Missing a Loved One and The Role of Need Fulfillment

Anna Eyerer

Haverford College

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In collaboration with Bill MacPhee, Charlotte Mezoff, and Jaclyn Porter

Thesis Advisor: Ben Le
Abstract

The current study explored the role of need fulfillment in the experience of missing a romantic partner. The sample consisted of 163 participants from ages 17 to 24 in long-distance romantic relationships and currently geographically separated from their partners. Participants took an online survey where they rated their need fulfillment, expectations of need fulfillment, need importance, and social network need fulfillment of 22 needs. The survey also measured participants’ amount of missing, relationship commitment, and attachment dimensions. The results found a positive relationship between need fulfillment and missing and a moderating effect of anxious and avoidant attachment dimensions on this relationship. Additionally, commitment correlated positively with missing which replicates past research. Based on the current findings and considering Interdependence Theory, it was concluded that need fulfillment serves as a predictor of missing because need fulfillment produces dependence on a romantic partner and subsequent commitment.
Missing a Loved One and The Role of Need Fulfillment

Throughout history, there have always been tales of people pining away for their lovers. Although some people cannot personally relate to these stories of extreme longing, the experience of missing a loved one may be very common. Whether partners are separated for months or days, they will encounter the unique phenomenon of missing their partner.

Members of long-distance romantic relationships (LDRRs) are especially familiar with the aspects of missing a partner because LDRRs are characterized by the frequent physical and geographic separation of both partners. Whether by choice or due to external forces (e.g. military duty, incarceration), members of an LDRR do not live geographically close to one another or spend the majority of their time separated by a large distance such that they are typically unable to see one another whenever desired.

As a consequence of geographic separation, LDRRs are limited with regards to the types of interactions that can occur between partners. Partners typically can communicate using a variety of mediums (i.e. phone, e-mail), but no face-to-face interaction can occur during separation. The lack of face-to-face interaction is significant because many relationship behaviors require the proximity of one's partner (e.g. doing activities together). In fact, Duck and Pittman (1994) believe that face-to-face interactions are responsible for maintaining both romantic and non-romantic bonds (as cited in Stafford & Merolla, 2007). Thus, some characteristics of LDRRs differ from proximal romantic relationships (PRRs) due to the inability of partners in LDRRs to engage in relationship behaviors requiring time together.

Although LDRRs are limited in their types of relational interactions, they are especially prevalent in the college population and according to the 1991 U. S. Census, 1.3 million college students are in an LDRR at any given time (as cited in Guldner, 1996). At some point of their
college career, Guldner reports that between 60% and 80% of college students will be involved in an LDRR.

Despite their prevalence, LDRRs are often portrayed by the media as likely to fail. The research, however, indicates otherwise. According to studies by Stephen (1984, 1986) and Stafford and Reske (1990), LDRRs have rates of dissolution similar to those in PRRs (as cited in Guldner & Swensen, 1995). Furthermore, Guldner and Swensen conducted a study that found no significant difference in levels of relationship satisfaction, intimacy, trust, and commitment between individuals in LDRRs and those in PRRs.

Yet LDRRs continue to be negatively portrayed in the media because their defining characteristic, the interruption of physical proximity between romantic partners, induces distress (Bowlby, 1969). From an evolutionary perspective, people are motivated to develop social bonds with others because social bonds increase one’s survival and reproductive chances (Baumeister & Leary, 1995). Bowlby describes physical proximity as the crucial element needed for humans to form these affectional bonds. Additionally, Mann (1980) noted that people across all cultures engage in face-to-face interactions (as cited in Baumeister & Leary). Romantic relationships, an important type of affectional bond, are often central to a person's identity and considered to be "an essential component of that which is important and meaningful in life" (Agnew, Van Lange, Rusbult, & Langston, 1998, p. 951). Thus, Bridges (1980) logically found that individuals tend to cry and display distress over an approaching geographic separation because it often signals the end of a relationship due to the lack of normal face-to-face interactions (as cited in Baumeister & Leary). People are reluctant to end relationships and will “experience considerable distress over [a relationship’s] dissolution” (Baumeister & Leary, p. 503). Therefore, the disruption of this necessary physical proximity, as in relationships requiring
geographic separation, naturally arouses anxiety and in extreme cases, induces mental illness (Bowlby).

More relevantly, the separation of romantic partners produces the experience of missing, which is noticeably absent in the psychology literature. Le and colleagues (2008), however, recently published a prototype analysis of missing and its features. Defined by Le et al., missing is "the individual experience resulting from physical separation between partners, such that one's partner is not immediately physically available when proximity is desired" (p. 511). Based on this definition, it is clear that whether a romantic partner has left for the grocery store or for a lengthy business venture, the experience of missing presents itself in a wide array of forms. In their study, Le and colleagues compiled a list of features associated with the experience of missing and found affective (e.g. "feeling sad", "feeling sexual desire"), behavioral (e.g. "corresponding with partner", "look at things that remind [one] of partner"), and cognitive (e.g. "reminiscing", "wanting to be with partner") features.

Other types of consequences arise as a result of missing a partner. Le, Korn, Crockett, and Loving (under review) examined the role of commitment to one's partner and one’s relationship and found that relational commitment during geographic separation predicts the presence of infidelity such that less committed individuals are more likely to commit infidelity. The experience of missing plays an important mediation role regarding this association because it significantly predicts both relational commitment and subsequent fidelity. Therefore, individuals who miss their romantic partners more will experience greater commitment and be less likely to commit infidelity (Le et al., under review).
Interdependence Theory

The relationship among commitment, relationship maintenance, and missing has important theoretical implications. Interdependence Theory, proposed by Thibaut and Kelley (1959), highlights the importance of commitment in close relationships such that both partners are interdependent and rely on one another (as cited in Rusbult, Arriaga, & Agnew, 2001). Interdependence Theory bases its perspective on the everyday interactions between people (and between partners from the romantic perspective) "as the essence of all close relationships" (Rusbult, Drigotas, Verette, 1994, p. 116). These everyday interactions within close relationships produce outcomes, varying in valence, that determine relationship satisfaction (Rusbult et al.). Additionally, these relationship interactions and outcomes play an important role in romantic relationship satisfaction because their maintenance and evolution occurs through behaviors that are based on relationship-related goals known as "preferred outcomes in a relationship" (Le & Agnew, 2001, p. 425).

Furthermore, relationship outcomes impact relationship needs, which are motivational drives whose evolution and specific types stem from a large body of research and will be discussed in greater detail in the Model of Needs section. Relationship outcomes have the capacity to fulfill relational needs, which in turn determines dependence on a close relationship if they are not available elsewhere. In other words, "the fulfillment of needs is functionally equivalent to receiving desired relationship outcomes from one's partner" (Le & Agnew, 2001, p. 425). People engage in relationship behaviors (e.g. talking to a partner) in order to pursue the fulfillment of their needs, which will increase dependence on one's partner and subsequent longevity of the relationship. Thus, in conclusion, greater need fulfillment by a partner produces greater dependence in the other partner.
Indeed, people depend on their close relationships to satisfy a wide array of needs (for a complete list of needs, see Appendix A). While people rely on different types of relationships to fulfill certain needs, romantic relationships are particularly important because people depend on their partners to fulfill a variety of needs including needs that are typically only met by romantic partners. Thus, a romantic relationship is a step above other close relationships because it has the ability to fulfill additional needs (e.g. sexual needs). This unique capability creates an amount of reliance on a romantic partner that is not mirrored in other types of relationships because individuals become more dependent on a partner when they perceive that relationship outcomes obtained from the partner cannot be fulfilled by alternative sources (Le et al., 2008).

In regards to Interdependence Theory, the relationship between dependence and need fulfillment has important implications for relationship commitment because commitment relies on dependence, lack of alternatives, and satisfaction levels such that it “increases to the extent that people are dependent on their partners [and] to the degree that satisfaction levels are high” (Rusbult et al., 2001, p. 375). More specifically, individuals display relationship satisfaction through their commitment to their relationship. Additionally, commitment serves as an indicator of the relationship’s stability because it reflects an individual’s psychological attachment to one’s partner, long-term orientation to the relationship, and an intention to maintain the relationship (Rusbult et al.). In support of Interdependence Theory, Gaine and La Guardia (2009) found that high motivation to maintain a relationship and engage in relational activities predicts increased relationship health. Therefore, need fulfillment in a romantic relationship is responsible for producing relationship satisfaction and generating dependence on one’s partner, which then increases one’s commitment to maintain the relationship and the relationship’s stability.
If need fulfillment is decreased or provided by an alternative source, one’s dependence on a relationship will also decrease and affect the relationship’s stability. Infidelity is a negative relationship outcome that can occur in response to a lack of need fulfillment by one’s partner. The problem with infidelity stems from the "fundamental assumption....that both individuals are emotionally and sexually committed to each other solely" (Treas & Giesen, 2000; as cited in Lewandowski & Ackerman, 2006, p. 390). A partner's transgression from this central belief often leads to personal distress, relationship difficulties, and in many cases, break-up (Lewandowski & Ackerman). Despite the often negative consequences of infidelity, some people continue to engage in relations outside of their central romantic relationship because they are not experiencing their desired outcomes in the relationship. As previously mentioned, the fulfillment of needs is equivalent to receiving relationship outcomes from a partner. Therefore, the findings of Lewandowski and Ackerman indicate that people are more susceptible to commit infidelity when their romantic partners are not fulfilling their needs. Indeed, in Le et al. (under review), infidelity is defined as "seek[ing] need fulfillment from alternative partners" (p. 9). Thus, need fulfillment has important implications regarding both the satisfaction and the stability of romantic relationships.

As discussed earlier, individuals in LDRRs have a decreased capability to engage in relationship behaviors and spend time together, which hinders the fulfillment of needs requiring physical proximity. Le and Agnew (2001) and Van Horn and colleagues (1997) both observed that participants in LDRRs had significantly decreased need fulfillment by a romantic partner in comparison to participants who were not geographically separated. However, LDRRs in some studies do report high relationship satisfaction, which is in direct contrast to the extensive literature documenting need fulfillment as a predictor of relationship satisfaction (Prager &
Buhrmester, 1998; Shalstein, 2004; Stafford & Merolla, 2007, Wieselquist et al., 1999). In fact, Stafford and Merolla (2007) reported higher levels of love in LDRRs in comparison to proximal romantic relationships (PRRs).

Thus, there still remains the question of why decreased need fulfillment is not associated with decreased relationship satisfaction in LDRRs. A plausible explanation is that there is an unexamined element common only to LDRRs that accounts for decreased need fulfillment and increased relationship satisfaction. Stafford and Merolla (2007) explored the role of romantic idealization as a possible answer. Fowers, Montel, and Olson (1996) describe romantic idealization as the “tendency to describe the relationship [and one’s partner] in unrealistically positive terms” (as cited in Stafford & Merolla, p. 39). Components of romantic idealization include positive illusions, positive sentiments, romantic love, and reminiscent thoughts (Stafford & Merolla). Stafford and Merolla’s findings concluded that romantic idealization in LDRRs does occur as a result of infrequent face-to-face interactions. Thus, romantic idealization promotes relationship satisfaction when partners are unable to fulfill one another’s needs due to geographic separation.

By extension, the experience of missing also fits this description because the components of romantic idealization are also features of Le and colleagues’ (2008) prototype (e.g. “feeling love” and “reminiscing”). Stemming from Interdependence Theory, Le and colleagues (under review) suggest that the experience of missing may occur as a desire to restore interdependence. Bearing this implication in mind and the centrality of needs in Interdependence Theory, the experience of missing, or the necessity to reestablish interdependence, likely results from the unfulfillment of relationship needs.
People miss their partners when they are geographically separated, an integral characteristic of LDRRs, and they cannot experience normal need fulfillment during separation. Le and colleagues (2008) found that the experience of missing a partner leads to affective, cognitive, and behavioral actions. These actions or features of missing are the physical manifestation of relationship maintenance behaviors because "it is possible that the experience of missing a partner promotes relationship maintenance during periods of geographic separation" (Le et al., 2008, p. 526). The successful completion of these relationship maintenance behaviors leads to relationship satisfaction and desired relational outcome despite reduced need fulfillment. In other words, separation, a painful process "to regain the presence of [an] attachment figure", results in the experience of missing, which then motivates a person to utilize relationship maintenance processes (Weiss, 1998, p. 675). Therefore, it can be hypothesized that a lack of need fulfillment, caused by geographic separation, increases feelings of missing a partner and the resulting features of missing a partner, which are responsible for maintaining a relationship’s stability (Le et al.).

Model of Needs

Early Theories of Needs. People have needs that must be satisfied for optimal physical and psychological health (Deci & Ryan, 2000). From purely personal needs to relationship needs, people have thoughts and perform actions throughout life in an effort to fulfill their needs. The idea of relationship needs draws from the firm and heavily researched ground of human needs and fulfillment. There are three founding needs theories: Hull's drive theory (1943), Murray's psychological need theory (1938), and Maslow's hierarchy of needs (1943).

Hull's drive theory (1943) focuses on innate physiological needs (e.g. food, water, sex) that produce drive states, which lead to actions aiming to maintain an organism's health (as cited...
in Deci & Ryan, 2000). Other than promoting health and causing reproduction, sex is an important physiological need within romantic relationships.

Murray, however, emphasized psychological needs that are acquired throughout life and “move one to action” (as cited in Deci & Ryan, p. 228). Murray’s theory, thanks to its general need definition, encompasses an extensive list of needs that promote both beneficial and less adaptive psychological development (Deci & Ryan). In regards to relationship needs, Murray’s general class of affection needs includes three relevant needs. Affiliation is the need to be with and cooperate with others who return one’s feelings of trust, love, and affection (Murray, 2008). Nurturance and succorance operate on opposing sides such that nurturance is the need to protect and assist others with compassion whereas succorance represents the need to be supported, loved, and protected particularly during moments of insecurity or anxiety (Murray).

Maslow's (1943) hierarchy of needs serves as an intermediate theory between Hull and Murray because it combines both physiological and psychological needs. He describes a hierarchy of five basic needs that requires fulfillment of the preceding level of needs before progression to the upper tiers. The hierarchy begins with physical health as the physiological piece. The second tier consists of security needs such that an individual feels stable and secure, which results in a preference for the known and familiar when faced with an option. Love and belongingness are the third level of needs that are displayed through a craving for "affectionate relations with people in general" (Maslow, p. 381). Self-esteem, the desire for a stable, confident, and appreciated self-view, represents the fourth tier of needs. The final level, self-actualization, is the need to do what one is capable of doing and realize one's abilities (e.g. paint if one has artistic ability).

*Self-Determination Theory.* While each previous theory explores different domains of
human needs, they all, in their own ways, have served as the foundation for Self-Determination Theory (SDT), a central perspective over the past few decades, because SDT targets goal pursuits as consequences of innate psychological needs that are defined as “essential for ongoing psychological growth, integrity, and well-being” (Deci & Ryan, 2000, p. 229). More specifically, SDT stems from the idea that people execute behaviors with a goal in mind whether the goal is to ease one’s hunger or become the next president. Going beyond goal-specific behaviors, SDT theorizes that there are three primary needs that “give goals their psychological potency and…influence…regulatory processes direct[ing] people’s goal pursuits” (Deci & Ryan, p. 228).

Self-Determination Theory has identified three needs that must be satisfied for optimal psychological health: autonomy, competence, and relatedness (Deci & Ryan, 2000). Deci and Ryan defined autonomy as the desire to feel that one’s actions and goals are “self-chosen and self-endorsed” (as cited in Sheldon, Elliot, Kim, and Kasser, 2001, p. 326). Autonomy was originally outlined as one of Murray’s needs where individuals desire to be independent and free from influence (Murray, 2008). Furthermore, autonomy is related to Maslow’s self-esteem need such that “with a more secure sense of self, people [are] expected to…behave more autonomously” (Deci & Ryan, 1995, p. 40). Competence is the need to feel effective and obtain mastery over one’s actions and goals (Deci & Ryan, as cited in Sheldon et al.) Fulfillment of one’s competence need results in the feeling that one has an effect on the environment and can achieve desired outcomes (Deci & Ryan). Finally, relatedness, the need most applicable to close relationships, is the desire to belong and feel connected to others because “people need frequent personal contacts or interactions” with others (Baumeister & Leary, 1995, p. 500). Furthermore, relatedness is essential during childhood because its fulfillment or lack thereof determines an individual’s attachment style (Deci & Ryan). All three of these needs have been extensively
examined and considered to be universally essential for optimal function across all cultures (Deci & Ryan, 2008b).

A study examining the different theorized needs simultaneously further supports the reliability of the SDT needs (Sheldon et al., 2001). Sheldon and colleagues explored which needs from Maslow's hierarchy of needs and SDT are the best predictors of a satisfying event. Autonomy, competence, relatedness, and self-esteem emerged as the strongest predictors (Sheldon et al.) The remaining needs from Maslow’s hierarchy were also significant predictors of satisfaction; however, they were consistently rated more weakly than autonomy, competence, relatedness, and self-esteem (Sheldon et al.). Based on these results, the needs of SDT alongside Maslow’s need for self-esteem may very well be the most crucial needs for producing event satisfaction (Sheldon et al.).

While SDT was developed as a general theory of psychological human needs, it has been applied to a wide array of human domains including close relationships, which are the social relationships between friends, close family members, and romantic partners. The SDT perspective regarding close relationships focuses on how need fulfillment of autonomy, competence, and relatedness impacts relationship functioning (La Guardia & Patrick, 2008). A higher level of relationship satisfaction increases an individual’s willingness to express emotions and to rely on his or her partner, which allows both partners to become interdependent (La Guardia & Patrick). Additionally, need fulfillment by one’s partner encourages an individual to develop relationship behaviors that promote the continuation of his or her need fulfillment (i.e. fulfill one’s partner’s needs so that he or she may reciprocate) (La Guardia & Patrick). Patrick, Knee, Cannevello, and Lonsbary (2007) performed a study applying specifically to the SDT needs and close relationships. Although each need constitutes different desires, Patrick and colleagues
found that greater need fulfillment of all three needs was associated with greater relationship satisfaction and commitment. Furthermore, participants reported greater understanding during conflicts when they experienced higher need fulfillment within their relationships (Patrick et al.). These results highlight the importance of autonomy, competence, and relatedness fulfillment in a close relationship.

Within a close relationship, partners receive and give autonomy support as they attempt to understand and perceive their partner's interests, preferences, and perspectives (La Guardia & Patrick, 2008). People fulfill their partners’ autonomy needs when they respond positively to their partners’ ideas and encourage their partners’ independence (La Guardia & Patrick). Whereas the need for autonomy seems to contradict the importance of interdependence in a relationship, Murray and colleagues (2009) make up for this discrepancy by positing that autonomy results in sacrifices by both partners, which in turn causes people to attach higher value to their partners. Indeed, Deci and Ryan (2008a) note that receiving autonomy support from a partner predicts greater psychological well-being. Moreover, increased autonomy results in greater relationship satisfaction, commitment, and openness (La Guardia & Patrick).

People fulfill competence needs in a close relationship through one's ability to "provide clear, consistent, and reasonable expectations and structure" (La Guardia & Patrick, 2008, p. 202). Furthermore, the fulfillment of one’s competence needs results from having a supportive partner who helps the individual gather resources and “[provides] the necessary foundation from which the person may face challenges optimally” (La Guardia & Patrick, p. 203). Within a close relationship, competence is fulfilled when both partners mutually support one another by helping each other achieve goals, develop interests, and carry out everyday tasks (La Guardia & Patrick).
Additionally, competence includes the need for emotion regulation such that each partner helps the other “navigate emotional highs and lows” (La Guardia & Patrick, p. 206).

On the other hand, partners fulfill the need for relatedness by actively caring for their partner (La Guardia & Patrick). Partners display an interest in their significant others and convey that he or she is important to the partner (La Guardia & Patrick). Relatedness reflects the need to have non-contingent affection and respect from one’s partner, which creates a positive and loving environment within the relationship (La Guardia & Patrick). The fulfillment of relatedness results in a perception of decreased conflicts and discourages defensiveness in romantic partners because both individuals feel connected to one another (La Guardia & Patrick). People need to belong and close relationships provide the ideal setting for creating feelings of relatedness, a synonym for both belongingness and affiliation (Baumeister & Leary, 1995).

Deci, La Guardia, Moller, Scheiner, and Ryan (2009) clarified the interplay between these three needs with an example. While the example is specific to a close relationship between friends, it can readily be applied to close romantic relationships.

If Person A gave something meaningful to a friend (e.g. autonomy support), Person A would likely experience a sense of competence in having had the friend receive this offering, a sense of relatedness to the friend because relatedness involves caring for as well as feeling cared for by a friend, and a sense of autonomy because Person A would be freely and volitionally doing something that he or she valued (p. 315).

Considering the different elements that each need satisfies, it is logical that they have varying effects on close relationship satisfaction. Indeed, Gaine and La Guardia (2009) observed a significant association between the motivations to maintain a romantic relationship and need fulfillment with the relationship’s well-being and functioning moderating this association. Of the
three needs, Patrick and colleagues’ (2007) findings gave strong evidence that relatedness is "the strongest unique predictor of relationship functioning and well-being" (p. 441).

However, autonomy and competence cannot be disregarded considering that Sheldon and Niemiec (2006) as well as Milyavskaya and colleagues (2009) concluded that a balance of need fulfillment between the three needs is important for psychological health such that measures of well-being, happiness, and life satisfaction were positively correlated with measures of need fulfillment balance. Both studies observed that people were more satisfied when their total need fulfillment was balanced between autonomy, competence, and relatedness in comparison to individuals who experienced the same amount of total need fulfillment unequally distributed between the three needs (Milyavskaya et al.; Sheldon & Niemiec). Milyavskaya and colleagues replicated their findings in a collectivistic culture, which supports the necessity of need fulfillment balance across cultures.

**Drigotas and Rusbult’s Five Relationship Needs.** Autonomy, competence, and relatedness are by no means the only researched needs in the field of close relationships. Indeed, Drigotas and Rusbult (1992) conducted a study and found five distinct needs that are fulfilled specifically in close romantic relationships. In their five needs, Drigotas and Rusbult include intimacy as the need to confide in, share thoughts and secrets with, and impart feelings to one's partner. Companionship is defined as the need to spend time with and engage in activities with one's partner while sexual needs encompass the full range of physical relations "from holding hands through intercourse" (Drigotas & Rusbult, p. 67). The fourth need outlined by Drigotas and Rusbult is security, where a person needs a stable relationship and can depend on the relationship to make life more secure. The final need, emotional involvement, describes the need to feel emotionally attached to one's partner such that both partner's moods and feelings affect
the other (Drigotas & Rusbult). Drigotas and Rusbult also examined the need of intellectual involvement, which is described as "sharing ideas and knowledge, discussing values and attitudes"; however, it is not included in their five relational needs.

The reliability of Drigotas and Rusbult's relationship needs has been repeatedly supported by the literature (Drigotas & Rusbult, 1992; Le & Agnew, 2001; Marelich & Lundquist, 2008; Prager & Buhrmester, 1998; Sheldon et al., 2001). As a primary finding, Drigotas and Rusbult observed a significant negative relationship between need fulfillment and relationship breakups where commitment acted as a moderator. Thus, since commitment predicts one’s motivation to maintain a romantic relationship and ensuing relationship stability, it appears that their five needs have important consequences for close romantic relationship satisfaction (Drigotas & Rusbult, 1992).

*The Need Fulfillment Inventory.* Prager and Buhrmester (1998) conducted a study to create a measure of need fulfillment by performing a cluster analysis on 126 needs identified in the research of several needs theorists including Murray and Maslow. The results of their cluster analysis produced the Need Fulfillment Inventory (NFI), which includes 20 general needs that are each further assessed by five items (Prager & Buhrmester). In the study, the NFI displayed convergent and discriminative validity where need fulfillment of the 20 needs was significantly correlated to a measure of well-being (Prager & Buhrmester).

Although Prager and Buhrmester did not specifically examine the entirety of their needs from the NFI in the context of romantic relationships, other researchers have examined the majority of the NFI needs within romantic relationships. Indeed, several of the NFI needs have been previously discussed.
Murray’s influence is apparent in the three needs of receiving support, providing nurturance, and love or affection (Prager & Buhrmester, 1998). According to the NFI, the need to receive support manifests itself through the desire for a “shoulder to cry on”, emotional support, advice, and guidance during difficult times, which resembles Murray’s (2008) need of succorance (Prager & Buhrmester, Table 1). The need to receive support is examined further by the work of Weiss (1974) who theorized that people need guidance or advice because they are unable to operate completely independently (as cited in Furman & Buhrmester, 1992). Additionally, according to Bell and Gonzalez (1988), people also need dependable others who can provide assistance or guidance.

Prager and Buhrmester’s need to provide nurturance is described as the need to be depended upon and “provide help and assistance” to others and is synonymous with Murray’s need of nurturance (Table 1). Weiss (1974) also outlined nurturance as the need to feel "responsible for the well-being of another” and provide help to solve partner’s problems (as cited in Bell & Gonzalez, 1988, p. 2).

Finally, affection and love are described as the need to feel cared about, be loved and “receive affection…tenderness and warmth” (Prager & Buhrmester, 1998, Table 1). Although Murray (2008) does not explicitly categorize affection and love as a need, he does label affection as a general class of needs and notes that individuals desire relations with people who express feelings of love and affection for them. Weiss (1974), on the other hand, has described affection, the expression of love by and for one’s partner, as a need that is fulfilled by social relationships (Carbery & Buhrmester, 1998). Furthermore, Maslow’s third tier of needs, love and belongingness, is clearly linked to Prager and Buhrmester’s need of affection and love.
Apart from his love and belongingness needs, Maslow’s (1943) needs of self-esteem and self-actualization are also included in the NFI (Prager & Buhrmester, 1998). The ability of one’s partner to affect one’s self-esteem is more readily understood than the ability of one’s partner help one self-actualize because the exchange between partners can influence an individual’s perception of his or her image. However, the need for self-actualization can be related to self-expansion, which is the need to “expand the self in the sense that [one] [seeks] to enhance [one’s] potential efficacy by increasing the physical and social resources, perspectives, and identities that facilitate achievement of any goal that might arise” (Aron, Aron, & Norman, 2004, p. 99). Self-expansion also includes the need to pursue affectional bonds because the development of a relationship expands oneself to include others (Aron et al.). The inclusion of a romantic partner allows an individual to incorporate “the resources, perspectives, and characteristics of the other in the self”, which creates a motivation to maintain the relationship (Aron, Aron, Tudor, & Nelson, 1991, p.243). Based on Lewandowski and Aron’s (2002) self-expansion scale, people experience self-expansion need fulfillment when their partner is a source of new and exciting experiences that expand their own capabilities and abilities to accomplish goals. Thus, in relation to self-expansion, self-actualization can be described as the need to have one’s partner help the individual fulfill his or her potential and create a richer life (Prager & Buhrmester).

For some people, the motivation to create a richer life can influence an individual’s need for a “sense of purpose and meaning in life” (Prager & Buhrmester, Table 1). A connection to religious traditions also impacts the need for meaning and purpose (Prager & Buhrmester). The striving for creating an identity is another need from Prager and Buhrmester’s NFI that can fulfill one’s need for meaning and purpose. Identity is defined by the NFI as the need “to be a unique
individual with a place in the world” and to know where one is going in life (Prager & Buhrmester, Table 1).

Prager and Buhrmester (1998) include autonomy, one of the SDT needs, in their NFI, but its definition differs from La Guardia and Patrick’s (2008) description of autonomy fulfillment within a romantic relationship. According to the NFI, people’s autonomy needs are fulfilled when they experience independence and avoid any feeling of confinement or restraint (Prager & Buhrmester). Indeed, Feeney (1999) notes that people crave time apart from their partners despite the necessity of interdependence in romantic relationships. Moreover, while people in romantic relationships exhibit personal sacrifice of individual autonomy, a lack of distance will inevitably cause problems that can ruin a romantic relationship due to a total loss of individuality (Feeney). The need of distance in romantic relationship, with its tie to the need of autonomy, must be fulfilled yet requires a delicate balance between its counterparts, companionship and intimacy.

Companionship and intimacy, two of Drigotas and Rusbult’s (1992) relationship needs, are described in the NFI (Prager & Buhrmester, 1998). Companionship is the need for “people to spend free time with” while intimacy is the need to let one’s defenses down and express one’s true feelings such that they are listened to and really understood by one’s partner (Prager & Buhrmester, Table 1). Prager and Buhrmester were particularly interested in intimacy and conducted a study primarily looking at intimacy within romantic relationships by interviewing participants about interactions with their partners. Intimacy was determined by the amount and affect of interpersonal disclosure of emotions (Prager & Buhrmester). They observed that increased intimacy, regardless of its affect, results in more need fulfillment, which demonstrates the importance of intimacy as a relational need (Prager & Buhrmester). Furthermore, their
findings suggest that higher levels of self-disclosure result in greater amounts of need satisfaction despite any presence of negativity during the self-disclosure (Prager & Buhrmester). Prager and Buhrmester also incorporated other needs from the NFI and their results indicated that "men and women who [communicate] openly with their relationship partners and have frequent sexual and affectionate contact perceive that their needs for love and affection, companionship, [and] belonging...are...fulfilled" (Prager & Buhrmester, p. 463).

Sexual fulfillment, another need in the NFI from Drigotas and Rusbult, includes the desire for sensual contact and sexual gratification and excitement (Prager & Buhrmester, 1998). Although sexual fulfillment has a clear definition in the NFI, Marelich and Lundquist (2008) have examined other needs within the context of sexual needs by drawing from Murray’s (1938) extensive work on needs and identifying three specific dimensions of sexual needs: sex, affiliation, and dominance. In connection to Murray's needs, sex is the physical relations within a relationship, affiliation is the need to "enjoyably co-operate or reciprocate with an allied [other]" while dominance is the desire "to control one's human environment" (as cited in Marelich & Lundquist, p. 178). The results of Marelich and Lundquist concluded that sex, affiliation, and dominance are reliable and valid dimensions of the general sexual need. Additionally, they found that individuals varied in their desires for each need such that men had higher sex needs and women had higher affiliation needs (Marelich & Lundquist).

While Marelich and Lundquist used sex, affiliation, and dominance as elements of the larger sexual need, Yamaguchi (2003) examined these needs individually. In the more general setting of relationships, Yamaguchi examined the need for affiliation and dominance as well as achievement. Yamaguchi described affiliation as the need for interdependence and cooperation with others, which compares to the relatedness need from SDT. Dominance, on the other hand, is
the desire to influence and control others and circumstances such that close relationships themselves can fulfill the need for dominance (Yamaguchi). In the context of the NFI, dominance is labeled as power and authority where people “need to have an impact on others” and to have others see one’s point of view (Prager & Buhrmester, 1998, Table 1). Finally, achievement represents the need to pursue one's own goals and personal benefits regardless of others (Yamaguchi). Achievement is described as the need to do one’s best and “achieve goals that are difficult to reach” within the NFI (Prager & Buhrmester, Table 1). Yamaguchi observed that personal dispositions and attitudes were associated with the three needs depending on individual characteristics. Participants had a greater desire for affiliation needs if their personality traits included an interdependence orientation while those with higher dominance needs tended to pursue relationships that were personally advantageous (Yamaguchi). Yamaguchi also found that participants with higher achievement needs preferred relationships that did not yield any disadvantages because they may perceive these relationships as failing or representing lack of achievement.

In relation to the need for power and authority, the NFI outlines the need for structure and control such that people desire predictable daily patterns and “a sense of certainty” (Prager & Buhrmester, 1998, Table 1). Having control over one’s life can be particularly important for some people, but people still need to have fun and enjoyable times with their romantic partners such that one becomes “absorbed in pleasurable activities” (Prager & Buhrmester, Table 1).

The needs for recognition and status as well as approval and acceptance are two more relevant needs described in the NFI (Prager & Buhrmester, 1998). Recognition and status are fulfilled by the need for admiration from others, to have others see the individual as successful, and for others to believe in the individual (Prager & Buhrmester). The need for approval and
acceptance is similar to recognition and status because it also includes the desire to have others believe in oneself as well as the need for others to like the individual (Prager & Buhrmester). Indeed, according to Cramer’s (2003) description of the approval need, people want to be accepted unconditionally by their partners and will seek approval for their behaviors and opinions, which displays elements of both the approval and acceptance need and the recognition and status need.

The fulfillment of the need for approval comes not only from a partner, but also from a desire for social network approval where one's relationship is socially valued (Etcheverry & Agnew, 2004). Etcheverry and Agnew note that romantic relationships occur within the larger context of one's social network, which undoubtedly affects the relationship itself. Social networks can heavily influence the state of romantic relationships because they create imposed beliefs in oneself that one should or should not do certain actions and feel certain ways. Additionally, people may seek guidance from their social network and have a "tendency to yield to the perceived wishes or opinions of [a social network] with respect to one's relationship" (Etcheverry & Agnew, p. 411). In their study, Etcheverry and Agnew found social network influences significantly predict a person's commitment to his or her romantic relationship. Therefore, a socially valued relationship is important because if one's social network does not approve of his or her romantic relationship, then he or she is less likely to maintain the relationship (Etcheverry & Agnew). Whether the need for approval is fulfilled by one’s partner or one’s social network, it has significant implications regarding relationship stability.

Given its validity and extensive list of needs, Prager and Buhrmester’s NFI is incorporated into the current study’s list of needs excluding the needs of money, physical safety,
and health/shelter/food because these three need categories do not correspond with previous literature on relationship needs.

Summary

The experience of missing a partner results in a number of affective, cognitive, and behavioral features (Le et al., 2008). Members of long-distance romantic relationships are especially familiar with these features due to consistent geographic separation from their romantic partners. As a consequence of separation, individuals are unable to engage in normal relationship behaviors (e.g. spending time together), which decreases need fulfillment. While decreased need fulfillment typically results in decreased relationship satisfaction, people in LDRRs do not follow this pattern and tend to maintain their relationship satisfaction regardless of geographic separation. Therefore, the experience of missing may be responsible for the continued relationship satisfaction displayed in LDRRs because geographic separation causes a lack of need fulfillment and the experience of missing occurs in response. The features of missing, outlined by Le and colleagues, are responsible for maintaining the relationship and promoting relational satisfaction.

The preceding literature review reflects the goal of the current study to compile a comprehensive list of needs fulfilled in romantic relationships (for a complete list of the identified needs and supporting literature, see Appendix A). The unfulfillment of the reviewed needs will hypothetically cause individuals in LDRRs to miss their romantic partners.

Moderators

Although we hypothesize that need fulfillment and the experience of missing a romantic partner are associated, there are other factors that may moderate this association. The experience of missing can vary from person to person and this variation in personal experiences indicates
the presence of moderators that can alter the strength of the association between need fulfillment and missing one’s romantic partner.

Attachment style. Bowlby (1973) theorized that childhood relationships with one's primary caregivers has a lasting and strong effect on one's adult attachment style (as cited in La Guardia, Ryan, Couchman, & Deci, 2000). Depending on the type of attachment formed in childhood, individuals will develop patterns of "interpersonal behaviors and emotions" that affect the formation of relationships and persist throughout life (La Guardia et al., p. 367). Feeney and Collins (2001) illustrate attachment dimension as people’s “beliefs about whether the self is worthy of care and affection, and beliefs about whether other people are generally dependable and responsive” (p. 973). The secure attachment dimension is characterized by healthy relationships that are longer, more stable, and more satisfying (La Guardia et al.). Individuals in the anxious and avoidant dimensions, on the other hand, develop unhealthy relationships because they experienced the disruption of affectional bonds with their primary caregivers during childhood (Bowlby, 1969).

The anxious dimension is based on a negative self-view and a positive view of others, which leads to excessive dependence on others such that they desire extreme closeness with their partner (Park et al.). Park and colleagues note that anxious individuals will overwhelm "their partners with care and support even when it is unwanted in order to keep their partners close and committed to the relationship" (p. 91; Feeney & Collins, 2001).

Individuals in the avoidant dimension rely on themselves for need fulfillment because they believe others are not readily available to meet their needs due to a positive self-view and a negative view of others (Park et al., 2006). As a result, they tend to have lower interdependence and satisfaction in relationships (Simpson, 1990; as cited in Park et al.). Avoidant people seek
more independence and this desire is associated with decreased intimacy, an important relationship need (Fitzpatrick & Sollie, 1999a).

In general, the observations of Fitzpatrick and Sollie (1999a) indicate that the attachment dimensions influence relationship quality and stability. La Guardia and colleagues (2000) found increased need fulfillment in romantic relationships was associated with increased attachment security. In regards to unhealthy attachment dimensions, Wei, Shaffer, Young, and Zakalik (2005) discovered a negative association between need fulfillment and the anxious and avoidant attachment dimensions.

The main issue between need fulfillment and anxious and avoidant attachment styles is that "proximity-seeking is a central feature of the attachment style" and these two attachment styles seek extreme closeness and extreme distance respectively (Feeney, 1999, p. 573). These unhealthy desires affect the necessity of need fulfillment in romantic relationships. Slotter and Finkel (2009) induced participants to experience either high or low levels of attachment anxiety and then looked at the association between need fulfillment and one’s commitment to maintain his or her romantic relationship. They found that highly anxious individuals do not exhibit variation in commitment even if their needs are not being fulfilled while individuals with low anxiety tend to vary in commitment level based on the amount of need fulfillment experienced (Slotter & Finkel). Although anxious individuals may remain committed regardless of the level of need fulfillment, they still desire greater need fulfillment because they seek extreme closeness in a romantic relationship.

The findings of past studies leads to the interpretation that anxious attachment creates overdependence on a romantic relationship such that need fulfillment is especially important. Avoidant people, on the other hand, rely on themselves for need fulfillment and will
consequently be less dependent on need fulfillment by a romantic partner. Geographic separation from one's romantic partner, therefore, will increase missing in anxious individuals and will decrease missing in avoidant individuals.

*Social network.* Romantic relationships are not, by any means, the only type of relationships that can fulfill interpersonal needs. People engage in all manners of relationships from co-worker relationships to family relationships. Furthermore, each type of relationship is capable of fulfilling some of the needs outlined previously. For example, in a work environment, the cooperation between co-workers and the reliance on one another to complete work projects can fulfill the competence need. Best friends spend time together, which can fulfill the need for companionship.

Although romantic relationships have the ability to fulfill the greatest number of needs, other relationships can also impact an individual's overall need fulfillment levels. Excluding the needs that are fulfilled solely by romantic relationships, an individual’s social network can fulfill some needs such that even in the absence of a romantic partner, one will still experience need fulfillment but not to the same extent. Therefore, need fulfillment by one’s social network may interact with the relationship between need fulfillment and missing one’s partner by decreasing this correlation.

*Sex.* There has been little research regarding sex differences and need fulfillment and no research at all looking at sex differences in missing a romantic partner. Yet, there are some findings that may be expounded upon and used to develop possible implications for sex differences in need fulfillment and missing a romantic partner.

Based on the findings of Marelich and Lundquist (2008), men have a higher need for sexual needs than women while women have higher affiliation needs in comparison to men.
Indeed, according to Surra and Lonstreth (1990), women are socialized to desire greater affiliation or belongingness needs (as cited in Feeney, 1999). Other sex differences were observed by Millar and Millar (1988) and Prager (1986) such that women need greater amounts of intimacy than men (as cited in Fitzpatrick & Sollie, 1999a). Indeed, Deci et al. (2006) noted that women value relatedness while men prefer the need for autonomy. Additionally, Christensen and Heavey (1990) reported a higher desire for closeness, a synonym for intimacy, in women than men (as cited in Feeney).

In general, women, in comparison to men, are more committed to and invested in their romantic relationships (Fitzpatrick & Sollie, 1999b). Baber and Allen (1992) as well as Morrow, Clark, and Bock (1995) have documented the tendency for women to exhibit greater responsibility for a relationship and act as caregivers more than men (as cited in Fitzpatrick & Sollie, 1999b). An interpretation of this finding leads to the conclusion that women may require more fulfillment of the needs directly related to promoting relatedness (e.g. intimacy).

**Hypotheses**

The aim of the current study is to explore the previously unexamined the role of need fulfillment in the experience of missing and expound upon the small and new body of research looking at the experience of missing. Furthermore, the current study will be conducted within the context of long-distance romantic relationships because members of an LDRR may be consistently in a state of missing their romantic partners. The following hypotheses are put forward (see Figure 1):

H1: The experience of missing a partner will negatively correlate with need fulfillment.

H2: Expectations that a partner will fulfill certain needs will moderate the association between need fulfillment and missing a partner such that the unfulfillment of a need
expected to be fulfilled by one’s partner will have a greater influence on this association compared to needs unexpected to be fulfilled.

H3: The importance that participants assign to each need will moderate the association between need fulfillment and missing partner such that the unfulfillment of highly important needs will have a stronger influence on this association in comparison to less valued needs.

H4: Attachment style will interact with need fulfillment and the experience of missing a partner.

H4a: Individuals in the anxious attachment dimension will have a stronger association between need fulfillment and missing a partner.

H4b: Individuals in the avoidant attachment dimension will have a weaker association between need fulfillment and missing a partner.

In addition to the four hypotheses, the current study will examine two research questions:

RQ1: Will the need fulfillment by one’s social network interact with the association between need fulfillment and missing a partner?

RQ2: Will sex interact with need fulfillment for some needs in predicting missing a partner?

Methods

Participants

Participants were required to be in a long-distance romantic relationship and in a period of geographic separation from their romantic partner to ensure that participants were currently missing or at least able to experience missing their romantic partner. If participants did not meet these criteria, they were excluded from the study.
The participants consisted of 163 people, 49 males (30.1%) and 114 females (69.9%), between ages 17 and 24 with an average age of 20.15 years ($SD = 1.56$). The majority, 126 participants, were Caucasian (77%). There were 140 students (85.9%) and 23 non-students (14.1%) in the sample and 101 of their partners were students (62.3%) while 61 partners were non-students (37.7%). Only one of the participants was in the military (0.6%) while 14 partners were in the military (8.6%).

One participant was married to their partner (0.6%), four participants were engaged to their partners (2.5%), 36 were about to live with their partner or become engaged (22.1%), 116 only dated their partner (71.2%) and four participants occasionally dated others but mostly dated their partner (2.5%). The average length of relationship was 22.92 months ($SD = 17.45$) with a range between .50 and 74 months. The average length that the relationship had been long-distance was 14.95 months ($SD = 14.54$) with a range from .50 to 60 months.

The participants were separated from their partners by an average of 1722.00 miles ($SD = 2534.61$) and ranging from eight to 16,066 miles. The majority of participants (87.2%) saw their partners several times a month (14.1%), monthly (26.4%), every few months (30.1%), and several times a year (16.6%). The distribution of participants was comparable across the possible causes of their long-distance status: 46 participants had moved (28.2%), 34 participants had partners who had moved away (20.9%), 39 participants and their partners had both moved (23.9%), and 43 participants always been geographically separated from their partners (26.5%). Education was the most frequent reason of current geographic separation (129 participants, 79.1%), but other participants noted job (non-military, 3.7%), military duty (6.1%), family obligations (5.5%), financial reasons (1.8%), citizenship issues (2.5%), a combination of school and family (0.6%), and having always been long-distance (0.6%) as other reasons for their
current geographic separation.

Design

The study had a correlational design where the amount of need fulfillment that each participant was experiencing in their romantic relationship was the predictor of the dependent variable, which was the amount that participants missed their romantic partners. Additional moderators were the expectations that a partner will fulfill a need, importance of each need, fulfillment of needs by one's social network, participant sex, and attachment style. The level of relationship satisfaction and commitment were taken into account.

Materials

Participants took an online survey created by the current researchers on the website surveymonkey (www.surveymonkey.com) that used both original and previously created measures. The first pages of the survey included a consent page and several demographics pages. The next portion of the survey asked participants to complete the Missing in Interpersonal Situations Scale (MISS; Le et al., 2008) that determined the amount they missed their romantic partners based on their responses to 20 items (α = .89; please see Appendix B for the MISS measure).

The main body of the survey asked participants to rate a series of questions regarding the items for each of the 22 needs identified in the literature review (for a complete list of the needs and their respective items, please see Appendix C; for an example of the need questions, please see Appendix D). The reliabilities of the needs and their respective items were assessed for each of the needs questions with the lowest reliability being α = .76 (for a complete list of the needs and their reliabilities, please see Appendix E). Participants rated on a scale from 1 (not fulfilled) to 9 (completely fulfilled) the amount of fulfillment for each need on a Likert scale. Additionally,
participants rated on a Likert scale the amount that they expected their romantic partner to fulfill a need (1 = do not expect, 9 = definitely expect) and their personal value of each need’s importance in romantic relationships in general (1 = not important, 9 = extremely important). Participants also indicated the extent that their social network, which is comprised of people with whom the participant has close relationships (i.e. friends, family members, and coworkers), fulfilled each need.

After completing the needs section, participants were asked to complete the short forms of the Anxiety Subscale (α = .71) and the Avoidance Subscale (α = .73) of the Experiences in Close Relationships (ECR), which measured the attachment dimension of the participant (Wei, Russell, Mallinckrodt, & Vogel, 2007; please see Appendix F for the attachment measure). Additionally, the participants completed the short form of the Investment Model measure in order to assess their relationship satisfaction (r = .60, p< .001), quality of alternatives (r = .72, p< .001), investment size (r = .62, p< .001), and commitment level (r = .78, p< .001; Rusbult, Martz, & Agnew, 1998; please see Appendix G for the Investment Model measure).

Procedure

The participants were recruited online using ads on Facebook™ as well as through Facebook™ messages and a student message board for Haverford College. Participants voluntarily took the survey over a two week period and were told that the survey’s purpose was to study long-distance relationships. As an incentive for their participation, participants were given the option to enter their e-mail addresses at the end of the survey to be entered in a lottery for multiple $50 cash prizes.
Results

Analytic strategy

Composite variables were created to represent the averages of need fulfillment, expectancy of need fulfillment, importance of a need, and social network need fulfillment for the 22 needs. Pearson’s correlations and independent samples t-tests were then calculated to assess the basic relationships between missing and the four hypotheses and two research questions: need fulfillment, expectancy of need fulfillment, importance of a need, attachment dimension, social network need fulfillment, and participant sex.

The hypotheses themselves were tested by calculating moderated multiple regressions to identify the relationship between need fulfillment and missing a romantic partner and any moderating effects of need fulfillment expectations, the importance of a need, fulfillment by one’s social network, anxious and avoidant attachment dimensions, and fulfillment by one’s social network. Before conducting the moderated multiple regressions, the variables under investigation were transformed into centered variable such that the mean of each variable was subtracted from every individual score (Aiken & West, 1991). Additionally, an interaction variable was created between need fulfillment and each of the moderating variables by multiplying the two centered variables. For any significant moderated multiple regressions, the correlation between need fulfillment and missing was recalculated separately for high scoring participants and low scoring participants in order to assess the direction of the significant relationship.

Additional Pearson’s correlations, independent samples t-tests, and moderated multiple regressions were conducted to examine further exploratory questions generated by the
researchers during analyses.

*Testing Hypothesis 1*

Regarding the primary hypothesis, a Pearson’s correlation was calculated to investigate the association between need fulfillment and missing and a significantly positive relationship was found, which did not support the hypothesis ($r = .36, p < .001$).

Following this correlational analysis, two linear regressions were conducted to determine the effect of commitment to one’s relationship within the relationship of need fulfillment and missing. The linear regressions were calculated to determine whether controlling for the effect of commitment would change the positive association between missing and need fulfillment. The results indicated that the influence of need fulfillment in predicting missing decreases when commitment is taken into account ($R^2 = .47, F(2, 160) =, p < .001; \beta = .18, t(160) = 2.93, p = .004$) in comparison to the first regression ($\beta = .29, t(162) = 4.93, p < .001$); however, it does remain a significant predictor.

*Testing Hypothesis 2*

A moderated multiple regression was conducted to assess the interaction between participants’ expectancies that a need will be fulfilled and need fulfillment in predicting missing a romantic partner. The model included need fulfillment, expectancy of need fulfillment, and the interaction term between need fulfillment and expectancy as predictors of missing (see Table 1). Need fulfillment significantly predicted missing ($\beta = .188, p = .01$), however neither expectancy of need fulfillment ($\beta = .143, p = .08$) nor the interaction term were significant predictors of missing ($\beta = -.025, p = .41$).
Testing Hypothesis 3

A moderated multiple regression was conducted to assess the interaction between the importance of a need and need fulfillment in predicting missing a romantic partner. The model included need fulfillment, importance of a need, and the interaction term between need fulfillment and importance as predictors of missing (see Table 1). Need fulfillment ($\beta = .203, p = .002$) and the importance of a need ($\beta = .268, p = .005$) significantly predicted missing, however the interaction term was not a significant predictor of missing ($\beta = -.052, p = .37$).

Testing Hypothesis 4a

A moderated multiple regression was conducted to assess the interaction between the anxious dimension of attachment and need fulfillment in predicting missing a romantic partner. The model included need fulfillment, anxious attachment, and the interaction term between need fulfillment and anxious attachment as predictors of missing (see Table 1). Need fulfillment ($\beta = .278, p < .001$) and anxious attachment ($\beta = .156, p = .002$) each significantly predicted missing. Additionally, the interaction term was a significant predictor of missing ($\beta = -.114, p = .002$).

In order to find the direction of anxious attachment as a moderator, a correlation was calculated between missing and need fulfillment while filtering out the participants with a low anxiety attachment ($r = .20, p = .07$). A second correlation was then conducted between missing and need fulfillment while filtering out the participants with a high anxiety attachment ($r = .51, p < .001$).

Testing Hypothesis 4b
A moderated multiple regression was conducted to assess the interaction between the avoidant dimension of attachment and need fulfillment in predicting missing a romantic partner. The model included need fulfillment, avoidant attachment, and the interaction term between need fulfillment and avoidant attachment as predictors of missing (see Table 1). Need fulfillment significantly predicted missing ($\beta = .275, p < .001$), but the avoidant attachment did not ($\beta = -.021, p = .75$). The interaction term was a significant predictor of missing ($\beta = .116, p = .01$).

In order to find the direction of avoidant attachment as a moderator, a correlation was calculated between missing and need fulfillment while filtering out the participants with a low avoidant attachment ($r = .38, p < .001$). A second correlation was then conducted between missing and need fulfillment while filtering out the participants with a high avoidant attachment ($r = .31, p = .007$).

**Testing Research Question 1**

A moderated multiple regression was conducted to assess the interaction between need fulfillment by one’s partner and social network need fulfillment in predicting missing a romantic partner. The model included need fulfillment, social network need fulfillment, and the interaction term between need fulfillment and social network need fulfillment as predictors of missing (see Table 2). Need fulfillment significantly predicted missing ($\beta = .336, p < .001$), however neither social network need fulfillment ($\beta = -.037, p = .50$) nor the interaction term were significant predictors of missing ($\beta = .045, p = .14$).

**Testing Research Question 2**

A moderated multiple regression was conducted to assess the interaction between participant sex and need fulfillment in predicting missing a romantic partner. The model included
need fulfillment, participant sex, and the interaction term between need fulfillment and participant sex as predictors of missing (see Table 2). Need fulfillment did not significantly predict missing ($\beta = .298, p = .13$). Additionally, neither participant sex ($\beta = .292, p = .12$) nor the interaction term were significant predictors of missing ($\beta = -.017, p = .89$).

A moderated multiple regression was conducted to assess the interaction between participant sex and need fulfillment of sexual needs in predicting missing a romantic partner. The model included sexual need fulfillment, participant sex, and the interaction term between sexual need fulfillment and participant sex as predictors of missing (see Table 3). Need fulfillment of sexual needs did not significantly predict missing ($\beta = .179, p = .11$), but participant sex did ($\beta = .469, p = .01$). The interaction term was not a significant predictor of missing ($\beta = -.073, p = .25$).

A moderated multiple regression was conducted to assess the interaction between participant sex and need fulfillment of relatedness needs in predicting missing a romantic partner. The model included relatedness need fulfillment, participant sex, and the interaction term between relatedness need fulfillment and participant sex as predictors of missing (see Table 3). Need fulfillment of relatedness did not significantly predict missing ($\beta = .167, p = .28$) and nor did participant sex ($\beta = .361, p = .06$). The interaction term was not a significant predictor of missing ($\beta = -.032, p = .75$).

A moderated multiple regression was conducted to assess the interaction between participant sex and need fulfillment of intimacy needs in predicting missing a romantic partner. The model included intimacy need fulfillment, participant sex, and the interaction term between intimacy need fulfillment and participant sex as predictors of missing (see Table 3). Need
fulfillment of intimacy ($\beta = .324, p = .04$) and participant sex ($\beta = .384, p = .04$) significantly predicted missing, however the interaction term was not a significant predictor of missing ($\beta = -.151, p = .13$).

**Exploratory Analyses**

Additional Pearson’s correlations were conducted to examine the relationships between missing and the expectancy of need fulfillment, the importance of a need, the attachment dimensions, and social network fulfillment. Strong positives relationships were found for the relationships between missing and the expectancy of need fulfillment ($r = .34, p < .001$) as well as the importance of a need ($r = .35, p < .001$). In terms of attachment, the analyses showed a strong positive relationship between missing and the anxiety dimension ($r = .22, p = .005$) and a negative relationship approaching significance between missing and the avoidance dimension ($r = -.14, p = .07$). There was no significant relationship between missing and social network fulfillment ($r = .11, p = .166$).

Although they were not crucial to the hypotheses, the relationships between missing and commitment, the length of the relationship and the frequency of visits were calculated using Pearson’s correlations. A strong positive relationship between missing and commitment was found ($r = .54, p < .001$). The results showed a strong negative relationship between missing and length of the relationship ($r = -.26, p = .001$) and no significant correlation between missing and the frequency of visits ($r = .01, p = .904$).

An independent samples t-test was calculated to examine the relationship between participant sex and missing a romantic partner. The results indicated that women ($M = 7.62, SD$
Independent samples t-tests were also conducted to examine any differences between men and women regarding the fulfillment, expectancy, importance, and social network fulfillment of the 22 needs. Women scored significantly higher ($M = 6.76, SD = 1.20$; $M = 6.64, SD = 1.19$; $M = 7.34, SD = 0.94$; $M = 5.67, SD = 1.51$) than men ($M = 6.21, SD = 1.69$; $M = 6.11, SD = 1.51$; $M = 6.88, SD = 0.91$; $M = 5.12, SD = 1.74$) for need fulfillment ($t(161) = -2.36, p = .020, d = .49$), expectancy that a need will be fulfilled ($t(161) = -2.39, p = .018, d = .45$), importance of a need ($t(161) = -2.92, p = .004, d = .51$), and social network fulfillment ($t(161) = -2.06, p = .041, d = .36$).

Differences between men and women in the importance of sexual, relatedness, and intimacy needs were of particular interest to the current research. There was no significant difference ($t(161) = -2.32, p = .666, d = .08$) between men ($M = 7.29, SD = 1.57$) and women ($M = 7.42, SD = 1.88$) in the importance of sexual needs; however, the results revealed a significant difference for the importance of relatedness and intimacy needs ($t(158) = -3.30, p = .001, d = .70$; $t(159) = -4.14, p < .001, d = .85$). Women rated both relatedness ($M = 8.05, SD = 1.22$) and intimacy ($M = 8.50, SD = 0.88$) as more important than men ($M = 7.19, SD = 2.02$; $M = 7.75, SD = 1.35$).

Discussion

The results of the study did not support the hypotheses. The central relationship between need fulfillment and missing was hypothesized to be negative, but the results displayed a
significantly positive correlation. More specifically, greater need fulfillment was correlated with increased missing.

As previously discussed, people depend on their romantic partners to fulfill their needs and they experience greater dependence on their partners when their needs cannot be fulfilled by alternative sources (Le et al., 2008). Additionally, need fulfillment and dependence lead to greater commitment to one’s relationship (Rusbult et al., 2001). Considering need fulfillment’s central role in producing dependence on one’s partner and subsequent commitment, it can be considered equivalent to commitment to one’s romantic partner. Therefore, the results of the study can be reinterpreted such that increased commitment is correlated with an increase in missing. Indeed, the results included an analysis of this relationship and found a significantly positive relationship between commitment and missing. Furthermore, a linear regression of the relationship between need fulfillment and missing was conducted and determined that controlling for the effects of commitment decreases the variance accounted for by the model. In other words, commitment is sufficiently equivalent to need fulfillment such that it reduces the amount of variance accounted for by need fulfillment in predicting missing. However, it is important to note that there was still an effect of need fulfillment on missing after controlling for commitment. Considering the closely intertwined relationship between need fulfillment, commitment, and dependence, it can be concluded that this effect was the result of not controlling for dependence on one’s relationship. If relational dependence had been measured, it is likely that it would have further reduced the amount of variance accounted for by need fulfillment in predicting missing to zero. Thus, for the ensuing discussion, need fulfillment will be considered functionally equivalent to relational commitment, which additionally acts as a proxy for dependence on one’s relationship.
Considering that need fulfillment is equivalent to commitment, the positive correlation between need fulfillment and missing can be explained. Le and colleagues (under review) found that the experience of missing a romantic partner significantly predicts relational commitment such that a person who is more committed will miss his or her partner more. In conclusion, although the relationship between need fulfillment and missing was in the opposite direction, equating need fulfillment with commitment can explain the positive correlation because greater commitment is related to missing one’s partner more.

Expectancy that a need will be fulfilled was positively correlated with missing a romantic partner. While this finding does not directly support the main hypotheses, it does make sense in conjunction with the positive correlation between need fulfillment and missing a romantic partner. More specifically, expectations that a partner will fulfill a need may reflect either a pattern of past need fulfillment by one’s partner or the tendency to believe that one’s partner is capable of fulfilling one’s needs. As a result, if participants expect that their partner will fulfill their needs (whether or not this belief is based on evidence), then they may equate this expectation with actual fulfillment because they are anticipating it. Therefore, greater anticipation of need fulfillment leads to the assumption of more need fulfillment, which is related to greater missing of one’s partner.

However, expectancy of need fulfillment does not significantly moderate the relationship between need fulfillment and missing a romantic partner. The reason behind this non-significant finding may reflect the fact that expectations do not result in actual need fulfillment. While participants may anticipate need fulfillment, ultimately, their partners will or will not fulfill their needs. These findings illustrate that the experience of missing occurs regardless of one’s expectations because need fulfillment is dependent on one’s partner and it will either occur or
not occur in spite of one’s expectations. Thus, when expectations of need fulfillment are taken into account within the relationship between need fulfillment and missing, they become irrelevant because they ultimately have no influence on actual need fulfillment.

There was a significantly positive relationship between importance of a need and missing a romantic partner. One’s personal value of a need may stem from experiencing previous fulfillment of the need. In other words, people develop personal values for needs dependent on whether or not they are fulfilled. Thus, if a need is consistently fulfilled, then perhaps individuals attach more importance to that need. While the literature does not directly support this conclusion, the theory behind attitude formation does. Valuing a certain need represents a personal attitude about that need and it is known that attitudes are developed through experience. As a result, more experience with need fulfillment of a specific need will result in a stronger attitude toward that need. Therefore, greater importance will be attached to those needs that are more consistently fulfilled by a partner. The positive relationship between importance and missing is present because higher importance signifies more need fulfillment and a subsequent increase in missing.

Despite its correlation to missing, the importance of a need did not moderate the relationship between need fulfillment and missing. One possible explanation is that the value of needs does not matter in relation to need fulfillment because the quantity of need fulfillment is more influential in predicting missing. Indeed, the extensive literature on need fulfillment does not find discrepancies in need fulfillment as a function of personal importance. Rather, the research argues for the presence of universal needs that must each be equally fulfilled because a balance of need fulfillment is optimal (Deci & Ryan, 2008b; Milyavskaya et al., 2009; Sheldon & Niemiec, 2006).
Another explanation, offered by Wu, Chen, and Tsai (2009), notes that weighting items according to their importance may be irrelevant because item satisfaction, a concept similar to need fulfillment, already incorporates the importance of the item on the basis of its definition. According to Locke (1969, 1976), Wu (2007, 2008), and Wu and Yao (2006, 2007), item satisfaction or need fulfillment is determined by the interaction effect between the discrepancy of what the people want or expect and what they believe they are actually receiving as well as the personal importance of what is wanted (as cited in Wu et al., 2009). For example, a person will rate need fulfillment more highly when it occurs if he or she places higher importance on that need and has more expectations that it will be fulfilled. Therefore, need fulfillment, as a consequence of its definition, naturally incorporates both importance of the need and expectations of need fulfillment. Consequently, the multiple moderated regressions assessing the moderating effect of expectancy and importance were futile because need fulfillment had already included their effects.

The attachment dimensions displayed the most promising results (see Figure 2). The anxious dimension positively correlated with missing a partner while the avoidant dimension correlated negatively with missing. These results partially supported the hypotheses because it was hypothesized that anxious individuals would miss their partners more while avoidant individuals would miss their partners less.

However, the hypotheses were not fully supported because the results of the moderated multiple regressions indicated an opposite relationship. While the two attachment dimensions did each have a significant moderating effect on the relationship between need fulfillment and missing, the direction of these moderating effects are opposite to the hypotheses. More specifically, the relationship between need fulfillment and missing was stronger for individuals
low in anxiety and those high in avoidance. Therefore, greater need fulfillment increases the
amount of missing more for the participants low in anxiety and those high in avoidance in
comparison to the participants high in anxiety and those low in avoidance.

Slotter and Finkel’s (2009) findings can be used to explain the moderating effect of the
anxious attachment dimension and its direction. They note that individuals high in anxiety
remain committed even when their needs are not being met while those low in anxiety do vary in
commitment as a function of need fulfillment. As discussed previously, need fulfillment can
effectively be equated with relational commitment, which implies that highly anxious individuals
are experiencing the same amount of missing regardless of the amount of need fulfillment
because their commitment remains the same and significantly correlates with missing. Thus,
while they do miss their partners more in comparison to those low in anxiety, highly anxious
individuals may maintain a consistent level of missing that does not vary despite changes in need
fulfillment. Participants with low anxiety, on the other hand, do vary in their amount of missing
in relation to the amount of need fulfillment experienced. Therefore, logically, low anxious
attachment will be a stronger moderator because missing is more dependent on the level of need
fulfillment. In contrast, the highly anxious attachment dimension is a weaker moderator because
need fulfillment, regardless of its amount, will continue to produce the same amount of missing
one’s partner.

The direction of the moderating effect of avoidant attachment dimension can be
supported by the finding that highly avoidant individuals desire more independence and distance
from their partners (Fitzpatrick & Sollie, 1999a). Since highly avoidant individuals crave
distance from their partner, the geographic separation that occurs in LDRRs naturally fulfills
their needs for distance and independence. As a result, in comparison to those low in avoidance,
highly avoidant individuals will always experience some degree of need fulfillment as a consequence of the defining characteristic of LDRRs. Therefore, even if one’s partner does not fulfill any needs, individuals high in avoidance will still experience missing their partners because the geographic separation fulfills their desires for independence and distance. Individuals low in avoidance, in contrast, would not miss their partners because they would not experience any need fulfillment thanks to their partner. Thus, logically, the high avoidance attachment dimension moderates the relationship between need fulfillment and missing more strongly because it increases the likelihood that need fulfillment will occur.

There was no significant correlation between social network need fulfillment and missing a romantic partner, which, according to the research question, would be expected to be a negative relationship. The lack of a significant correlation indicates that social network fulfillment does not impact the experience of missing one’s partner. Furthermore, the results of the moderated multiple regression showed the social network fulfillment is not a significant moderator of the relationship between need fulfillment by one’s partner and missing, which is consistent with lack of correlation between social network fulfillment and missing. Based on these non-significant findings, it can be concluded that although social networks and romantic partners are both capable of fulfilling important needs, it does not appear that an individual has a limit of need fulfillment. In other words, individuals do not have a fixed amount of required needs that may be fulfilled by either the partner or the social networks and they can experience need fulfillment of the same needs by both their partner and social network. Thus, the important factor is how much need fulfillment is occurring through the partner and any need fulfillment by one’s social network is unrelated to one’s romantic relationship and experience of missing.
In terms of participant sex, the correlations indicated that women miss their partners significantly more than men and women display greater need fulfillment, increased expectancy that a need would be fulfilled, greater importance of needs, and more social network fulfillment. These results were not anticipated by the hypotheses, but it is interesting to note that women tend consistently use the higher end of the scales. The literature supports this tendency because it has been shown that women are socialized to value needs related to socializing and relationships (e.g. intimacy; Feeney, 1999; Fitzpatrick & Sollie, 1999a). Thus, women may be biased in rating those needs specific to relationships as a consequence of their socialization and this would cause the sex difference seen in the correlations.

Participant sex was not a significant moderator on the relationship between need fulfillment and missing. Considering that women endorsed the higher end the scales such that they consistently rated each need as significantly higher in need fulfillment, expectancy, importance, and social network fulfillment, it makes sense that there would be no moderating effect by participant sex because of this ceiling effect. More specifically, based on the correlations, men experience less need fulfillment and miss their partners less in comparison to women. As a consequence, sex is not a significant moderator because both sexes experience the relationship between need fulfillment and missing at a consistent comparable level. In other words, women rate their need fulfillment, expectancy, importance, and social network fulfillment at a consistent interval above men’s ratings, which causes little variability and a subsequent lack of a moderating effect.

Differences between participant sex were further explored in the importance of sexual, relatedness, and intimacy needs. Although there was no difference between women and men in the importance of sexual needs, this finding is important as a result of its non-significance.
Typically, women rate needs as more important than men; however, in this case, there is no sex difference. Consequently, it can be assumed that men value sexual needs more than other needs because their importance ratings are high enough to be comparable to the ratings of women such that the consistent difference between women and men’s ratings is not present. Therefore, it seems that men as a group may rank sexual needs higher than others because it was the only need with no difference between men and women in importance rating. As for relatedness and intimacy needs, women rate them as more important than men. By applying the same logic, these results indicate that while women as a group value relatedness and intimacy more than men, they may not rank these needs as more important than others because the consistent difference between men and women’s ratings is still present. Furthermore, the sex difference for importance of relatedness and intimacy is supported by the theory that women are socialized to value these needs more than men (Feeney, 1999; Fitzpatrick & Sollie, 1999a).

Sexual, relatedness, and intimacy needs were further analyzed using moderated multiple regressions where participant sex moderated the relationship between each need’s fulfillment and missing a partner. None of the relationships between each need and missing were significantly moderated by participant sex. The lack of significant findings is consistent with the non-significant moderation of participant sex and importance of a need on the relationship between need fulfillment and missing a partner. Initially, these three needs were further examined because men and women may value them differently. If true, then it could be hypothesized that need fulfillment of these more important needs would have a stronger relationship with missing based on participant sex. For example, since women view intimacy as more important than men, then fulfillment of intimacy could correlate more strongly with missing especially for women. However, the findings did not support this conclusion. Rather, the results indicate that both
participant sex and the importance of a need ultimately do not significantly influence the relationship between need fulfillment and missing, which is consistent with the previous moderated multiple regressions.

An additional finding that was unrelated to the hypotheses and research questions is that the length of the relationship was significantly and negatively correlated with missing one’s partner. In other words, participants with longer relationships tended to miss their partners less. Based on these results, it appears that length of a relationship has a habituating effect on the experience of missing. It may be that participants who have been in LDRRs longer have had more time to develop their own lives, routines, and relationships apart from their partners, which may distract them from their experience of missing. Or perhaps these participants simply become used to the feelings associated with missing and do not notice the experience as noticeably as other participants.

In summary, the results of the current study indicate that need fulfillment serves as a positive predictor of missing a romantic partner because more need fulfillment indicates increased commitment to one’s relationship and both the present and previous research have demonstrated a positive correlation between need fulfillment and missing. Additionally, expectations of need fulfillment and importance of a need are positively correlated with missing a partner; however, they do not moderate the relationship between need fulfillment and missing, which may result from the natural inclusion of importance and expectations within the definition need fulfillment. Need fulfillment by one’s social network has no significant impact on the experience of missing one’s partner, but the anxious and avoidant attachment dimensions do. Highly anxious individuals miss their partner more while highly avoidant individuals miss their partners less. The relationship between need fulfillment and missing is moderated more strongly
by those low in anxiety and highly avoidant individuals because highly anxious individuals miss their partners more regardless of the level of need fulfillment and highly avoidant individuals are naturally experiencing need fulfillment as a consequence of their desire for distance and their geographic separation.

Two of the hypotheses received no support and the data displayed significant findings in the opposite direction of the other two hypotheses. These results indicate that the theories and literature regarding missing and need fulfillment were interpreted incorrectly while developing the hypotheses. However, it is important to note that these same theories and literature could be reinterpreted to support the findings (e.g. Interdependence Theory). Thus, the current findings do fit within the theoretical framework of missing and need fulfillment if not according to the hypotheses. Indeed, the results are consistent with previous findings by Le and colleagues (under review) that commitment predicts missing. Therefore, although the hypotheses were not supported, the results still have important implications regarding the experience of missing and its relationship to need fulfillment.

**Limitations and future directions**

The role of need fulfillment as a positive predictor of missing a romantic partner was reduced when relational commitment was included in the analyses. However, there was still an effect of need fulfillment as a predictor of missing, which led to the possibility that dependence on one’s relationship could serve as an additional control. Unfortunately, relational dependence was not assessed nor examined within the current study. Future research should include a measure of dependence on one’s relationship and partner in order to determine its controlling influence on the relationship between need fulfillment and missing a partner.
The positive relationship between need fulfillment and missing was explained by assuming the equitability between need fulfillment and relational commitment. While this assumption is useful in explaining the findings of the current study, the enmeshment of need fulfillment and commitment should be further examined. Most likely, given the concept of relational dependence, need fulfillment and commitment are not perfectly synonymous with one another which means that future research needs to determine how these two concepts differ and how to accurately measure each one separately.

In terms of the findings, a limitation is the possibility that need fulfillment, according to its definition by Locke (1969, 1976), Wu (2007, 2008), and Wu and Yao (2006, 2007), accounts for expectancy of need fulfillment and need importance (as cited in Wu et al., 2009). Further research is necessary to determine whether need expectancy and importance are indeed incorporated within ratings of need fulfillment.

Another limitation to note is the applicability of the Need Fulfillment Inventory to romantic relationships (Prager & Buhrmester, 1998). Prager and Buhrmester used the NFI to assess one’s need fulfillment in general without focusing on need fulfillment by a specific source or in a specific context. As a result, it may be that the NFI is not the appropriate measure to determine need fulfillment in romantic relationships. Indeed, for some needs on the NFI, it is not readily apparent how they may be fulfilled within the context of a romantic relationship (e.g. identity or structure and control). It is possible that the NFI did not accurately assess all the needs fulfilled in romantic relationships or that only a subset of the NFI needs may be appropriate for the romantic relationship context. Future research should include a pilot study examining all the needs that participants feel are fulfilled by their partners in order to determine, via factor analysis, which needs are fulfilled and rated as highly important most consistently in the romantic
relationship context. However, at the same time, the results indicated a significant correlation
between need fulfillment and missing, which does offer support for the use of NFI.

Additionally, one strength of this study is that all of the examined needs, the MISS
measure, the attachment measure, and the Investment Model measure displayed high reliabilities
(Prager & Buhrmester, 1998; Le et al., 2008; Wei et al., 2007; Rusbult, Martz, & Agnew, 1998).
Therefore, the methodology of the study was appropriate and reliable in examining the desired
variables.

In terms of the study’s methods, the participants made up a sizeable sample but their
results cannot be generalized to the general population of people in long-distance romantic
relationships. The sample consisted of a specific age range and for the most part, geographic
separation was voluntary rather than forced through military duty or incarceration. Granted,
some participants did cite military duty as the cause of their current LDRR status, but these
participants made up only 6.1% of the sample. It would be beneficial to conduct a similar study
on need fulfillment and missing using participants with a wider range of age and a greater
percentage of forced geographic separation.

Conclusions

The current study sought to examine need fulfillment in long-distance romantic
relationships and its role in the experience of missing a partner. Although the findings did not
support the hypotheses, they are consistent within the theoretical framework of need fulfillment
and replicate previous findings (Le et al., under review; Le et al., 2008; Rusbult et al., 2001).
Furthermore, the results help extend the budding research on the experience of missing a
romantic partner. In particular, the results of the study highlight need fulfillment as a positive
predictor of missing a partner and the moderating effect of attachment dimension on the relationship between need fulfillment and missing. The experience of missing a partner is a common everyday experience and these significant findings are especially intriguing because they hint at need fulfillment as a possible cause of missing one’s romantic partner.

Future research should tweak the current study’s design in order to more fully assess the experience of missing and need fulfillment within a long-distance relationship. Ideally, future studies will examine need fulfillment during periods of both geographic separation and geographic proximity in order to assess any differences between the two time periods. Perhaps the members of long-distance relationships simply experience need fulfillment differently, which could be examined with the inclusion of a sample in proximal romantic relationships. The current study’s findings, while they did not support the hypotheses, contributed to the new body of research on missing a romantic partner by supporting the previous literature and providing a new direction of exploration.
References


## Appendix A

*List of needs and supporting literature examined in the present research*

<table>
<thead>
<tr>
<th>Needs</th>
<th>Supporting Literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relatedness (Belongingness / Affiliation)</td>
<td>SDT (Deci &amp; Ryan, 2000), Marelich &amp; Lundquist (2008), Maslow (1943)</td>
</tr>
<tr>
<td>Receive support (Succorance)</td>
<td></td>
</tr>
<tr>
<td>Self-actualization (Self-expansion)</td>
<td></td>
</tr>
<tr>
<td>Autonomy (Distance)</td>
<td>SDT (Deci &amp; Ryan, 2000), Feeney (1999), Prager &amp; Buhrmester (1998)</td>
</tr>
<tr>
<td>Competence</td>
<td>SDT (Deci &amp; Ryan, 2000)</td>
</tr>
<tr>
<td>Intimacy</td>
<td></td>
</tr>
<tr>
<td>Companionship</td>
<td></td>
</tr>
<tr>
<td>Sexual needs</td>
<td></td>
</tr>
<tr>
<td>Security</td>
<td></td>
</tr>
<tr>
<td>Emotional Involvement</td>
<td></td>
</tr>
<tr>
<td>Intellectual Involvement</td>
<td></td>
</tr>
<tr>
<td>Dominance</td>
<td></td>
</tr>
<tr>
<td>Reassurance of worth/acceptance/approval</td>
<td></td>
</tr>
<tr>
<td>Meaning/purpose</td>
<td></td>
</tr>
<tr>
<td>Identity</td>
<td></td>
</tr>
<tr>
<td>Structure/control</td>
<td></td>
</tr>
<tr>
<td>Fun</td>
<td>Prager &amp; Buhrmester (1998)</td>
</tr>
<tr>
<td>Approval/acceptance</td>
<td></td>
</tr>
</tbody>
</table>
Appendix B

*Missing in Interpersonal Situations Scale (MISS; Le et al., 2008)*

On a scale from 1 (do not agree at all) to 9 (agree completely), please indicate the extent to which each of these statements describes your experiences in the past day (24-hours). There are no right or wrong answers, so please try to answer each question as honestly and accurately as you can.

- I thought about my partner.
- I wanted to be with my partner.
- I wanted to talk to my partner.
- I wanted to correspond with my partner over the phone or in writing.
- I wanted to touch my partner.
- I found myself thinking.
- I reminisced.
- I wondered what my partner is doing.
- I felt separated from my partner.
- I looked at things that remind me of my partner.
- I longed for my partner.
- I felt sad.
- I talked about my partner to other people.
- I had a sexual desire.
- I wondered if my partner was thinking about me.
- I dreamed about my partner.
- I looked at pictures of my partner.
- I had nostalgic feelings about being with my partner.
- I imagined myself with my partner.
- I thought about the future.
- I missed my partner.
Appendix C

Complete list of the needs and their corresponding items

Self-esteem
   - The need to feel good about yourself
   - The need for a positive attitude toward yourself
   - The need for self-respect
   - The need to see yourself as a good person
   - The need to feel satisfied with yourself

Identity
   - The need to be a unique individual with a place in the world
   - The need to know where you’re going with your life

Self-actualization
   - The need to be fulfilling your potential
   - The need to be growing and creating a richer life

Meaning/purpose
   - The need to be connected to religious traditions
   - The need for a sense of purpose and meaning in life

Power/authority
   - The need to have others see your point of view
   - The need to have others follow your lead
   - The need to have an impact on others
   - The need to have your wishes or opinions influence others’ actions
   - The need to be in a position of authority and influence

Structure/control
   - The need for a predictable pattern in your day-to-day life
   - The need for a sense of control over your life
   - The need for a sense of certainty, of knowing what to do
   - The need to avoid disruptive changes
   - The need for orderly structure in your life

Achievement
   - The need to do your best and be successful
   - The need to do a difficult job well
   - The need to achieve goals that are difficult to reach
   - The need to do things better than other people can
   - The need to be productive and accomplish many things
Recognition/Status
The need to be highly regarded by others
The need for other people to see you as successful
The need for admiration from others
The need for your accomplishments to be recognized by others
The need for others to believe in you

Approval/Acceptance
The need for others to believe in you
The need for others to like you

Autonomy
The need to avoid feeling confined or restrained
The need to feel that my choices are based on my true interests and values

Sexual fulfillment
The need to kiss or tenderly touch someone that you find physically attractive
The need for sexual excitement
The need for sexual gratification
The need for caressing and sensual contact
The need for sexual stimulation and fulfillment

Affection/love
The need to receive affection
The need to be loved
The need for tenderness and warmth from others
The need for others to care about you
The need to feel cherished and special

Emotional involvement
The need to feel emotionally attached to one another
The need to feel good when your partner feels good and bad when your partner feels bad

Security
The need to have a relationship you can count on
The need to have a relationship that makes your life more stable and comfortable

Intellectual involvement
The need to share ideas and knowledge
The need to discuss values and attitudes
**Competence**
- The need to feel effective in one’s efforts
- The need to feel capable of achieving desire outcomes

**Relatedness**
- The need to feel connected to others
- The need to feel understood by others
- The need to belong

**Intimacy**
- The need to comfortably share feelings and thoughts
- The need for your private thoughts to be listened to and really understood
- The need to let down your defenses and express how you really feel
- The need for a feeling of “complete togetherness” with another
- The need to share your meaningful experiences

**Receive support**
- The need for emotional support when you’re feeling down
- The need for a shoulder to cry on
- The need for comfort and help when you’re having problems
- The need for encouragement and sympathy when you’re upset
- The need for advice and guidance when you’re stuck

**Provide nurturance**
- The need to be depended on for nurturing or support
- The need to provide help and assistance

**Companionship**
- The need to do things with others when you want companionship
- The need for people to spend free time with

**Fun/enjoyment**
- The need for fun and enjoyment
- The need to have fun for its own sake
- The need to be absorbed in pleasurable activities
- The need for excitement and amusement
- The need to laugh and have a good time
Appendix D

Sample survey questions for the needs portion

- In the past week, to what extent (on a scale from 1 [not fulfilled] to 9 [completely fulfilled]) did your partner fulfill this need?
  <1 2 3 4 5 6 7 8 9>

- While geographically separated, to what extent (on a scale from 1 [do not expect] to 9 [completely expect]) do you expect your partner to fulfill this need?
  <1 2 3 4 5 6 7 8 9>

- In a romantic relationship in general, how important (on a scale from 1 [not important] to 9 [extremely important]) is this need to you?
  <1 2 3 4 5 6 7 8 9>

- In the past week, to what extent (on a scale from 1 [do not expect] to 9 [definitely expect]) did your social network (e.g. friends, family members, coworkers) fulfill this need?
  <1 2 3 4 5 6 7 8 9>
Appendix E

The reliabilities of each need and its items with respect to need fulfillment, expectancy that a need will be fulfilled, importance of a need, and social network need fulfillment

Please note that the correlation was conducted instead of reliability for those needs with only two items.

**Self-esteem**
- Need fulfillment: $\alpha = 0.91$
- Expectancy of need fulfillment: $\alpha = 0.91$
- Importance of the need: $\alpha = 0.86$
- Social network need fulfillment: $\alpha = 0.92$

**Identity**
- Need fulfillment: $r = .36$
- Expectancy of need fulfillment: $r = .43$
- Importance of the need: $r = .33$
- Social network need fulfillment: $r = .46$

**Self-actualization**
- Need fulfillment: $r = .56$
- Expectancy of need fulfillment: $r = .62$
- Importance of the need: $r = .58$
- Social network need fulfillment: $r = .75$

**Meaning/purpose**
- Need fulfillment: $r = .36$
- Expectancy of need fulfillment: $r = .44$
- Importance of the need: $r = .31$
- Social network need fulfillment: $r = .36$

**Power/authority**
- Need fulfillment: $\alpha = 0.82$
- Expectancy of need fulfillment: $\alpha = 0.84$
- Importance of the need: $\alpha = 0.78$
- Social network need fulfillment: $\alpha = 0.85$
Structure/control
Need fulfillment: $\alpha = 0.83$
Expectancy of need fulfillment: $\alpha = 0.82$
Importance of the need: $\alpha = 0.76$
Social network need fulfillment: $\alpha = 0.84$

Achievement
Need fulfillment: $\alpha = 0.91$
Expectancy of need fulfillment: $\alpha = 0.91$
Importance of the need: $\alpha = 0.86$
Social network need fulfillment: $\alpha = 0.89$

Recognition/status
Need fulfillment: $\alpha = 0.89$
Expectancy of need fulfillment: $\alpha = 0.86$
Importance of the need: $\alpha = 0.83$
Social network need fulfillment: $\alpha = 0.91$

Approval/acceptance
Need fulfillment: $r = .68$
Expectancy of need fulfillment: $r = .61$
Importance of the need: $r = .44$
Social network need fulfillment: $r = .56$

Autonomy
Need fulfillment: $r = .58$
Expectancy of need fulfillment: $r = .47$
Importance of the need: $r = .40$
Social network need fulfillment: $r = .56$

Sexual fulfillment
Need fulfillment: $\alpha = 0.95$
Expectancy of need fulfillment: $\alpha = 0.94$
Importance of the need: $\alpha = 0.91$
Social network need fulfillment: $\alpha = 0.96$

Affection/love
Need fulfillment: $\alpha = 0.91$
Expectancy of need fulfillment: $\alpha = 0.85$
Importance of the need: $\alpha = 0.83$
Social network need fulfillment: $\alpha = 0.91$
Emotional involvement
Need fulfillment: \( r = .40 \)
Expectancy of need fulfillment: \( r = .31 \)
Importance of the need: \( r = .35 \)
Social network need fulfillment: \( r = .57 \)

Security
Need fulfillment: \( r = .67 \)
Expectancy of need fulfillment: \( r = .64 \)
Importance of the need: \( r = .54 \)
Social network need fulfillment: \( r = .84 \)

Intellectual involvement
Need fulfillment: \( r = .73 \)
Expectancy of need fulfillment: \( r = .79 \)
Importance of the need: \( r = .54 \)
Social network need fulfillment: \( r = .76 \)

Competence
Need fulfillment: \( r = .68 \)
Expectancy of need fulfillment: \( r = .72 \)
Importance of the need: \( r = .59 \)
Social network need fulfillment: \( r = .75 \)

Relatedness
Need fulfillment: \( \alpha = 0.87 \)
Expectancy of need fulfillment: \( \alpha = 0.89 \)
Importance of the need: \( \alpha = 0.77 \)
Social network need fulfillment: \( \alpha = 0.90 \)

Intimacy
Need fulfillment: \( \alpha = 0.91 \)
Expectancy of need fulfillment: \( \alpha = 0.88 \)
Importance of the need: \( \alpha = 0.85 \)
Social network need fulfillment: \( \alpha = 0.92 \)

Receive support
Need fulfillment: \( \alpha = 0.89 \)
Expectancy of need fulfillment: \( \alpha = 0.91 \)
Importance of the need: \( \alpha = 0.88 \)
Social network need fulfillment: \( \alpha = 0.95 \)
Provide nurturance
  Need fulfillment: $r = 0.69$
  Expectancy of need fulfillment: $r = 0.67$
  Importance of the need: $r = 0.84$
  Social network need fulfillment: $r = 0.76$

Companionship
  Need fulfillment: $r = 0.79$
  Expectancy of need fulfillment: $r = 0.81$
  Importance of the need: $r = 0.72$
  Social network need fulfillment: $r = 0.80$

Fun/enjoyment
  Need fulfillment: $\alpha = 0.94$
  Expectancy of need fulfillment: $\alpha = 0.92$
  Importance of the need: $\alpha = 0.90$
  Social network need fulfillment: $\alpha = 0.95$
Appendix F

*The Avoidance Subscale and the Anxiety Subscale short forms of the Experiences in Close Relationships (ECR; Wei, Russell, Mallinckrodt, & Vogel, 2007)*

**Anxiety subscale**

- I worry that romantic partners won’t care about me as much as I care about them.
- My desire to be very close sometimes scares people away.
- I need a lot of reassurance that I am loved by my partner.
- I do not often worry about being abandoned.
- I find that my partner(s) don’t want to get as close as I would like.
- I get frustrated if romantic partners are not available when I need them.

**Avoidance subscale**

- I want to get close to my partner, but I keep pulling back.
- I am nervous when partners get too close to me.
- I try to avoid getting too close to my partner.
- I usually discuss my problems and concerns with my partner.
- It helps to turn to my romantic partner in times of need.
- I turn to my partner for many things, including comfort and reassurance.
Appendix G

*The Investment Model Short Form (Rusbult, Martz, & Agnew, 1998)*

Read each question carefully and choose the answer which best describes your relationship with your partner. There are no right or wrong answers, so please try to answer each question as honestly and accurately as you can. Please read each statement and rate it on a scale from 1 (do not agree at all) to 9 (agree completely).

- I feel satisfied with our relationship. (Satisfaction 1)
- My relationship is much better than others’ relationships. (Satisfaction 2)
- My alternatives to our relationship are close to ideal (dating another, spending time with my friends or on my own, etc.). (Alternatives 1)
- My alternatives are attractive to me (dating another, spending time with my friends or on my own, etc.). (Alternatives 2)
- I have put a great deal into our relationship that I would lose if the relationship were to end. (Investment 1)
- Compared to other people I know, I have invested a great deal in my relationship with my partner. (Investment 2)
- I am committed to maintaining my relationship with my partner. (Commitment 1)
- I want our relationship to last a very long time. (Commitment 2)
Table 1

*Moderated Multiple Regressions results of Hypotheses*

**Hypothesis 2: The interaction between need fulfillment and expectations of need fulfillment in predicting missing**

<table>
<thead>
<tr>
<th>Model</th>
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<td>Need fulfillment (NF)</td>
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<td>NF x EXP</td>
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**Hypothesis 3: The interaction between need fulfillment and the importance of a need in predicting missing**

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<td>Need fulfillment (NF)</td>
<td>.254</td>
<td>3.19</td>
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<td>Importance (IMP)</td>
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**Hypothesis 4a: The interaction between need fulfillment and attachment anxiety in predicting missing**

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<td>Anxiety (ANX)</td>
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<td>NF x ANX</td>
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**Hypothesis 4b: The interaction between need fulfillment and attachment avoidance in predicting missing**

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<td>Need fulfillment (NF)</td>
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<td>4.68</td>
<td>.001</td>
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<td>Avoidance (AVOID)</td>
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Table 2

**Moderated Multiple Regressions results of Research Questions**

**Research Question 1: The interaction between need fulfillment and social network need fulfillment in predicting missing**

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<td>Social network (SN)</td>
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**Research Question 2: The interaction between need fulfillment and participant sex in predicting missing**

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<td>Need fulfillment (NF)</td>
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<td>Sex (SEX)</td>
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Table 3

*Moderated Multiple Regressions results of Exploratory Questions*

The interaction between sexual need fulfillment and participant sex in predicting missing

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<th>Model</th>
<th>β</th>
<th>t</th>
<th>p&lt;</th>
<th>R²</th>
<th>F</th>
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<td>Sexual need fulfillment (SNF)</td>
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<td>Sex (SEX)</td>
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<td>NF x SEX</td>
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The interaction between relatedness need fulfillment and participant sex in predicting missing

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<th>p&lt;</th>
<th>R²</th>
<th>F</th>
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<tr>
<td>Relatedness need fulfillment (RNF)</td>
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<td>Sex (SEX)</td>
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<td>RNF x SEX</td>
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The interaction between intimacy need fulfillment and participant sex in predicting missing

<table>
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<th>R²</th>
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<td>Intimacy need fulfillment (INF)</td>
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</table>
Figure 1: A pictorial representation of the hypothesized relationship between need fulfillment, the experience of missing, and moderators.
Figure 2: A pictorial representation of the found relationship between need fulfillment, the experience of missing, and significant moderators.

Need fulfillment → (A positive relationship) → The experience of missing

Anxious (a negative moderator) and avoidant (a positive moderator) attachment dimensions