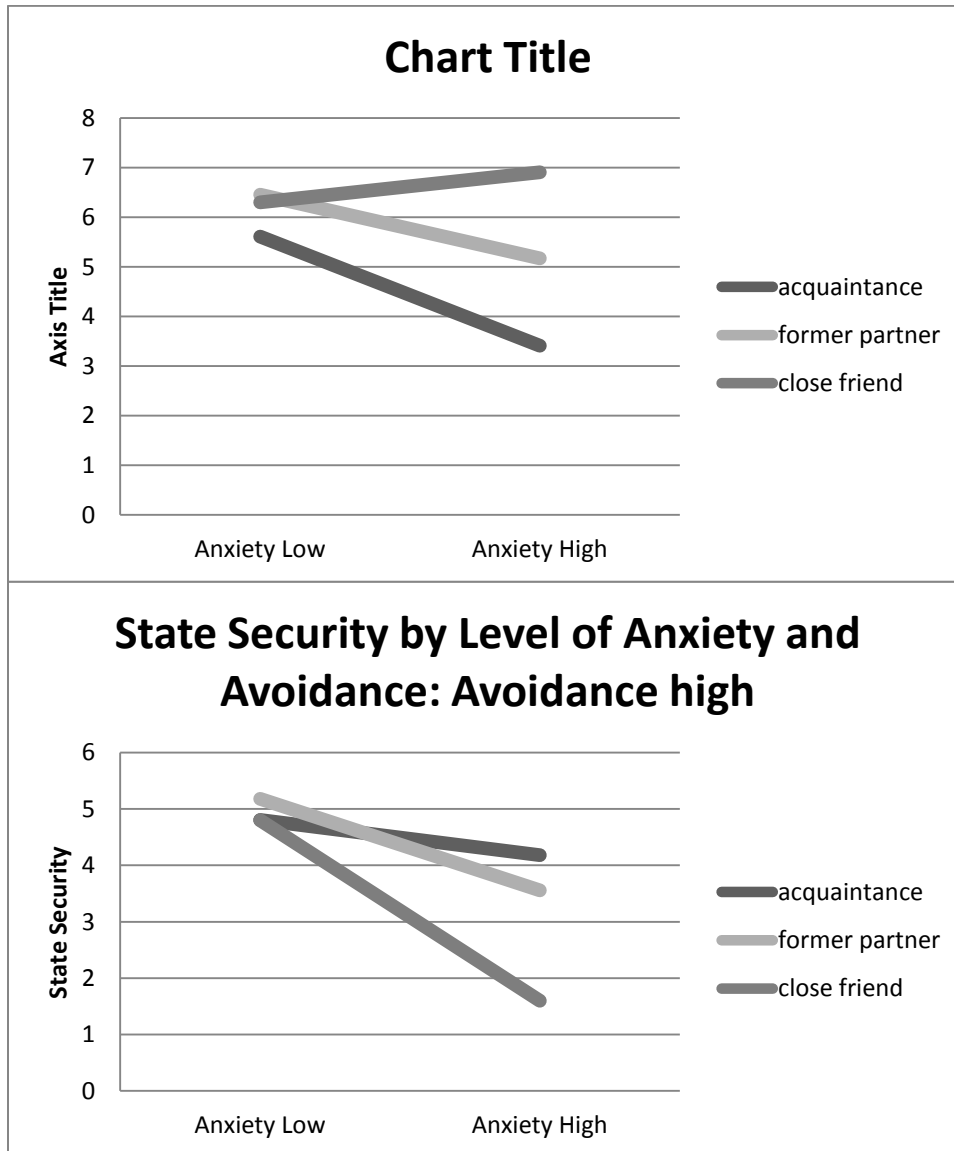
The interaction between avoidance and anxiety and condition on state security in the sample of individuals who are currently seeing someone. (p=.038). When attachment anxiety is high and attachment avoidance is low, the close friend condition provides significantly higher security than the acquaintance condition.

Figure 4

State Avoidance by Condition

Main effect of condition on state avoidance (p=.036) for the
subsample of individuals who were currently seeing someone new.
The close friend condition provided lower state attachment
avoidance than the acquaintance condition.

Figure 5

State Security by Positive Affect and Permanence Condition
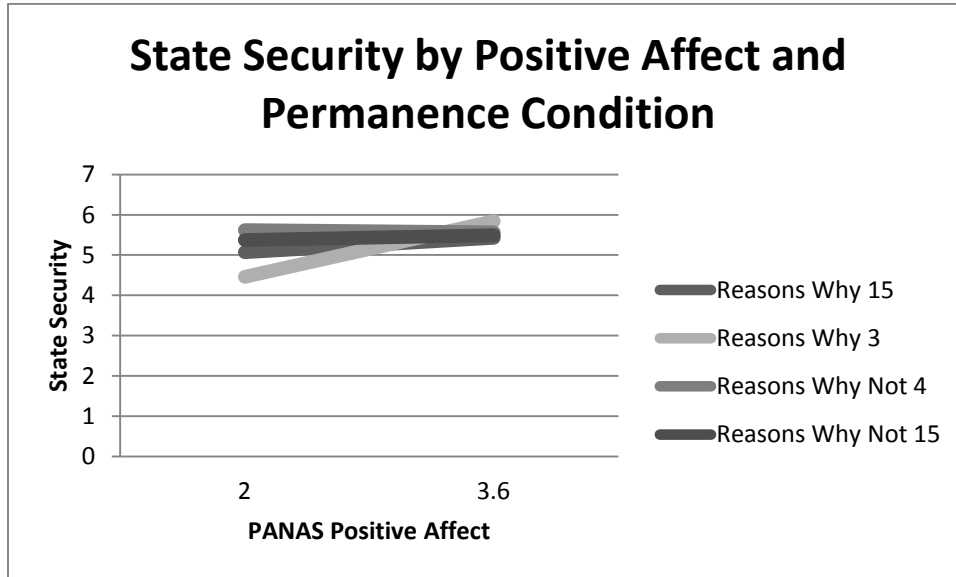
Interaction between positive affect and perception of permanence condition (p=.001). When positive affect was low, reasonswhynot4 predicted higher security than reasonswhy3.

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