

The Diverging Effects of Need Fulfillment Obtained From Within and Outside of a Romantic Relationship

Personality and Social
Psychology Bulletin
2020, Vol. 46(5) 781–793
© 2019 by the Society for Personality
and Social Psychology, Inc
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/0146167219877849
journals.sagepub.com/home/pspb


Laura V. Machia¹  and Morgan L. Proulx¹

Abstract

People have diverse psychological needs that they seek to have fulfilled to maximize their well-being. Romantic relationships are the primary source individuals use for need fulfillment, but fulfillment can come from other sources as well—friends, family, strangers, vocation, and recreation. Whereas having a bevy of available sources puts individuals at an advantage in terms of ensuring their needs are met, which source they utilize may ironically decrease the quality of their valued romantic relationship. Across three studies (total $N = 5,169$) with diverse methodologies (i.e., nationally representative, cross-sectional, longitudinal), we found that when people achieve psychological need fulfillment from sources other than their romantic partner, they view their relationship less positively (Study 1), perceive greater quality of alternatives to their romantic relationship, and think more about ending the relationship (Studies 2 and 3). Demonstrating robustness, these associations hold independent of the amount of fulfillment provided by the romantic partner.

Keywords

need fulfillment, romantic relationships, alternatives, dissolution consideration

Received September 14, 2018; revision accepted July 31, 2019

Why do humans form and maintain connections with others? Some theorists argue it is because relationships satisfy a fundamental need to belong (Baumeister & Leary, 1995), others argue it is because they help us feel secure and recapture the intimacy of the infant–caregiver bond (Hazan & Shaver, 1987), and others still argue that it is because they confer important evolutionary advantages (or help eliminate evolutionary disadvantages; Eastwick, 2009). In other words, theorists disagree about the specifics of which psychological needs relationships meet but agree that relationships with others are formed and maintained, at least in part, because they enhance our ability to fulfill those needs (Kelley & Thibaut, 1978; Rusbult & Van Lange, 2003; Thibaut & Kelley, 1959). Given that our romantic relationships are often the closest of our social bonds (Berscheid, Snyder, & Omoto, 1989), they are likely the most well suited to meet psychological needs (Finkel, Hui, Carswell, & Larson, 2014).

When romantic relationship partners meet each other's needs, there are myriad positive outcomes for both the individuals and the relationship. However, despite the benefits of need fulfillment within the relationship, there is danger in tasking the relationship with all need fulfillment. It is unlikely that the romantic partner is the ideal fulfiller of all needs (Carbery & Buhrmester, 1998), which means that some

needs are unlikely to be met by this sole source. Even if they are the optimal fulfiller for a particular need, there will undoubtedly be times in relationships where partners are unavailable for each other, either because they are physically absent or because each has their own salient needs that preclude their fulfilling each other's needs (Finkel et al., 2014). Therefore, some needs, at some times, are better met outside of the relationship.

From friends and family, to consequential strangers, vocation, and recreation, individuals can have needs met from outside of the romantic relationship. Having multiple sources available for need fulfillment can be a great benefit. To the extent that there are many sources available, the odds of having needs met is higher. However, a greater number of sources increase the risk of poor coordination between partners and unmet expectations. For many, the role of the romantic relationship is to be a primary source of need fulfillment, and as such, to the extent that people pursue or receive fulfillment from outside of the relationship, they may

¹Syracuse University, NY, USA

Corresponding Author:

Laura Machia, Syracuse University, 430 Huntington Hall, Syracuse, NY 13244, USA.

Email: lvmachia@syr.edu

feel that their relationship is not as valuable. In that way, need fulfillment outside of a relationship may indirectly damage a relationship's future prospects, regardless of its short-term association with positive outcomes.

In the current work, we will adopt an Interdependence Theory (IT) perspective (Rusbult & Van Lange, 2003; Thibaut & Kelley, 1959) to examine whether need fulfillment derived from sources external to the romantic relationship undermines the relationship. Specifically, we will examine whether need fulfillment derived from outside of the relationship increases perceived quality of alternatives (i.e., the extent to which the individual feels they could rely on the broader field of eligibles, friends and family members, or one's self if their romantic relationship were to end) and increases his or her consideration paid to breaking up. We will elaborate these ideas below.

Sources of Need Fulfillment

For the purposes of this work, by "need fulfillment," we refer to the obtainment of a wide array of psychological needs that theorists have argued humans have: intimacy/relatedness/belonging, self-expansion, autonomy/independence, competence, security, and caregiving. The relative importance of each of these needs has been shown to be variant both between people and within each person across time (see Carbery & Buhrmester, 1998), and as such, we remain agnostic as to which psychological needs are primary for any given person at a given time. Instead, we hold that need fulfillment, broadly construed, is important for psychological well-being, and focus our attention on where and how people receive this fulfillment.

In Western cultures, there is no greater contributor to need fulfillment than the romantic partner (e.g., Finkel et al., 2014). Regardless of whether examining relationship needs (e.g., intimacy; Le & Agnew, 2001) or broader individual needs (e.g., autonomy; Patrick, Knee, Canevello, & Lonsbary, 2007), the partner is a primary source of fulfillment. Despite the primacy of romantic relationships, at various times in people's lives, friends and family play significant roles in their need fulfillment networks as well. When individuals do not have a romantic partner, for example, then their friendships and familial relationships are their primary sources of need fulfillment (Carbery & Buhrmester, 1998). When individuals do have a romantic partner, the romantic partner is typically tasked with most needs, but friends and family members are called upon when the partner is unavailable or inappropriate for a given need (Cantor, 1979; Carbery & Buhrmester, 1998). This is consistent with many developmental accounts that hold friends as particularly important during adolescence (Larson & Bradley, 1988), especially during late adolescence (Furman & Buhrmester, 1992), and dipping in importance if a romantic partnership emerges (Meeus, Branje, van der Valk, & de Wied, 2007). Nevertheless, despite

a lesser role in partnered adulthood, friends and families continue to be involved in need fulfillment.

There are other available sources of need fulfillment that are not dyadic or lasting relationships from which an individual can obtain fulfillment. First, there is evidence that nonintimate/casual relationships make a large impact on individuals' well-being (Berkman, Glass, Brissette, & Seeman, 2000). Casual relationships can fulfill similar needs to close relationships, especially in cases of crisis or when a close relationship is unavailable, and can meet unique needs that closer ties cannot, such as providing information, resources, and novelty (Fingerman, 2009). Individuals' vocation and recreational activities can also provide need fulfillment. To name a few, work (Baard, Deci, & Ryan, 2004), physical activity (Sebire, Standage, & Vansteenkiste, 2009), participation in sports (Gagne, Ryan, & Bargmann, 2010), volunteerism (Gagne, 2003), religion (Wesselmann, VanderDrift, & Agnew, 2016), and watching television (Branch, Wilson, & Agnew, 2013) can all contribute to need fulfillment and produce concrete and symbolic outcomes (Milyavskaya & Koestner, 2011).

Outcomes of Psychological Need Fulfillment

Regardless of the source, psychological need fulfillment provides two types of outcomes in service of fostering relationship well-being according to IT (Wieselquist, Rusbult, & Foster, 1999). The first type—*concrete outcomes*—is the direct consequence of the need being fulfilled. The most salient concrete outcome is the experience of pleasure or pain (Rusbult & Van Lange, 2003). When people feel that their needs are met, they experience enhanced satisfaction with their relationships (Drigotas & Rusbult, 1992), positive emotions (Le & Agnew, 2001), greater satisfaction after a disagreement (Patrick et al., 2007), greater commitment to the relationship (Drigotas & Rusbult, 1992), greater increases in love over time (VanderDrift, Wilson, & Agnew, 2012), and more secure attachment within the relationship (La Guardia, Ryan, Couchman, & Deci, 2000).

The second type of outcome need fulfillment provides—*symbolic outcomes*—rests on the broader implications of an interaction (Rusbult & Van Lange, 2003). Examples of symbolic outcomes an individual might reap include feeling confident that a source of need fulfillment will be available for them in the future or learning that a source holds their best interest above all else. Whether need fulfillment produces symbolic outcomes or not depends on the context in which the need is fulfilled. When a person has their needs met in a situation in which it is perceived that the fulfiller was under no obligation to meet the need and perhaps incurred cost to do so, the person can infer that the other cares for them (VanderDrift & Agnew, 2012). This type of fulfillment would provide a person with both the pleasure associated with

fulfillment (i.e., concrete outcomes) and an additional boost in terms of their confidence that they will be able to have their need met in the future (i.e., symbolic outcomes). However, lacking need fulfillment would provide an individual with the pain associated with lack of fulfillment and additional doubt that their partner will be there for them.

Despite abundant research that confirms that need fulfillment is highly important for outcomes, there has been less discussion about whether the source of need fulfillment matters. On one hand, individuals receive concrete outcomes regardless of the source of fulfillment, so in that way, all sources should provide positive contributions to the relationship (e.g., by reducing the burden on the relationship, by increasing the individuals' level of well-being, which might spill over to the relationship). On the other hand, because of the symbolic outcomes the target (i.e., the individual) and sources receive, it is crucial to examine the context of who meets whose needs. It is likely that utilizing some sources will disrupt expectations sufficiently to reduce relationship quality (e.g., by increasing perceived quality of alternatives, by sowing doubt that the partner is reliable, by undermining the partners' own need fulfillment).

Relational Consequences of Outside Need Fulfillment

Having multiple sources of need fulfillment available is beneficial, in that it reduces the likelihood that people's important needs will go unfulfilled and ensures people receive concrete outcomes. However, it also produces the symbolic outcome of knowing that other reliable means for need fulfillment are available, which reduces how dependent they are on the romantic relationship. Whereas reduced dependence can produce positive relationship outcomes—including increasing attachment security (Arriaga, Kumashiro, Finkel, VanderDrift, & Luchies, 2014)—it can also produce negative relationship outcomes. For example, when an individual's relationship fails to offer ample opportunities for fulfillment of the need for self-expansion, he or she will seek it elsewhere. Because forming and deepening relationships with others is a reliable way to obtain self-expansion (Aron & Aron, 1986), when given the opportunity, individuals who lack self-expansion within their romantic relationship are likely to take opportunities to meet new people (Lewandowski & Ackerman, 2006). Insofar, as those new people are romantic relationship alternatives (i.e., others with whom an individual could reasonably form a relationship if they was not in their current relationship), then the long-term security of the romantic relationship is potentially in jeopardy (VanderDrift, Lewandowski, & Agnew, 2011).

Put succinctly, all that is strictly required is that individuals' needs be fulfilled, and although romantic relationships are an effective means for fulfillment—typically the primary means—they are not the sole means. When individuals find fulfillment of needs in a secondary source outside of their

romantic relationships, their alternatives to their relationships are likely to improve. Because alternatives encapsulate not only the other individuals with whom one could start a new romantic relationship but also whether being single is a desirable option, and so on, need fulfillment outside of a relationship should be positively associated with the quality of alternatives that an individual perceives they has. As quality of alternatives is associated with both commitment (Le & Agnew, 2003; Rusbult, Martz, & Agnew, 1998) and relationship continuity (Le, Dove, Agnew, Korn, & Mutso, 2010), we expect that, regardless of the type of alternative that exists (i.e., whether it is another romantic partner, or simply different sources of need fulfillment), having high-quality alternatives will be associated with increased thoughts of leaving the relationship (i.e., dissolution consideration).

Thus, aligning with IT predictions, we hypothesize the following:

Hypothesis 1: Need fulfillment from within the relationship lowers perceived quality of alternatives, whereas need fulfillment outside of the relationship increases perceived quality of alternatives.

Hypothesis 2: Need fulfillment from outside of the relationship is indirectly positively associated with relationship decline (e.g., dissolution consideration, eroding commitment), through its effect on perceived quality of alternatives.

The Current Studies

Study 1 will provide initial evidence that need fulfillment from within and outside of the relationship has divergent effects on relationship quality, which is an initial test of the feasibility of Hypothesis 2. Specifically, in Study 1, we will use a large, nationally representative sample ($N = 4,681$) to examine whether receiving emotional support (i.e., a specific form of need fulfillment) is associated positively with relationship quality when coming from a romantic partner, but associated negatively with relationship quality when coming from a source outside of the relationship. Finding this pattern will provide initial evidence for our theory, but will be inconclusive with regard to the mechanism and the generalizability across different needs. To address those shortcomings, Studies 2 and 3 will more directly test our hypotheses in ongoing close relationships in our laboratory. Specifically, in Study 2, we will test all study hypotheses in a sample of individuals at one time point ($N = 413$), whereas in Study 3, we will test all hypotheses in a sample of couples measured weekly over the course of a month ($N = 40$ dyads with four weekly time points).

Study 1

Study 1 is an initial test of our theory that need fulfillment provided by sources from outside of the relationship will be

negatively associated with the romantic relationship's quality. Before testing a hypothesized mechanism of this effect (i.e., perceived quality of alternatives), we looked for the overall effect in a large, representative sample. Specifically, we used data from the first wave of the Midlife in the United States (MIDUS) dataset and examined how much emotional support participants reported receiving from within and outside of their relationship. Receiving emotional support is a specific type of need fulfillment that is akin to receiving fulfillment of the attachment needs of support and caregiving and will provide an initial test as to whether, in general, receiving need fulfillment from outside of the relationship has different effects on the relationship than receiving need fulfillment from within the relationship does.

Sample

The first wave of the MIDUS study (MIDUS 1) collected survey data in 1995 to 1996 from 7,108 noninstitutionalized, English-speaking adults in the coterminous United States between the ages of 20 and 75. Five metropolitan areas were oversampled. Age-eligible respondents were randomly selected from each household using an algorithm that oversampled for males and older adults. Full details on the MIDUS protocol are available at <http://www.midus.wisc.edu/>. We analyzed data from the 4,681 participants who indicated that they currently had a spouse or a partner with whom they lived in a marriage-like relationship (65.9% of the total sample). The utilized sample was evenly split in terms of sex (50.8% male, 49.2% female) and had an average age of 46.7 years ($SD = 12.6$ years, range = 20-75 years). The majority of the sample identified as White (90.9%, with 4.2% Black, 0.6% Native American, 0.8% Asian, 1.7% Other, 0.5% multiracial, and 1.2% refusing to answer) and heterosexual (96.3%, with 1.03% homosexual, 0.8% bisexual, and 1.9% refused to answer). Most of the selected samples were married (90.3%) and had been so for an average of 25.4 years ($SD = 13.5$ years, range = 0-59 years).

Measures of Interest

Need fulfillment was measured by examining the hours per month participants reported receiving "informal emotional support (such as getting comfort, having someone listen to you, or getting advice)." We created the predictor of interest (need fulfillment from outside of the relationship) by summing the hours of support that the participant reported receiving monthly by their parent/guardian, in-laws, children, other family members/friends, and anyone else. We removed participants who provided an unrealistic number of hours (i.e., anyone reporting greater than 744 hr per month, which is the total number of hours in a 31-day month; $n = 19$). On average, participants received 24.6 hr of support per month from sources outside of their romantic relationship ($SD = 56.2$ hr, range = 0-731 hr). For comparison, they reported receiving

an average of 30.2 hr ($SD = 72.9$ hr, range = 0-744 hr) from their romantic partners. To make results more meaningful, we rescaled the two need fulfillment predictors (i.e., within and outside of the relationship) such that a one-unit increase indicates a 50-hr increase.

We selected five possible outcome variables of interest from the MIDUS data. The first three assessed the present quality of the relationship: (a) "How would you rate your marriage or close relationship these days?" $M = 8.13$, $SD = 1.97$, rated from 0 (*the worst possible marriage or close relationship*) to 10 (*the best possible marriage or close relationship*); (b) "Looking ahead 10 years into the future, what do you expect your marriage or close relationship will be like at that time?" $M = 8.73$, $SD = 1.80$, rated from 0 (*the worst possible marriage or close relationship*) to 10 (*the best possible marriage or close relationship*); and (c) "Would you describe your relationship as excellent, very good, good, fair, or poor?" $M = 3.92$, $SD = 1.04$, rated from 1 (*poor*) to 5 (*excellent*). The remaining two outcome variables assessed thoughts of dissolution: (a) "During the past year, how often have you thought your relationship might be in trouble?" $M = 1.89$, $SD = 1.07$, rated from 1 (*never*) to 5 (*all of the time*), and (b) "It is always difficult to predict what will happen in a relationship, but realistically, what do you think the chances are that you and your partner will eventually separate?" $M = 1.53$, $SD = 0.77$, rated from 1 (*not at all likely*) to 4 (*very likely*).

Analysis

All analyses were conducted using PROC REG in SAS 9.4. To handle missing data, we examined the scope of the issue. There was minimal missing data; as such, we used a conservative approach of using listwise deletion on any participants who were missing the predictor variables, and pairwise deletion for those cases where an outcome variable was missing. Specifically, of the 4,681 participants with a spouse, all but 193 provided responses to the support from within the relationship measure (4%). These 193 participants were removed from all analyses, leaving 4,488 participants. Of those, we removed an additional 30 participants who failed to provide responses to the support within the relationship measure (0.7% of 4,488), leaving 4,458. A small number of participants skipped one or more of the outcome variables (the five outcome variables had missing data ranging from 13 to 32 cases or 0.3% to 0.7%). Our analysis script is available on the Open Science Framework (<https://osf.io/57xgd/>). We did not preregister our analysis plan online but the script contains code for all analyses we ran (i.e., we did not remove code).

Results

We conducted five independent regression analyses, each with a different dependent measure. In all analyses, the predictor was emotional support provided by people and

organizations other than the romantic partner, and emotional support provided by the romantic partner was included as a covariate to control for partner need fulfillment (see Supplemental Table S1). Results indicated that, above and beyond the effects of emotional support received from the romantic partner, emotional support provided from outside of the relationship was significantly and negatively associated with participants' rating of their relationship now, $\beta = -.08$, $t(4,442) = -4.46$, $p < .001$; with their projected rating of their relationship in 10 years, $\beta = -.05$, $t(4,423) = -2.79$, $p < .001$; and with their assessment of whether the relationship is excellent, $\beta = -.08$, $t(4,441) = -4.72$, $p < .001$. In addition, above and beyond the effects of emotional support received from the romantic partner, emotional support provided from outside of the relationship was significantly and positively associated with participants' assessments that their relationship is in trouble, $\beta = .09$, $t(4,438) = 5.03$, $p < .001$, and their belief that their relationship will end, $\beta = .07$, $t(4,437) = 4.16$, $p < .001$.

To obtain more information relevant to how need fulfillment from within and outside of the relationship interact, we additionally tested for moderation between support from within the relationship and support from outside of the relationship. This analysis will reveal whether support from outside of the relationship is associated with relationship quality at all levels of support from within the relationship, or whether it is qualified such that it is only detrimental at certain levels of support from within the relationship (i.e., when support from within the relationship is lacking). When we do this, for four of the five outcome variables examined in Study 1, they do not interact ($ps = .09, .33, .60$, and $.96$), supporting the notion that support from outside of the relationship is detrimental regardless of how much support is obtained from within the relationship. For the fifth (belief that the relationship is in danger), they do significantly interact, $\beta = -.05$, $t(4,437) = -2.39$, $p = .02$. However, probing this significant interaction revealed that the association between support from outside of the relationship and believing the relationship is in danger is significant and positive at both low levels of support from within the relationship ($-1 SD$; $t = 6.99$, $p < .001$) and at high levels of support from within the relationship ($+1 SD$; $t = 3.83$, $p < .001$).

For some of these outcomes, it makes sense to see whether emotional support provided from outside of the relationship remains a significant predictor when controlling for current relationship quality. As such, we conducted three additional regression analyses in which we controlled for both participants' ratings of their relationship now and the hours of emotional support provided by the romantic partner. In these analyses, emotional support provided from outside of the relationship was not significantly associated with their projected relationship quality in 10 years, $\beta = .01$, $t(4,419) = 1.11$, $p = .27$, but it was associated with participants' assessments that their relationship is in trouble, $\beta = .03$, $t(4,430) = 2.91$, $p < .001$, and their belief that their relationship will end,

$\beta = .02$, $t(4,429) = 1.70$, $p = .09$, although the latter effect was marginal.

Discussion

The results of Study 1 reveal the first evidence that need fulfillment from outside of the relationship can have deleterious consequences for romantic relationships. We found that, regardless of how much need fulfillment the romantic partner provides, receiving need fulfillment from outside of the romantic relationship is associated with believing the relationship will be less stable. This is consistent with our theorizing that need fulfillment from outside of the relationship enhances perceived quality of alternatives (i.e., weakens dependence on the romance) and thus erodes relationship quality over time. However, the key mechanism described theoretically was not tested in Study 1, as there are no measures of alternative quality available in the MIDUS dataset. Furthermore, despite our theorizing not being specific to a particular need or set of needs, in Study 1, we only tested the effect of emotional support. Whereas IT would hold that emotional support is synonymous with having had a need fulfilled, other theories might argue that it is a relationship process that only indirectly meets needs. As such, we conducted additional studies utilizing convenience samples we collected in our laboratory to test the mechanism of this association and a wider, more defined set of needs.

Study 2

Study 2 was designed to examine both of our hypotheses: (a) that need fulfillment from within the relationship lowers perceived quality of alternatives, whereas need fulfillment outside of the relationship increases perceived quality of alternatives; and (b) that need fulfillment from outside of the relationship is indirectly positively associated with dissolution consideration through its effect on perceived quality of alternatives. Participants reported on how much their needs are fulfilled in their relationship with their partner, as well as how much they are fulfilled by sources outside of their relationship. We expect that the source of need fulfillment will be important for understanding the association between need fulfillment and alternative quality.

Participants

Participants were 413 undergraduates enrolled in Introductory Psychology at a midsized private university in the northeastern United States (35% male, 65% female). We selected this sample by deciding on a data collection timeline and minimum threshold. We collected data for 8 weeks and had a priori decided we would stop data collection at that point if we had a sample size greater than 200. Participants ranged in age from 18 to 49 years ($M = 19.42$ years, $SD = 3.26$ years),

with the majority indicating that they were White (62%, with 13% Asian, 11% Latino/a, 11% Black, and 3% Other/multi-racial) and heterosexual (95%, with 2.7% bisexual, 1.2% same-sex attracted, and 0.7% other). All participants were currently involved in a romantic relationship, by their own definition, of which the majority were exclusively dating (84%, with 11.2% casually dating, 2.0% living together, 0.5% engaged, 1.5% married, and 1.2% other). All but 10 participants were in a mixed-sex relationship; seven participants were in same-sex female relationships and three were in same-sex male relationships.

Procedure

Participants signed up for a particular time to complete this study in the lab. When they arrived, they were seated at a private computer and told that the screen would present all the instructions they would need. First, they read the consent form and, if willing, consented to continue on with the study (all participants consented). Next, they completed a long battery of questionnaires, among which were measures of need fulfillment and perceived quality of alternatives. Finally, participants provided demographics, were debriefed, and left. The procedure took between 20 and 30 min.

Measures

Perceived quality of alternatives. Participants reported their perceived quality of alternatives by filling out the Investment Model Scale (Rusbult et al., 1998). Because they completed the full Investment Model Scale, we also obtained measures of satisfaction, investment, and commitment, all of which were used in extra-hypothesis analyses. Each of the items were rated by participants on a scale from 1 (*do not agree at all*) to 9 (*agree completely*). Consistent with past uses of the Investment Model Scale, reliability was high (satisfaction $\alpha = .92$, investment $\alpha = .80$, commitment $\alpha = .88$, alternative quality $\alpha = .81$). Also consistent with past uses of the Investment Model Scale, participants were in relatively high-quality relationships (satisfaction $M = 7.27$, $SD = 1.48$; investment $M = 6.03$, $SD = 1.65$; commitment $M = 7.08$, $SD = 1.68$; alternative quality $M = 4.98$, $SD = 1.75$).

Dissolution consideration. Participants reported their thoughts about ending their relationship by filling out a measure of dissolution consideration (VanderDrift, Agnew, & Wilson, 2009). This scale includes items such as "I have been thinking about ending our romantic relationship" and "More and more it comes to my mind that I should breakup with my partner." Each of the items was rated by participants on a scale from 1 (*do not agree at all*) to 9 (*agree completely*). Consistent with past uses, reliability was high ($\alpha = .93$), and mean level was low ($M = 2.69$, $SD = 2.12$).

Need fulfillment. Participants completed a measure of need fulfillment designed for this study, based on one used

in previous work from an IT perspective (e.g., Le & Agnew, 2001; VanderDrift & Agnew, 2012). Specifically, participants were given instructions that read, "Relationships can satisfy a number of needs for people. Please indicate the extent to which the following needs are being fulfilled for you in your current relationship, using the provided scale." They were asked to report how much each of seven needs were met for them by their current partner, in the format of "My needs for x are fulfilled by my relationship with [partner's name]." Participants were asked to indicate their agreement with this statement on a scale from 1 (*not at all fulfilled*) to 9 (*completely fulfilled*). The needs presented were companionship (sharing time and activities), security (feeling supported, protected), caregiving (giving support, protection), self-expansion (having new and exciting experiences), self-improvement (experiencing personal growth), independence (having my own space and making my own decisions), and sexual contact (having physical intimacy). The name of each need and the brief description in parentheses following the need name were both presented to help ensure each need was understandable to participants. Because fulfillment of sexual contact needs is normatively met exclusively by a romantic partner and fulfillment from outside of the relationship violates relationship expectations in a more profound way than the other needs, we removed it prior to any analyses. Consistent with VanderDrift and Agnew (2012), combining the six nonsexual needs into a composite "need fulfillment within the relationship" measure yielded acceptable reliability ($\alpha = .88$) and a high mean level ($M = 7.42$, $SD = 1.44$).

Next, participants were presented with the same seven needs to rate on the same scale, but the instructions asked them to, "Please indicate the extent to which the following needs are being fulfilled for you by people and situations other than your romantic partner and relationship, using the provided scale." As with need fulfillment within the relationship measure, this "need fulfillment outside of the relationship" measure also evidenced acceptable reliability ($\alpha = .87$) and a high mean level ($M = 6.97$, $SD = 1.49$). The two need fulfillment measures (within and outside) were moderately positively correlated ($r = .44$, $p < .001$).

Analysis

Unless otherwise specified, analyses were conducted using PROC REG in SAS 9.4. To handle missing data, we examined the scope of the issue. There were minimal missing data; for each individual item, three or fewer participants failed to provide responses. As such, we opted to create means of our scales and use all available data. Once the scales were constructed, we noticed that three of the 413 participants failed to provide any data related to need fulfillment outside of the relationship. These three participants were removed from all analyses, and there were no other missing data on any scale measures used in this study. The results presented below utilize the full scales as described above. However, because one

Table 1. Exploratory and Hypothesis 1 Results From Studies 2 and 3.

	Study 2				Study 3			
	Satisfaction	Investment	Commitment	Alternative quality	Satisfaction ^a	Investment ^b	Commitment ^c	Alternative quality ^d
Model 1								
NF—Omnibus	$\beta = .64^{***}$	$\beta = .20^{***}$	$\beta = .43^{***}$	$\beta = -.0003$	$b = .26^{***}$	$b = .23^{**}$	$b = .09^{\dagger}$	$b = .04$
Model 2—Predictors tested independently								
NF—Within the relationship	$\beta = .77^{***}$	$\beta = .30^{***}$	$\beta = .62^{***}$	$\beta = -.18^{***}$	$b = .34^{***}$	$b = .28^{***}$	$b = .20^{**}$	$b = -.12$
NF—Outside the relationship	$\beta = .33^{***}$	$\beta = .05$	$\beta = .12^*$	$\beta = .17^{***}$	$b = .11^*$	$b = .09^{\dagger}$	$b = .02$	$b = .12$
Model 3—Predictors tested concurrently								
NF—Within the relationship	$\beta = .78^{***}$	$\beta = .35^{***}$	$\beta = .71^{***}$	$\beta = -.32^{***}$	$b = .31^{***}$	$b = .26^{**}$	$b = .25^{**}$	$b = -.27^*$
NF—Outside the relationship	$\beta = -.02$	$\beta = .10^*$	$\beta = -.20^{***}$	$\beta = .31^{***}$	$b = .05$	$b = .03$	$b = -.05$	$b = .22^*$

Note. NF = need fulfillment.

^a $t + 1$, controlling for previous time point's satisfaction.

^b $t + 1$, controlling for previous time point's investment.

^c $t + 1$, controlling for previous time point's commitment.

^d $t + 1$, controlling for previous time point's alternative quality.

[†] $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

of the quality of alternatives scale items directly assesses need fulfillment outside of the relationship (i.e., “My needs for intimacy, companionship, etc. could easily be fulfilled in an alternative relationship”), we reran all pertinent analyses with a shortened version of the alternative scale that did not include that one item. The pattern of results is consistent with what is displayed below. Script and data are available on the Open Science Framework (<https://osf.io/57xgd/>). We did not preregister our analysis plan online.

Results

To test Hypothesis 1, we examined the associations between need fulfillment and perceived quality of alternatives. When tested concurrently, need fulfillment within the relationship is negatively associated with perceived quality of alternatives, $\beta = -.32$, $t(408) = -6.07$, $p < .001$, whereas need fulfillment outside of the relationship is positively associated with perceived quality of alternatives, $\beta = .31$, $t(408) = 5.99$, $p < .001$ (see Table 1 for complete results).

As in Study 1, we also tested for moderation between need fulfillment within the relationship and need fulfillment outside of the relationship to ensure that need fulfillment outside of the relationship is associated with perceived quality of alternatives at all levels of need fulfillment within the relationship. When we do this, there is a significant moderation effect, $b = -.09$ (.03), $t(407) = -3.38$, $p < .001$. However, consistent with Hypothesis 1, need fulfillment outside of the relationship is significantly and positively associated with perceived quality of alternatives at both low levels of need fulfillment within the relationship, $-1 SD$, $b = .47$ (.06),

$t = 8.20$, $p < .001$, and high levels of need fulfillment within the relationship, $+1 SD$, $b = .20$ (.08), $t = 2.38$, $p < .05$.

To test Hypothesis 2, we conducted a simple mediation analysis using ordinary least squares path analysis (Hayes, 2013). From this analysis, we found that need fulfillment from outside the relationship indirectly influenced dissolution consideration through its effect on perceived quality of alternatives. As is elaborated in Table 2, controlling for the amount of need fulfillment people receive from within their relationship, the amount of need fulfillment people receive outside of their relationship is associated with perceiving high-quality alternatives ($a = 0.366$), and people who perceive they have high-quality alternatives are higher in dissolution consideration ($b = .269$). A bias-corrected bootstrap confidence interval for the indirect effect ($ab = 0.098$) based on 10,000 bootstrap samples was entirely above zero (0.052–0.167). There was no evidence that need fulfillment from outside of the relationship influenced dissolution consideration independent of its effect on perceived quality of alternatives ($c' = 0.084$, $p = .18$). A normal theory-based Sobel test ($Z = 4.04$, $p < .001$) also suggests the presence of a significant indirect effect.

Discussion

Study 2 provided support for our hypotheses. Specifically, we found that need fulfillment of all kinds is associated with greater levels of satisfaction with and commitment to the relationship. We also found that whereas need fulfillment from the romantic partner is negatively associated with perceived quality of alternatives, need fulfillment from outside

Table 2. Indirect Effect Results From Study 2.

Antecedent		Consequent						
		M (quality of alternatives)			Y (dissolution consideration)			
		Coefficient	SE	<i>p</i>	Coefficient	SE	<i>p</i>	
X (NF outside of the relationship)	<i>a</i>	0.366	0.06	<.001	<i>c'</i>	0.084	0.06	.21
M (quality of alternatives)		—	—	—	<i>b</i>	0.269	0.05	<.001
Covariate (NF within the relationship)		-0.385	0.06	<.001		-0.877	0.06	<.001
Constant	<i>i</i> ₁	5.270	0.48	<.001	<i>i</i> ₂	7.27	0.53	<.001
$R^2 = .1101$				$R^2 = .4255$				
$F(2, 408) = 25.25, p < .001$				$F(3, 407) = 100.46, p < .001$				

Note. NF = need fulfillment.

of the relationship is associated with greater perceived quality of alternatives, both independently and above and beyond the effects of need fulfillment within the relationship (Hypothesis 1). Finally, we found that need fulfillment from outside of the relationship is indirectly positively associated with relationship decline (i.e., dissolution consideration), through its effect on perceived quality of alternatives (Hypothesis 2).

Study 3

We designed Study 3 to replicate the association between need fulfillment and perception of alternative quality in ongoing relationships, as well as examine whether this association holds over time (i.e., whether need fulfillment during 1 week is associated with changes in perceived alternative quality days later).

Procedure

We recruited individuals from an Elementary Psychology Subject Pool and requested they either bring their current romantic partner with them to our lab or provide their partner's email address if it was not possible for them to come into the lab (e.g., because of a long-distance relationship). Subject pool participants received course credit for their participation, whereas their partners volunteered for no compensation. Participants (targets and partners) provided data on four separate occasions, each separated by approximately 1 week. The first two sessions were held in our lab if possible, whereas the last two sessions were conducted online. See the "Participants and attrition" section below for more details on the recruiting and retention efforts.

When they arrived for their first session, they were each seated at a private computer and told that the screen would present all the instructions they would need. First, they read the consent form and, if willing, consented to continue on

with the study (all participants consented). Next, they completed a long battery of questionnaires, among which were measures of need fulfillment, perceived quality of alternatives, and commitment. Finally, participants provided demographics, were debriefed, and left. The procedure took between 20 and 30 min. For individuals with romantic partners who were willing to participate, but not able to travel to our lab, we provided a fully online version of the study that included the consent, questionnaires, and debriefing information. The link to this version was sent to partners by a member of the research team, with instructions on how to complete the study (e.g., separated from their partner, in a quiet environment), an assurance that their participation was completely voluntary and not tied to their partner's compensation, and a reminder that their responses would be kept confidential to everyone except the research team (i.e., confidential even from their partner). The fully online version of the study took the same amount of time as the in-lab version.

Participants and attrition. Data were recruited from a mid-sized private university in the northeastern United States. We arrived at our sample size based on a data collection timeline and threshold. We a priori decided to collect Time 1 data for 8 weeks and stop at that point if we had at least 200 data points (i.e., individual rows of data, which could have been obtained with a minimum of 25 individuals and their partners each completing all four time points). At Time 1, 40 individuals from the Elementary Subject Pool and 35 of their partners participated (48% male, 52% female). These participants ranged in age from 18 to 32 years ($M = 19.16$ years, $SD = 2.10$ years), with the majority indicating that they were White (75%, with 11% Asian, 4% Latino/a, 7% Black, and 3% Other/multiracial) and heterosexual (83.8%, with 10.8% bisexual, 2.7% same-sex attracted, and 2.7% other). All participants were currently involved in a romantic relationship, by their own definition, of which the majority were

exclusively dating (68.9%, with 20.3% casually dating, 2.7% living together, 2.7% engaged, 2.7% married, and 2.7% other). All but eight couples were in a mixed-sex relationship: five couples were same-sex female relationships and three were same-sex male relationships.

At Time 2, 38 individuals participated, as did 34 of their partners. At Time 3, 33 individuals participated, as did 28 partners. Finally, at Time 4, 32 individuals participated and 22 partners did. Thus, we had 52 complete cases (31 individuals, 21 partners), nine cases of missing data only from Time 4 (two individuals, seven partners), nine cases of data missing from both Times 3 and 4 (four individuals, five partners), three cases of data missing from Times 2, 3, and 4 (two individuals, one partner), and two cases of missing only Time 3 data (one individual, one partner). With regard to missing data, only one participant skipped any scales within a time point (i.e., they skipped both need fulfillment scales and dissolution consideration at Time 4). To handle this missingness, we used pairwise deletion.

Measures

Perceived quality of alternatives and commitment. At each of the four time points, all participants reported their perceived quality of alternatives by filling out the Investment Model Scale (Rusbult et al., 1998), which evidenced acceptable reliability in this sample (Time 1 $\alpha = .88$; $M = 4.63$, $SD = 2.23$). They completed the full Investment Model Scale, so we also obtained measures of satisfaction (Time 1 $\alpha = .92$; $M = 7.85$, $SD = 1.40$), investment (Time 1 $\alpha = .76$; $M = 6.19$, $SD = 1.97$), and commitment (Time 1 $\alpha = .93$; $M = 7.48$, $SD = 1.86$) from this as well.

Dissolution consideration. Participants completed the same measure of dissolution consideration as in Study 2 at all four time points. It evidenced high reliability (Time 1 $\alpha = .99$; $M = 2.16$, $SD = 2.06$).

Need fulfillment. At all four time points, participants completed an identical measure of need fulfillment as in Study 2, assessing need fulfillment both within the relationship (i.e., provided by their partner; Time 1 $\alpha = .91$; $M = 7.83$, $SD = 1.38$) and outside of their relationship (i.e., provided by people and activities other than their partner; Time 1 $\alpha = .89$; $M = 7.49$, $SD = 1.51$). As in Study 2, we omitted the sexual need fulfillment item prior to analyses.

Analyses

The data for Study 3 exhibit three levels of nesting (time points within individuals within dyads). We have no dyadic hypotheses, so the top level of nesting is included in models simply to account for shared variance between dyad members. All analyses were conducted in PROC MIXED in SAS 9.4 for repeated measures with the between-within method of estimating numerator degrees of freedom and compound

symmetry covariance structure. To test the hypotheses with these data, we are interested in examining changes over time, so we created one-time point-lagged versions of all of our variables of interest (i.e., need fulfillment, satisfaction, commitment, alternative quality, and dissolution consideration). We tested change over time by regressing the nonlagged version of a variable on the lagged version of the same variable, and the lagged version(s) of the predictor(s). For the two participants who did not participate at Time 3, but did at Time 4, we opted to analyze the data as if Time 2 and Time 4 were adjacent, meaning we lagged their Time 2 data points into their Time 4 for analyses. We did so because our hypotheses are not specific to the amount of time that has passed, but rather overall trends. If we remove these two participants' Time 4 data from analyses, the pattern of results remains identical. Script and data are available on the Open Science Framework (<https://osf.io/57xgd/>). We did not preregister our analysis plan online, but all analyses we ran are contained in the analysis script.

Results

To test Hypothesis 1, we examined the associations between need fulfillment and changes in perceived quality of alternatives across time. Consistent with this hypothesis, when tested concurrently, need fulfillment inside of the relationship was significantly associated with decreased perceived quality of alternatives over time, $b = -.27$ (.12), $t(98) = -2.19$, $p = .03$, whereas need fulfillment outside of the relationship was significantly associated with increased quality of alternatives over time, $b = .22$ (.09), $t(98) = 2.43$, $p = .02$ (see the right half of Table 1).

As in Studies 1 and 2, we also tested for moderation between need fulfillment within the relationship and need fulfillment outside of the relationship to ensure that need fulfillment outside of the relationship is associated with perceived quality of alternatives at all levels of need fulfillment within the relationship. When we do this, there is not significant moderation, $b = -.06$ (.06), $t(97) = -1.09$, $p = .28$, supporting the notion that need fulfillment outside of the relationship is positively associated with perceived quality of alternatives regardless of how much need fulfillment comes from within the relationship.

To test Hypothesis 2, we conducted a simple mediation analysis using a modified version of the causal steps approach (Baron & Kenny, 1986), and followed up with a normal theory-based Sobel test (to the best of our knowledge, conditional process analyses are not yet available for three-level nested designs). From this analysis, we found that need fulfillment from outside the relationship indirectly influenced dissolution consideration through its effect on perceived quality of alternatives. As is elaborated in Table 3, controlling for the amount of need fulfillment people receive from within their relationship, the amount of need fulfillment people receive outside of their relationship was associated with

Table 3. Indirect Effect Results From Study 3.

Antecedent		Consequent						
		M (quality of alternatives)			Y (dissolution consideration)			
		Coefficient	SE	<i>p</i>	Coefficient	SE	<i>p</i>	
X (<i>t</i> - 1 NF outside of the relationship)	<i>a</i>	0.223	0.09	.02	<i>c'</i>	-0.020	0.08	.80
M (quality of alternatives)		—	—	—	<i>b</i>	0.150	0.04	<.001
Covariate (<i>t</i> - 1 NF within the relationship)		-0.269	0.12	.03		-0.168	0.14	.22
Covariate (<i>t</i> - 1 quality of alternatives)		0.820	0.05	<.001		—	—	—
Covariate (<i>t</i> - 1 dissolution consideration)		—	—	—		0.739	0.07	<.001
Constant	<i>i</i> ₁	1.149	0.97	.24	<i>i</i> ₂	1.500	1.08	.17

Note. NF = need fulfillment.

perceiving high-quality alternatives, $b = .22$ (.09), $t(98) = 2.43$, $p = .02$, and people who perceived they had high-quality alternatives were higher in dissolution consideration, $b = .15$ (.04), $t(96) = 3.57$, $p < .001$. A normal theory-based Sobel test ($Z = 2.07$, $p = .04$) also suggests the presence of a significant indirect effect.

Discussion

Corroborating our hypotheses and the results of Study 2, Study 3 provided support for our hypotheses. Specifically, we found that whereas need fulfillment from the romantic partner is negatively associated with perceived quality of alternatives, need fulfillment from outside of the relationship is associated with greater perceived quality of alternatives above and beyond the effects of need fulfillment within the relationship. We also found support for Hypothesis 2, that need fulfillment from outside of the relationship is indirectly positively associated with dissolution consideration through its effect on perceived quality of alternatives.

General Discussion

Results of these studies revealed that although need fulfillment broadly is associated with increased commitment and satisfaction in a relationship, its association with perceived quality of alternatives is more nuanced. Whereas need fulfillment obtained within the relationship is associated with decreased perceived quality of alternatives, need fulfillment outside of the relationship is associated with increased perceived quality of alternatives. Put simply, whereas having one's needs met is associated with increased relationship satisfaction, *how*—or in this case, *by whom*—those needs are met has implications for perceived quality of alternatives to the relationship, which has implications for the long-term quality of the relationship.

Study 1 provided the first evidence that obtaining psychological need fulfillment can have deleterious consequences for romantic relationships. We found that, regardless of how much need fulfillment the romantic partner provides, receiving need fulfillment from outside of the romantic relationship is associated with believing the relationship will be less stable. That this effect was found among a large sample ($N = 4,681$) of highly committed people (i.e., married or living as married) suggests that this effect is worthy of further study, as its generalizability to the general population of Americans may be high. However, Study 1 demonstrated a relatively low effect size. We believe this may be due to the wide variability in the measure of need fulfillment (“emotional support” receipt), in which some participants may not have viewed this as what they required or have been willing to report it. In Studies 2 and 3, we changed the measure of need fulfillment to a wider array of needs, including some which indicate less vulnerability to report (e.g., caregiving, self-expansion), which increased the effect size considerably.

In Studies 2 and 3, we found evidence that, above and beyond need fulfillment from within the relationship, need fulfillment obtained from sources other than the romantic relationship is positively associated with perceived quality of alternatives. To the extent that an individual learns that another source of fulfillment is available besides their romantic partner, they have an alternative to the romance. In some instances, this alternative might be a one-to-one swap for their romantic partner (i.e., they could form a romantic partnership with the source of fulfillment). More commonly, we believe, the extradyadic source of fulfillment simply allows an individual to feel that being single, spending time with friends, or finding a new romantic partner at some point is a more viable option for them, in that their need fulfillment would not suffer considerably, should they opt to take one of those paths. Whereas this may be beneficial for the individual in the long term (e.g., reduced dependence on a romantic

partner has been hypothesized to have benefits; Finkel et al., 2014), it is damaging to the relationship. Indeed, in both Studies 2 and 3, increased quality of alternatives as a result of need fulfillment outside of the relationship was associated with greater dissolution consideration.

These results are significant when we consider how integral both romantic relationships and need fulfillment are to overall well-being. Relationships have an immense capacity to meet individuals' psychological needs, which is key for increasing subjective well-being (Diener & Lucas, 2000; Reis, Sheldon, Gable, Roscoe, & Ryan, 2000). More social connection provides greater potential to meet needs as there are more sources potentially available. However, as our results reveal, more sources of need fulfillment increase the quality of alternatives to the relationship, which may dampen the potential benefit of connection. This latter point is purely speculative at this point—more research is needed to examine how and whether the processes we observed here translate to reduced well-being long term.

These results are also important for further developing IT. The distinction between symbolic need fulfillment and concrete is explicit theoretically (Rusbult & Van Lange, 2003), but to date, has seen little empirical examination (for an exception, see VanderDrift & Agnew, 2012). Demonstrating that some need fulfillment can have a detrimental effect on the romantic relationship emphasizes how important understanding the meaning of need fulfillment in a given situation is, prior to assuming it will be beneficial. In other words, the oft methodologically ignored symbolic outcomes of need fulfillment should be examined along with concrete outcomes for a complete understanding of how need fulfillment will affect a relationship.

Limitations and Future Directions

It is important to contextualize these findings in terms of the constraints on their generality (i.e., the scope of the ideas that the data support). First, in all three studies, there was a strong positive correlation between need fulfillment outside of the relationship and need fulfillment within the relationship, which resulted in apparent suppression effects. We believe these suppression effects are likely the result of how much variability participants have in their need fulfillment estimates. Some participants see almost every interaction as a need fulfillment one, whereas others do not. Because of this wide range, we believe that the raw value of one predictor (e.g., need fulfillment outside of the relationship) statistically contextualizes the meaning of the other (e.g., need fulfillment within the relationship). Methodologically, adding support within the relationship effectively removes the measurement artifact variance from the support outside of the relationship scores. This means, however, that there will be cases in which need fulfillment from outside of the relationship is less detrimental than expected based on our results

in which need fulfillment within the relationship is held constant (e.g., when need fulfillment within the relationship is very high), and there will be cases in which it is more detrimental than expected (e.g., when need fulfillment within the relationship is very low).

Second, these studies looked at overall patterns of associations, washing across important individual differences in preferences. The literature suggests that some people may have preferences for particular sources for particular needs. For example, those high in attachment avoidance may prefer to have their self-expansion needs met by non-interpersonal sources (Tang, 2015), and adolescents may prefer to have their companionship needs met by friends (Meeus et al., 2007). In future work, we will examine whether preferences for need fulfillment sources moderate these effects.

Finally, we approached this question from an IT perspective (e.g., Thibaut & Kelley, 1959), which may be unique from other theories in two important ways that future research should reconcile. First, IT is agnostic as to which needs in particular individuals seek to fulfill, which is in stark contrast to other major theories such as self-determination theory (SDT) or attachment theory. Perhaps future work examining whether some needs in particular are more or less important to meet within the relationship would yield interesting patterns. Second, IT adopts a particularly functional view of need fulfillment, in which it forms the basis for evaluations of relationship quality. More motivationally formed theories (e.g., SDT), instead hold that need fulfillment's role is in promoting motivation, which can benefit relationships (e.g., Patrick et al., 2007). Again, future work would be very valuable here, to parse exactly what benefits arise from need fulfillment outside of the relationship (e.g., enhanced motivation), and how they are incorporated within the potential detriments we identified in this work (e.g., enhanced perceived quality of alternatives).

Conclusion

People have diverse psychological needs that they seek to have fulfilled to maximize their well-being. Fulfillment can come from myriad sources—romantic partners, friends, family, strangers, vocation, and recreation. Whereas having a bevy of available sources puts individuals at an advantage in terms of ensuring their needs are met, which source they utilize may have consequences that ironically hinder well-being by decreasing the quality of valued relationships. Across three studies, we found that when people achieve psychological need fulfillment from sources other than their romantic partner, they think more about ending their romantic relationship. Demonstrating its robustness, this association remains even when relationship quality is high and when the romantic partner also provides need fulfillment.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: Since 1995, the MIDUS study has been funded by the following: John D. and Catherine T. MacArthur Foundation Research Network, the National Institute on Aging (P01-AG020166), and the National Institute on Aging (U19-AG051426).

ORCID iD

Laura V. Machia  <https://orcid.org/0000-0001-8725-1395>

Data Accessibility Statement

All data, analysis scripts, and study materials are hosted on the Open Science Framework: <https://osf.io/57xgd/>

Supplemental Material

Supplemental material is available online with this article.

References

- Aron, A., & Aron, E. N. (1986). *Love and the expansion of self: Understanding attraction and satisfaction*. New York, NY: Harper & Row. doi:10.2307/2070652
- Arriaga, X. B., Kumashiro, M., Finkel, E. J., VanderDrift, L. E., & Luchies, L. B. (2014). Filling the void: Bolstering attachment security in committed relationships. *Social Psychological and Personality Science*, 5, 398-406. doi:10.1177/1948550613509287
- Baard, P. P., Deci, E. L., & Ryan, R. M. (2004). Intrinsic need satisfaction: A motivational basis of performance and well-being in two work settings. *Journal of Applied Social Psychology*, 34, 2045-2068. doi:10.1111/j.1559-1816.2004.tb02690.x
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182. doi:10.1037/0022-3514.51.6.1173
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117, 497-529.
- Berkman, L. F., Glass, T., Brissette, I., & Seeman, T. E. (2000). From social integration to health: Durkheim in the new millennium. *Social Science & Medicine*, 51, 843-857. doi:10.1016/S0277-9536(00)00065-4
- Berscheid, E., Snyder, M., & Omoto, A. M. (1989). The Relationship Closeness Inventory: Assessing the closeness of interpersonal relationships. *Journal of Personality and Social Psychology*, 57, 792-807. doi:10.1037/0022-3514.57.5.792
- Branch, S. E., Wilson, K. M., & Agnew, C. R. (2013). Committed to Oprah, Homer, or House: Using the investment model to understand parasocial relationships recommended citation. *Psychology of Popular Media Culture*, 2, 96-109. doi:10.1037/a0030938
- Cantor, M. H. (1979). Neighbors and friends: An overlooked resource in the informal support system. *Research on Aging*, 1, 434-463. doi:10.1177/016402757914002
- Carbery, J., & Buhrmester, D. (1998). Friendship and need fulfillment during three phases of young adulthood. *Journal of Social and Personal Relationships*, 15, 393-409. doi:10.1177/0265407598153005
- Diener, E., & Lucas, R. E. (2000). Explaining differences in societal levels of happiness: Relative standards, need fulfillment, culture, and evaluation theory. *Journal of Happiness Studies*, 1, 41-78.
- Drigotas, S. M., & Rusbult, C. E. (1992). Should I stay or should I go? A dependence model of breakups. *Journal of Personality and Social Psychology*, 62, 62-87. doi:10.1037/0022-3514.62.1.62
- Eastwick, P. W. (2009). Beyond the pleistocene: Using phylogeny and constraint to inform the evolutionary psychology of human mating. *Psychological Bulletin*, 135, 794-821. doi:10.1037/a0016845
- Fingerman, K. L. (2009). Consequential strangers and peripheral ties: The importance of unimportant relationships. *Journal of Family Theory & Review*, 1, 69-86. doi:10.1111/j.1756-2589.2009.00010.x
- Finkel, E. J., Hui, C. M., Carswell, K. L., & Larson, G. M. (2014). The suffocation of marriage: Climbing mount Maslow without enough oxygen. *Psychological Inquiry*, 25, 1-41. doi:10.1080/1047840X.2014.863723
- Furman, W., & Buhrmester, D. (1992). Age and sex differences in perceptions of networks of personal relationships. *Child Development*, 63, 103-115.
- Gagne, M. (2003). The role of autonomy support and autonomy orientation in the internalization of autonomous regulation for prosocial behavior. *Motivation and Emotion*, 27, 199-223. doi:10.1023/A:1025007614869
- Gagne, M., Ryan, R. M., & Bargmann, K. (2010). Autonomy support and need satisfaction in the motivation and well-being of gymnasts. *Journal of Applied Sport Psychology*, 15, 37-41. doi:10.1080/10413200390238031
- Hayes, A. (2013). *Introduction to mediation, moderation, and conditional process analysis*. New York, NY: Guilford.
- Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, 52, 511-524.
- Kelley, H. H., & Thibaut, J. W. (1978). *Interpersonal relations: A theory of interdependence*. New York, NY: Wiley.
- La Guardia, J. G., Ryan, R. M., Couchman, C. E., & Deci, E. L. (2000). Within-person variation in security of attachment: A self-determination theory perspective on attachment, need fulfillment, and well-being. *Journal of Personality and Social Psychology*, 79, 367-384. doi:10.1037/0022-3514.79.3.367
- Larson, R., & Bradley, N. (1988). Precious moments with family members and friends. In R. M. Milardo (Ed.), *Families and social networks* (pp. 107-126). Beverly Hills, CA: SAGE.
- Le, B., & Agnew, C. R. (2001). Need fulfillment and emotional experience in interdependent romantic relationships. *Journal of Social and Personal Relationships*, 18, 423-440. doi:10.1177/0265407501183007

- Le, B., & Agnew, C. R. (2003). Commitment and its theorized determinants: A meta-analysis of the investment model. *Personal Relationships, 10*, 37-57. doi:10.1111/1475-6811.00035
- Le, B., Dove, N. L., Agnew, C. R., Korn, M. S., & Mutso, A. A. (2010). Predicting nonmarital romantic relationship dissolution: A meta-analytic synthesis. *Personal Relationships, 17*, 377-390. doi:10.1111/j.1475-6811.2010.01285.x
- Lewandowski, G. W., & Ackerman, R. A. (2006). Something's missing: Need fulfillment and self-expansion as predictors of susceptibility to infidelity. *Journal of Social Psychology, 146*, 389-403. doi:10.3200/SOCP.146.4.389-403
- Meeus, W. H. J., Branje, S. J. T., van der Valk, I., & de Wied, M. (2007). Relationships with intimate partner, best friend, and parents in adolescence and early adulthood: A study of the saliency of the intimate partnership. *International Journal of Behavioral Development, 31*, 569-580. doi:10.1177/0165025407080584
- Milyavskaya, M., & Koestner, R. (2011). Psychological needs, motivation, and well-being: A test of self-determination theory across multiple domains. *Personality and Individual Differences, 50*, 387-391. doi:10.1016/j.paid.2010.10.029
- Patrick, H., Knee, C. R., Canevello, A., & Lonsbary, C. (2007). The role of need fulfillment in relationship functioning and well-being: A self-determination theory perspective. *Journal of Personality and Social Psychology, 92*, 434-457. doi:10.1037/0022-3514.92.3.434
- Reis, H. T., Sheldon, K. M., Gable, S. L., Roscoe, J., & Ryan, R. M. (2000). Daily well-being: The role of autonomy, competence, and relatedness. *Personality and Social Psychology Bulletin, 26*, 419-435.
- Rusbult, C. E., Martz, J. M., & Agnew, C. R. (1998). The Investment Model Scale: Measuring commitment level, satisfaction level, quality of alternatives, and investment size. *Personal Relationships, 5*, 357-391.
- Rusbult, C. E., & Van Lange, P. A. M. (2003). Interdependence, interaction, and relationships. *Annual Review of Psychology, 54*, 351-375. doi:10.1146/annurev.psych.54.101601.145059
- Sebire, S. J., Standage, M., & Vansteenkiste, M. (2009). Examining intrinsic versus extrinsic exercise goals: Cognitive, affective, and behavioral outcomes. *Journal of Sport & Exercise Psychology, 31*, 189-210. doi:10.1123/jsep.31.2.189
- Tang, Y. (2015). *Self-expansion motivated goal pursuit in relational and non-relational domains for individuals with different attachment styles* (ProQuest dissertations and theses). Retrieved from <https://surface.syr.edu/etd/280>
- Thibaut, J. W., & Kelley, H. H. (1959). *The social psychology of groups*. New York, NY: Wiley.
- VanderDrift, L. E., & Agnew, C. R. (2012). Need fulfillment and stay-leave behavior: On the diagnosticity of personal and relational needs. *Journal of Social and Personal Relationships, 29*, 228-245. doi:10.1177/0265407511431057
- VanderDrift, L. E., Agnew, C. R., & Wilson, J. E. (2009). Nonmarital romantic relationship commitment and leave behavior: The mediating role of dissolution consideration. *Personality and Social Psychology Bulletin, 35*, 1220-1232. doi:10.1177/0146167209337543
- VanderDrift, L. E., Lewandowski, G. W., & Agnew, C. R. (2011). Reduced self-expansion in current romance and interest in relationship alternatives. *Journal of Social and Personal Relationships, 28*, 356-373. doi:10.1177/0265407510382321
- VanderDrift, L. E., Wilson, J. E., & Agnew, C. R. (2012). On the benefits of valuing being friends for nonmarital romantic partners. *Journal of Social and Personal Relationships, 30*, 115-131. doi:10.1177/0265407512453009
- Wesselmann, E. D., VanderDrift, L. E., & Agnew, C. R. (2016). Religious commitment: An interdependence approach. *Psychology of Religion and Spirituality, 8*, 35-45. doi:10.1037/rel0000024
- Wieselquist, J., Rusbult, C. E., & Foster, C. A. (1999). Commitment, pro-relationship behavior, and trust in close relationships. *Journal of Personality, 77*, 942-966. Retrieved from <http://psycnet.apa.org/journals/psp/77/5/942/>