

Need fulfillment and emotional experience in interdependent romantic relationships

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ABSTRACT

Drawing from theoretical models of emotion and aspects of interdependence theory, we investigated the association among need fulfillment, relative dependence, and emotional experience within romantic relationships. Daily self-reports of general and relationship-related emotional experience and perceived fulfillment of relationship needs were collected on four consecutive days from participants involved in romantic relationships. Consistent with hypotheses, fulfillment of relationship needs was found to significantly predict emotional experience, with the association at times moderated by the geographic distance of the relationship (local versus long-distance). In addition, participants in relationships characterized by an inequality of dependence experienced less positive and more negative relationship-related emotion than did participants in mutually dependent partnerships.

KEY WORDS: emotion • interdependence • need fulfillment

In an episode of the popular American television show *Seinfeld*, Elaine, a main character, describes her feelings about being in a new romance to her friend, Jerry: 'Do you know what this is like? To have no control over a relationship? And you feel sick to your stomach all the time? Do you know what that's like?' To this, Jerry replies, 'No, but I've read articles and I must say, it doesn't sound very pleasant.' Although television does not always mirror real life, this scene provides an apt (albeit comical) illustration of emotion in interdependent relationships. Surprisingly little empirical work

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has attempted to integrate the considerable theoretical advancements in the emotion and interdependence literatures. This article draws upon these literatures and reports the findings from a study of romantic relationships that examined the association among perceptions of need fulfillment, relative dependence on a relationship, and emotional experience.

Functionality of the emotion–goal association

Although there is little consensus regarding the language used to describe human emotional states among researchers and within the literature (Berscheid, 1990), most scholars of human affective experience agree that emotional experience and expression are functional (Berscheid, 1983), and that both are necessary components for adaptive social interactions (Buck, 1989). One perspective taken by both researchers and theorists is that emotions serve as action tendencies, providing information that promotes appropriate future behaviors (Kelley, 1984). Moreover, affective states are useful – they provide evaluations of past experiences and inform individuals about the state of their goals (Lazarus, 1991), as well as adaptively orienting individuals toward future behaviors (Smith & Lazarus, 1990).

Goals may be seen as a mediating factor in the production of emotion. Goals are the desired target of human behavior, and provide definition in human existence (Austin & Vancouver, 1996). Goals can be concrete or abstract, immediate or attained over time (Carver, Lawrence, & Scheier, 1996). Past theorists (e.g., Singer & Salovey, 1993) have linked goals to emotions by proposing that emotion is related to how individuals perceive the status of their progress toward their goals. More specifically, a perceived disruption in the chain of events leading to a goal, either toward or away, produces emotion (Berscheid, 1983). This emotional experience acts as a signal that current goal status is potentially affected (either positively or negatively), which in turn influences future goal-related behavior (Carver et al., 1996). The valence of the emotion is determined by the nature of the disruption: if the disruption hinders the goal, negative emotions are produced; if progress toward the goal is accelerated or obstacles prohibiting goal attainment are removed, positive emotions are evoked.

Emotions, goals, and outcomes in close relationships

Emotions in close relationships have been the focus of much empirical research. Strong emotional experience and expression are important characteristics of close interpersonal relationships, and affective experience may vary across the temporal context of the relationship (Aune, Aune, & Buller, 1994; Fitness & Strongman, 1991). There are several proposed theoretical functions of affect within relationships. Emotion can act as a signal to oneself regarding the status of relationships goals and provide a motivation for future behaviors within the relationship (Berscheid, 1983). Kelley (1984) also noted that emotions function to communicate and coordinate future goals and needs within the relationship. Thus, emotions can act as non-verbal signals to a partner that expectations or needs are, or are not, being satisfied (Berscheid, 1983). Such non-verbal communication

is a crucial means of expressing current goal status and eliciting feedback from one's partner (Buck, 1989).

Interpersonal relationships offer an excellent arena to study emotional experience because of the prominence and importance of relationship-related goals. A precise definition of relationship-related goals is difficult to construct given the unique nature of individual's goals. Although individuals hold and value different goals, a general definition of relationship-related goals can be derived from the general definition of goal: 'an end toward which effort is directed' (*Merriam-Webster's Collegiate Dictionary*, 1994). Extending this definition to interpersonal relations, relationship-related goals can be thought of as preferred outcomes in a relationship. Conceptualizing relationship-related goals as desired outcomes is consistent with an interdependence analysis of relationship processes (Kelley & Thibaut, 1978; Rusbult & Arriaga, 1997). Central to an interdependence analysis is the concept that partners affect each others' outcomes. From an interdependence perspective, one partner's actions have an impact on the relationship-relevant goals of the other. Given the posited connection between goals and emotions, the impact of one partner on the other's relationship-relevant goals should be associated with emotional experience.

Outcomes, relationship needs, and emotions in relationships

Within the context of romantic relationships, some of the most important outcomes are those related to need fulfillment. The fulfillment of needs is functionally equivalent to receiving desired relationship outcomes from one's partner; thus, one may conceptualize relationship needs as context-specific outcomes. The fulfillment of relationship needs is akin to the attainment of on-going goals that must be actively and continuously met by one's partner or relationship.

Interpersonal researchers have begun to identify specific relationship needs that individuals seek to satisfy within close relationships (e.g., Prager & Buhrmester, 1998). For example, Drigotas and Rusbult (1992) identified five types of relationship needs that can be fulfilled within a romantic relationship: (1) intimacy needs, (2) companionship needs, (3) sexual needs, (4) security needs, and (5) emotional involvement needs. Intimacy needs are related to confiding in one another, sharing thoughts with one's partner, and disclosing feelings to one's partner. Companionship needs include spending time together and engaging in activities with one another. The full range of physical relations, from hand-holding to intercourse, is included within sexual needs. Security needs involve the stability of the relationship and the extent to which one can depend on the relationship to make life more secure. Finally, emotional involvement needs are related to the degree to which partners' emotions and moods correspond, and the extent to which one partner's affective states influence the other partner's emotional experiences. In the current study, these five needs were used to operationalize relationship-related goals. Fulfillment of these needs was conceptualized as analogous to goal completion, and non-fulfillment was conceptualized as non-completion.

Dependence and emotions in relationships

Although dependence is a defining feature of a close relationship, the level of dependence on a relationship may be unequal between two partners (cf. Agnew, 1999; Kelley & Thibaut, 1978). One partner may have disproportionate influence over the other partner's outcomes and emotions. This dependence imbalance is a function of an inequality in power and control, and lack of control on the part of one partner within the relationship may lead to negative emotion (Berscheid, 1983). Moreover, imbalances in power and control can have important consequences for relationships. For instance, Caldwell and Peplau (1984) report that individuals in relationships characterized by unequal power show less satisfaction and more self-reported problems. Furthermore, unequal involvement has been found to be related to relationship termination (Hill, Rubin, & Peplau, 1976).

Rusbult and Van Lange (1996) speculate that within mutually dependent relationships (i.e., relationships in which partners equally depend on each other regarding their outcomes) there should be less negative and more positive affect. Whereas these researchers discuss emotions based on the state of dependence characterizing a relationship overall, individual partners may also experience emotions based on their specific position within the relationship. For example, in a non-mutually dependent relationship, it is plausible to expect the more dependent partner to experience more negative and less positive emotion than would the less dependent partner. Thus, one intriguing question relates to the origin of emotions based on non-mutuality of dependence: Is emotional experience associated with one's perception of the presence of mutuality of dependence in the relationship overall, or is it associated with the perception of his or her specific position (i.e., being more or less dependent) within the relationship? We examined these alternative possibilities in the current study.

The current research and hypotheses

Driving the current research is the theoretical supposition that partners are dependent on each other for need fulfillment, and that both general and relationship-related emotional experience is related to need fulfillment or non-fulfillment. As elucidated earlier, Berscheid (1983) has specified the underlying process by which this occurs. However, extensive searches of the extant literature uncovered no empirical research that examined the association between need fulfillment and emotional experience within the context of romantic relationships. Therefore, the goal of the current research was to empirically test the following general hypotheses:

- H1:* Perceived relationship-related need fulfillment will be positively associated with daily positive emotion and negatively associated with daily negative emotion.
- H2:* Perceptions of being more dependent on a relationship relative to a partner will be associated with higher levels of daily negative emotion and lower levels of daily positive emotion.

H3: Individuals in relationships characterized by equality in dependence will experience more positive and less negative daily emotion than individuals in non-mutually dependent relationships.

To test these hypotheses, a longitudinal study of relationship need fulfillment and emotional experience was conducted. We examined the daily emotional experiences of people who report that their needs are or are not being fulfilled by their relationship partners. Daily-diary methodology was employed with data collected on four consecutive weekdays. This methodology was chosen because it allows for need fulfillment and emotions to be assessed at both a daily and aggregate level across a meaningful period of time. Multiple measurement occasions also provide the opportunity to replicate observed findings.

Need fulfillment, emotions, and long-distance relationships

In considering the hypotheses, it is important to also consider possible moderators of the predicted associations. One potential moderator of the hypothesized need fulfillment-emotion association is the physical availability of one's romantic partner. It may be more difficult for partners to fulfill each other's relationship-related needs when separated by great geographic distance and, compared with more proximal relationships, perceived need fulfillment on any given day may be differentially associated with experienced emotion. Thus, given the ubiquity of long-distance relationships in modern American society, we explored whether partner distance might serve to moderate the hypothesized need fulfillment-emotion association. Prototypical studies of long-distance relationships have focused on how such pairings differ in quality from local relationships. The results obtained from such studies are decidedly mixed. Although some researchers have found little or no differences between long-distance versus proximal relationships on variables such as intimacy, trust, satisfaction, and commitment (e.g., Guldner & Swensen, 1995), others have found lower levels of satisfaction and intimacy (e.g., Holt & Stone, 1988; Van Horn et al., 1997). Given the equivocal nature of the extant research findings, we advanced no hypotheses concerning the possible moderating role of partner distance and included the variable for exploratory purposes only.

Method

Participants

We chose to study individual college students involved in romantic relationships because goals and behaviors related to intimacy are particularly important to college-aged individuals (Cantor, Acker, & Cook-Flannagan, 1992). One-hundred and nineteen undergraduates enrolled in introductory psychology classes participated in this study to fulfill course requirements (42 males, 77 females). The median age of participants was 19 years ($M = 19.2$, $SD = 1.2$, range

= 18–23, with no sex difference in age) and 50.4% were first-year students (32.8% sophomores, 12.6% juniors, and 4.2% seniors). The sample was predominantly white (92.3% white, 3.4% Asian-American, 3.4% African-American). All participants were involved in heterosexual romantic relationships, with 82.4% indicating that they were 'dating steadily' (9.2% 'dating casually,' 5.9% 'engaged,' 1.7% 'married') and nearly all (93.3%) indicating that neither they nor their partners dated others. The median relationship duration was 15 months ($M = 17.1$, $SD = 12.4$, range = less than one month to 54 months).

A large percentage of participants (44.5%) were engaged in 'long-distance relationships,' with their partner living more than 50 miles away. Analyses were conducted that included partner distance (greater versus less than 50 miles) as a moderator variable.

Measures

Daily-diary report forms were created to measure both emotion and relationship need fulfillment on a daily basis. Participants completed one form per day for four days.

Emotional experience. Given that relationship factors are likely to influence both relationship-related emotions (e.g., jealousy) as well as more general emotions (e.g., happiness), we collected self-reports concerning the experience of both types of emotions. Specifically, daily emotions experienced were measured via participants' self-reports of 24 *general emotions*, as specified by Larsen and Diener (1992; Russell, 1980). Participants were presented with nine general positive emotion adjectives (happy, enthusiastic, calm, glad, elated, pleased, content, relaxed, euphoric), nine general negative emotion adjectives (distressed, gloomy, drowsy, droopy, sad, unhappy, annoyed, anxious, sluggish), and six general emotion adjectives neutral in valence but differing in arousal level (e.g., active; these neutral items were not used in analyses). Four additional adjectives were also included to tap *relationship-related emotions* (two positive: trusting, secure; and two negative: mistrustful, jealous; Berscheid, 1983). Thus, participants assessed a total of 28 emotions each day. A seven-point numerical rating scale was used for participants to rate each emotion experienced on a given day ('Use the scale below to indicate the average amount of each emotion you have experienced today,' with 0 labeled *not at all*, 3 labeled *moderately*, and 6 labeled *very much*).

Next, we conducted maximum-likelihood factor analyses, with Promax rotations, of the 22 valenced emotion items obtained on each of the four days. Results confirmed the appropriateness of the methodological practice of treating positive and negative emotion as independent dimensions, yielding a distinct positive emotion factor (Day 1 eigenvalue = 5.14, 20.0% of variance; Day 2 eigenvalue = 5.06, 16.5% of variance; Day 3 eigenvalue = 4.96, 15.5% of variance; Day 4 eigenvalue = 6.00, 14.9% of variance) and a distinct negative emotion factor (Day 1 eigenvalue = 13.90, 54.2% of variance; Day 2 eigenvalue = 17.60, 67.3% of variance; Day 3 eigenvalue = 19.18, 60.0% of variance; Day 4 eigenvalue = 25.19, 62.7% of variance). Moreover, the four relationship-related emotion items loaded on the predicted valence dimensions ('trusting' and 'secure' on the positive emotion factor, 'mistrustful' and 'jealous' on the negative emotion factor).

We then computed a general positive emotional experience score for each day by averaging the ratings of the nine general positive emotion adjectives (α for

Day 1 = .78, Day 2 = .83, Day 3 = .85, Day 4 = .85). Similarly, ratings for the nine general negative emotion adjectives were averaged to create a general negative emotional experience score for each day (α for Day 1 = .85, Day 2 = .85, Day 3 = .86, Day 4 = .89). Average general positive and negative emotion scores across days were also computed (α for four-day average general positive emotion = .90, α for four-day average general negative emotion = .92).

We also computed daily relationship-related positive and negative emotional experience scores (2-item scale reliability for positive relationship-related emotions: Day 1 $r = .53$, Day 2 $r = .47$, Day 3 $r = .63$, Day 4 $r = .51$; 2-item scale reliability for negative relationship-related emotions: Day 1 $r = .38$, Day 2 $r = .32$, Day 3 $r = .51$, Day 4 $r = .48$; all $p < .01$). Average relationship-related positive and negative emotion scores across days were also computed (α for four-day average relationship-related positive emotion = .83, α for four-day average relationship-related negative emotion = .76).

Relationship need fulfillment. The daily-diary forms also measured the extent to which each type of need was fulfilled by one's partner each day, using a seven-point scale (0 = *not fulfilled by my partner today*, 3 = *somewhat fulfilled by my partner today*, 6 = *totally fulfilled by my partner today*). As mentioned earlier, five specific relationship needs were assessed: intimacy, companionship, sexual, security, and emotional involvement. To ensure that participants understood what was meant by these relationship need categories, we provided each participant with written definitions of each need (e.g., 'Intimacy Needs: These needs are related to confiding in your partner, and sharing very personal thoughts, feelings, and secrets'). The respective ratings for each of the five relationship needs were averaged to create an average need fulfillment score for each day (α for Day 1 = .83, Day 2 = .84, Day 3 = .86, Day 4 = .86). An average need fulfillment score across days was also computed (α for four-day average need fulfillment = .92).

Dependence. The five-item Mutuality of Dependence subscale from the Interdependence Scale (Agnew, Martz, & Rusbult, 2001) was used to measure dependence on the relationship. This subscale measures a respondent's relative dependence on a partner for fulfillment of the five relationship needs described earlier in the introduction. Specifically, on a nine-point scale, participants were asked to judge who relies on the relationship more for each type of need fulfillment (e.g., 'Who relies more on your relationship for the fulfillment of his or her intimacy needs [sharing personal thoughts, secrets, etc.]?' 1 = *my partner*, 5 = *about equal*, 9 = *me*). This subscale was scored in two ways, corresponding to the requirements of Hypotheses 2 and 3. To test Hypothesis 2, the scale was scored using all nine points, that is, so that it was possible to identify if the participant was more or less dependent on the relationship than his or her partner for need fulfillment ($\alpha = .71$). To test Hypothesis 3, and consistent with Agnew et al.'s (2001) general scoring instructions, the scale was 'folded' such that the scale reflected deviations from equality within the relationship, rather than identifying which partner was more or less dependent (i.e., scores were recalculated such that 1 = 9, 2 = 8, 3 = 7, 4 = 6; $\alpha = .68$).

Procedure

On the first day of the week, participants attended a one-hour initial session in which they completed a questionnaire that contained the Interdependence

Scale and various demographic measures, as well as other relationship and personality measures. After participants finished the questionnaire, the daily-diary component of the study was explained. Each participant received a packet of materials including four daily-diary forms, a description of each of the five types of relationship needs, and a schedule describing how and when daily-diary report forms would be completed and collected. Participants were instructed to complete one diary form each night before going to bed, and then return the form the next day. Beginning that first night, participants made ratings of perceived fulfillment of relationship needs as well as the emotions they experienced that day. Each morning, participants then submitted their completed diary forms from the previous evening to ensure that diaries were completed on the appropriate day. Following the final day of data collection, participants were fully debriefed.

Results

Descriptive analyses of study measures

Overall, moderate levels of positive emotion (four-day average general positive emotion, $M = 3.10$, $SD = 0.69$; four-day average positive relationship-related emotion, $M = 4.25$, $SD = 1.00$) and low levels of negative emotion (four-day average general negative emotion, $M = 2.10$, $SD = 0.87$; four-day average negative relationship-related emotions, $M = 0.90$, $SD = 0.81$) were reported (see Table 1 for daily emotion means). Significantly more average positive than average negative emotion was experienced [for general emotion: $t(118) = 8.53$, $p < .01$; for relationship-related emotion: $t(118) = 23.34$, $p < .01$]. Moreover, participants in more geographically proximal relationships reported significantly greater general positive emotion ($M = 3.22$, $SD = 0.67$) than did participants in long-distance relationships [$M = 2.96$, $SD = 0.70$; $F(1, 117) = 4.06$, $p < .05$]. These groups did not differ in reported relationship-related positive emotion or in either general or relationship-related negative emotion.

Average need fulfillment was found to be near the midpoint of the seven-point scale for the overall sample for each day ($M = 3.60$, $SD = 1.30$; see Table 1, final columns). As might be expected, participants in long-distance relationships

TABLE 1
Descriptive statistics for emotional experience and need fulfillment

	General positive emotion		Relationship-related positive emotion		General negative emotion		Relationship-related negative emotion		Need fulfillment	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Day 1	3.26	0.85	4.42	1.22	2.06	1.14	0.83	1.11	3.59	1.63
Day 2	3.17	0.94	4.31	1.22	2.13	1.11	0.87	1.03	3.72	1.56
Day 3	2.99	0.99	4.12	1.39	2.07	1.17	0.98	1.15	3.54	1.68
Day 4	3.00	1.02	4.15	1.38	2.15	1.23	0.92	1.17	3.55	1.65
Four-day Average	3.10	0.69	4.25	1.00	2.10	0.87	0.90	0.81	3.60	1.30

Note. All N s = 119.

reported significantly lower average need fulfillment ($M = 2.95$, $SD = 1.23$) than did participants in local relationships [$M = 4.12$, $SD = 1.11$; $F(1, 117) = 29.40$, $p < .01$]. These two types of relationship participants differed significantly in reported fulfillment of four of the five relationship needs, with long-distance participants reporting significantly lower fulfillment concerning companionship [$F(1, 117) = 34.47$, $p < .01$], sex [$F(1, 117) = 64.22$, $p < .01$], security [$F(1, 117) = 7.50$, $p < .01$], and emotional involvement [$F(1, 117) = 4.30$, $p < .05$]. Only reported intimacy fulfillment did not differ significantly between these two groups; however, the direction of the mean difference was consistent with that obtained for the other needs.

Regarding dependence, on average, participants reported that their relationships were characterized by an equality of relationship dependence, with mean Mutuality of Dependence scores near the equality point of the scale. Using the 'folded' scoring procedure, the mean report was near the upper (i.e., equal) endpoint ($M = 4.38$, $SD = 0.67$, with 5 = partners equally rely on the relationship). Using the 'unfolded' scoring method, the mean was near the midpoint ($M = 5.05$, $SD = 0.81$, with 5 = participant and partner rely on relationship about equally). Participants in long-distance relationships did not significantly differ in their mutuality of dependence from those in more proximal relationships, using either scoring procedure.

Testing Hypothesis 1

To test the degree to which need fulfillment was associated with emotional experience, we conducted a series of moderated regression analyses, with relationship need fulfillment as the predictor variable, either positive or negative emotional experience as the criterion variable, and partner distance as a moderator variable. Separate analyses were conducted for general emotions and relationship-related emotions. Analyses were conducted using concurrent measures, with measures of need fulfillment predicting measures of that day's emotional experience (e.g., Day 1 need fulfillment predicting Day 1 positive emotion). In addition to analyses at the daily level, analyses were conducted using average emotion and need fulfillment across the four days of the study. Moderated regression analyses were conducted to determine whether the strength of the association differed significantly as a function of partner distance (i.e., between long-distance and local relationships). These analyses test whether the regression slope estimated between each measure of need fulfillment and each measure of emotional experience differed significantly as a function of partner distance (see Aiken & West, 1991, for a comprehensive review of this approach; also, see Baron & Kenny, 1986, and Jaccard, Turrisi, & Wan, 1990).

Need fulfillment and general emotional experience

Consistent with Hypothesis 1, average need fulfillment significantly predicted general positive emotional experience for each of the four days and averaged across the four days, such that greater fulfillment was associated with greater positive emotion. Moreover, as can be seen in Table 2, this association was qualified by a significant interaction with partner distance for three of the four days (and a marginally significant interaction with partner distance in the averaged analysis), such that the association between need fulfillment and general positive emotion was significantly stronger for participants in local relationships than for those in long-distance relationships. An examination of the simple

correlations between need fulfillment and general positive emotion by partner distance group revealed that these associations were significant for participants in local relationships (average $r = .41$; Day 1 $r = .32$; Day 2 $r = .39$; Day 3 $r = .32$; Day 4 $r = .50$; all $p < .01$), but not for those in long-distance relationships (average $r = .06$; Day 1 $r = .08$; Day 2 $r = .03$; Day 3 $r = -.04$; Day 4 $r = .15$).

Contrary to our expectations, results for negative general emotional experience did not fully parallel those obtained for positive general emotion (see the bottom half of Table 2). Average need fulfillment significantly predicted general negative emotional experience for only one of the four days, with less need fulfillment associated with greater negative emotion on Day 4. This association was qualified by a significant interaction with partner distance, such that the association between need fulfillment and negative emotion was significantly stronger for participants in local relationships than for those in long-distance relationships for that day.

Need fulfillment and relationship-related emotional experience

Consistent with Hypothesis 1, average need fulfillment significantly predicted relationship-related positive emotional experience for each of the four days and across the four days, such that greater need fulfillment was associated with greater positive emotion. As can be seen in Table 3, this association was qualified by a marginally significant interaction with partner distance for two of the four days ($p < .10$), such that the association between need fulfillment and relationship-related positive emotion was marginally stronger for participants in local relationships than for those in long-distance relationships (participants in local relationships: average $r = .49$; Day 1 $r = .47$; Day 2 $r = .39$; Day 3 $r = .51$; Day 4 $r = .58$; all $ps < .01$; long-distance relationships: average $r = .31$, $p < .05$; Day 1 $r = .24$, $p < .10$; Day 2 $r = .38$, $p < .01$; Day 3 $r = .30$, $p < .05$; Day 4 $r = .32$, $p < .05$). However, a comparison of the four-day average correlation between need fulfillment and relationship-related positive emotion by partner distance indicated that this difference was not significant (local relationships $r = .49$, $p < .01$; long-distance relationships $r = .31$, $p < .05$).

In contrast to the results obtained for general negative emotional experience, average need fulfillment significantly predicted relationship-related negative emotional experience for each of the four days and across the four days, such that less fulfillment was associated with more negative emotion. As can be seen in Table 3, this association was qualified by a marginally significant interaction with partner distance in the averaged analysis ($p < .09$), such that the association between need fulfillment and relationship-related negative emotion was marginally stronger for participants in local relationships than for those in long-distance relationships.

In addition to these analyses, we also conducted regression analyses using lagged and backward lagged need fulfillment – emotion measure combinations. Consistent with the theorized association between need fulfillment and emotion described in the introduction, lagged correlations assume that need fulfillment precedes emotional experience, and refer to need fulfillment associated with the following day's emotional experience (e.g., Day 1 average need fulfillment associated with Day 2 emotional experience). In contrast, backward lagged analyses test the possibility that emotional experience precedes perceptions of need fulfillment, and refer to need fulfillment associated with the previous day's emotional experience (e.g., Day 1 emotional experience with Day 2 average need fulfillment). Given the theorized sequence of variables, we expected to

TABLE 2
Moderated regression analyses of need fulfillment and general emotional experience ($N = 119$)

Model	Beta	<i>t</i>	R^2
Need fulfillment predicting general positive emotional experience			
Overall Model: Day 1			.082*
Need Fulfillment	.359	2.76*	
Partner Distance	.249	1.10	
Interaction	-.303	-1.44	
Overall Model: Day 2			.104**
Need Fulfillment	.451	3.23**	
Partner Distance	.441	1.77	
Interaction	-.473	-2.12*	
Overall Model: Day 3			.059†
Need Fulfillment	.344	2.41*	
Partner Distance	.337	1.51	
Interaction	-.432	-1.99*	
Overall Model: Day 4			.172**
Need Fulfillment	.541	4.45**	
Partner Distance	.378	1.83†	
Interaction	-.437	-2.19*	
Overall Model: Average Across 4 Days			.091*
Need Fulfillment	.377	2.68**	
Partner Distance	.383	1.33	
Interaction	-.454	-1.76†	
Need fulfillment predicting general negative emotional experience			
Overall Model: Day 1			.051
Need Fulfillment	-.166	-1.25	
Partner Distance	-.016	-0.07	
Interaction	.139	0.65	
Overall Model: Day 2			.011
Need Fulfillment	-.162	-1.10	
Partner Distance	-.239	-0.91	
Interaction	.204	0.87	
Overall Model: Day 3			.015
Need Fulfillment	-.134	-0.92	
Partner Distance	-.021	-0.09	
Interaction	.020	0.09	
Overall Model: Day 4			.089**
Need Fulfillment	-.400	-3.14**	
Partner Distance	-.429	-1.98*	
Interaction	.501	2.40*	
Overall Model: Average Across 4 Days			.016
Need Fulfillment	-.093	-0.63	
Partner Distance	-.073	-0.25	
Interaction	.163	0.61	

† $p < .10$; * $p < .05$; ** $p < .01$.

TABLE 3
Moderated regression analyses of need fulfillment and relationship-related emotional experience (*N* = 119)

Model	Beta	<i>t</i>	<i>R</i>²
Need fulfillment predicting relationship-related positive emotional experience			
Overall Model: Day 1			.170**
Need Fulfillment	.511	3.62**	
Partner Distance	.276	1.24	
Interaction	-.285	-1.57	
Overall Model: Day 2			.153**
Need Fulfillment	.490	3.60**	
Partner Distance	.277	1.14	
Interaction	-.140	-0.64	
Overall Model: Day 3			.194**
Need Fulfillment	.589	4.45**	
Partner Distance	.330	1.60	
Interaction	-.344	-1.72 [†]	
Overall Model: Day 4			.247**
Need Fulfillment	.621	5.35**	
Partner Distance	.334	1.69 [†]	
Interaction	-.332	-1.75 [†]	
Overall Model: Average Across 4 Days			.211**
Need Fulfillment	.596	4.55**	
Partner Distance	.406	1.52	
Interaction	-.328	-1.36	
Need fulfillment predicting relationship-related negative emotional experience			
Overall Model: Day 1			.049
Need Fulfillment	-.313	-2.36*	
Partner Distance	-.334	-1.44	
Interaction	.329	1.54	
Overall Model: Day 2			.108**
Need Fulfillment	-.446	-3.19**	
Partner Distance	-.320	-1.29	
Interaction	.230	1.03	
Overall Model: Day 3			.052 [†]
Need Fulfillment	-.340	-2.37*	
Partner Distance	-.284	-1.27	
Interaction	.315	1.45	
Overall Model: Day 4			.117**
Need Fulfillment	-.473	-3.77**	
Partner Distance	-.448	-2.09*	
Interaction	.473	2.30*	
Overall Model: Average Across 4 Days			.102**
Need Fulfillment	-.468	-3.35**	
Partner Distance	-.505	-1.77 [†]	
Interaction	.444	1.73 [†]	

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

obtain significant support for lagged but not backward lagged analyses. However, results from both sets of analyses were non-significant (these results are available from the authors upon request). It is likely that the lack of variation obtained between measures of identical constructs across days (see Table 1) acted against our obtaining significant results, given that both the lagged and backward lagged analyses required the inclusion of both Time n and Time $n-1$ variables in the regression equations.

Although not germane to our study hypotheses, we also conducted analyses to determine if any of these associations were moderated by the sex of the participant. These analyses failed to demonstrate significant moderation by sex.

Testing Hypothesis 2

To examine if individuals' relative dependence levels were related to emotional experience, the 'unfolded' scoring of the Mutuality of Dependence subscale was correlated with four-day average general positive and general negative emotional experience. No significant correlations were found between relative dependence and general emotional experience, at either the daily or the aggregate level (e.g., four-day average positive general emotion: $r = .06$; four-day average general negative emotion: $r = -.07$). Non-significant results were also found with relationship-related emotions (e.g., four-day average positive relationship-related emotion: $r = .07$; four-day average relationship-related negative emotion: $r = -.11$).

Testing Hypothesis 3

To determine whether individuals' perceptions of inequality in relationship dependence (regardless of who was perceived to be more dependent) were related to emotional experience, the Mutuality of Dependence subscale was correlated with the emotional experience variables using the 'folded' scoring of the scale. Consistent with Hypothesis 3, both positive and negative relationship-related emotions were found to be significantly associated with mutuality of dependence at both daily and aggregate levels (for positive relationship-related emotion: average $r = .44$; Day 1 $r = .22$; Day 2 $r = .35$; Day 3 $r = .43$; Day 4 $r = .33$; all $ps < .01$; for negative relationship-related emotion: average $r = -.26$, $p < .01$; Day 1 $r = -.18$, $p < .05$; Day 2 $r = -.16$, $p < .10$; Day 3 $r = -.19$, $p < .05$; Day 4 $r = -.23$, $p < .01$). In contrast, largely non-significant correlations were found between mutuality of dependence and both general positive (average $r = .16$, $p < .10$) and general negative emotion (average $r = -.07$, ns).

Discussion

Drawing on theoretical models of emotion, as well as aspects of interdependence theory, we investigated the association between emotional experience and goals within romantic relationships. Need fulfillment was conceptualized as analogous to completion of relationship-related goals, and dependence upon one's romantic partner to fulfill relationship needs was hypothesized as being related to emotional experience. The current research contributes to the close relationships literature by providing an empirical demonstration of the association between need fulfillment and

experienced emotions. The obtained findings also suggest that geographic distance acts to moderate the need fulfillment–emotion association.

Hypothesis 1 predicted an association between need fulfillment and emotional experience. Specifically, perceived relationship-related need fulfillment was predicted to be positively correlated with positive emotions and negatively correlated with negative emotions. This hypothesis received moderate support for general emotions: on four separate days, fulfillment of relationship needs significantly predicted degree of general positive emotion, such that those who perceived that their needs were being met tended to experience more positive emotion. On one of four days, need fulfillment also significantly predicted degree of general negative emotion, such that those who perceived that their needs were not being met tended to experience more negative emotion. Results obtained with relationship-related emotions were stronger and more consistent: on all four days, a significant association was found between need fulfillment and the experience of both positive and negative relationship-related emotions. As noted, associations between need fulfillment and emotional experience were only found on concurrent days; lagged and backward-lagged analyses yielded non-significant results.

These results are consistent with common conceptualizations of the emotion–goal relationship, with emotion viewed as an important signal of progress toward one’s goals (Lazarus, 1991). In the relational context, individuals involved in romantic involvements strive to fulfill their needs and their emotional experiences act as a gauge of their progress toward need fulfillment. Those who perceive that their needs are being met should tend to experience positive emotions, and those who perceive that their needs are not being met should tend to experience negative emotions. In this manner, emotional experience acts as a signal, indicating either to ‘maintain the status quo’ in the relationship (positive emotion) or ‘change strategies, because this isn’t working’ (negative emotion; Smith & Lazarus, 1990).

This pattern of findings was at times moderated by relative partner distance. Specifically, the correlations between need fulfillment and positive emotion were robust for those with partners residing nearby and generally lower or non-significant for those in long-distance relationships. These results suggest that one’s relationship partner needs to be physically accessible for the need fulfillment–positive emotion association to firmly hold. Those involved in long-distance partnerships may not have expectations or opportunities for need fulfillment, so associations with experienced daily emotion are weak. This is not to say that individuals in long-distance partnerships do not experience positive emotions (as evidenced by their relatively high mean levels). However, it is possible that the positive emotions they do experience are tied to relational events such as talking on the phone, writing and receiving letters, making plans, and thinking about the partner. Consistent with this possibility, in this study the only type of relationship need fulfillment that did not significantly differ between those in long-distance versus more proximal partnerships was with respect to intimacy

needs – or those that can be fulfilled without physical presence (as opposed to, for example, companionship or sexual needs).

Hypothesis 2 predicted that individuals who perceive themselves as more dependent on the relationship than their partners would experience higher levels of negative emotion and lower levels of positive emotion. Conversely, individuals who perceive themselves to be less dependent on the relationship than their partners were predicted to experience lower levels of negative emotion and higher levels of positive emotion. This hypothesis was not supported. No association between emotion (either general or relationship related) and relative position in the relationship was found. It is possible that no association was found because most participants in the sample reported that they were equally dependent (i.e., the mode score for dependence was the 'equality' point on the scale, and 87% of participants were within 1-point of 'equality'). It is also possible that this hypothesis would only be supported for those individuals at extreme ends of the dependence continuum. Future researchers may wish to re-test this hypothesis with data obtained from a sample of individuals who perceive greater differences in dependence level.

However, an alternative explanation for the lack of support obtained for Hypothesis 2 is that emotional experience is more the product of the relative dependence characterizing the relationship overall, consistent with the prediction of Hypothesis 3. This hypothesis predicted that individuals in relationships characterized by perceived equality in dependence would experience both more positive and less negative emotion. Significant correlations between perceived relationship equality and both positive and negative relationship-related emotion were found. Specifically, those participants in relationships characterized by an equality of dependence between partners tended to report higher levels of positive and lower levels of negative relationship-related emotion (cf. Rusbult & Van Lange, 1996). Conversely, those relationships characterized by an inequality of dependence tended to be associated with lower levels of positive and higher levels of negative relationship-related emotion (cf. Caldwell & Peplau, 1984; Hill et al., 1976). These findings are of particular interest because they suggest that one's positive emotional experience within a relationship is best predicted by a one's perception of the overall dependence dynamic between partners (Hypothesis 3), and not by an individual's position relative to his or her partner (Hypothesis 2).

In testing our hypotheses, the effects for general negative emotion were substantially weaker than those found for general positive emotion. At the descriptive level, average general negative emotional experience was significantly lower than general positive emotional experience, indicating that, across time, positive emotions tended to prevail. It is possible that a form of 'buffering' took place regarding non-fulfillment of needs. As a relationship progresses and partners' relational motivations become transformed from being self-focused to partnership-focused (e.g., Agnew, Van Lange, Rusbult, & Langston, 1998), a temporary reduction or virtual absence of need fulfillment may be perceived as tolerable to protect

relationship stability. Having one's needs left unfulfilled on one day may not become associated with general negative emotional experience because it may be expected that these needs will be met in the future. Thus, it may be more fruitful to examine declines in need fulfillment across prolonged periods, rather than at daily intervals, when searching for associations with general negative emotion.

Limitations and future directions

It is important to acknowledge the limitations of this work. As a correlational study, this research cannot fully address the causal sequence between need fulfillment and emotion. Does need fulfillment lead to emotional experience? This is a difficult question to answer in real, ongoing relationships, and the present study was not designed to definitively disentangle this association. Future experimental work might fruitfully investigate this causal question. It should also be noted that the current diary study did not counterbalance the presentation of the need fulfillment and emotional experience measures, thus introducing the possibility of an order effect. Measures were not counterbalanced within the diary packets because of a desire to keep the multi-day task as simple and straightforward as possible for study participants. Nevertheless, the possibility of substantive order effects should be investigated in future research.

Moreover, the correlational study design does not allow us to rule out the possibility of some third variable being responsible for the obtained associations (e.g., passing an exam on a given day might have affected respondents' answers to all study measures). Although we cannot completely rule out the effects of potential third variables, replicating our findings across several days at least makes us more confident that the effects of random or transitory factors (such as a traffic accident or ambient room temperature) are unlikely to be driving the findings. Moreover, both interdependence theory and the emotions literatures that we reviewed in the introduction would predict the pattern of results that we obtained.

In addition, although the daily-diary technique used in the current study is useful in collecting data unavailable in standard laboratory studies, the pragmatics involved in administering such a procedure limit such work to relatively short time frames. A study that tracks participants across a significantly longer period would better examine the long-term associations between need fulfillment and emotional experience. It also must be noted that the findings from the current work may not be generalizable beyond the sample population. The vast majority of partnerships examined in this study were dating relationships among college-aged young adults, and the sample was exclusively heterosexual and predominantly white. Future work will prove useful in extending these findings to other, more diverse samples.

In addition to examining other populations and longer time frames, there are several other logical directions in which this research can progress. One is to conduct a couple-level study. Collecting data from both members of a dyad could better establish participants' dependence on their relationships, as well as provide insight into how emotion operates between partners.

Moreover, it would be of interest to determine whether specific personality factors moderate the association between need fulfillment and emotion (e.g., neuroticism). Furthermore, it may prove useful to identify how particular types of outcomes lead partners to become dependent upon one another.

The current study also only focused upon emotional experience and not on emotional expression. It would be fascinating to go beyond emotional states and examine how perceptions of need fulfillment are related to overt emotional displays. While there remain unanswered questions and much work to be done in this area, the current research makes an important contribution by empirically demonstrating that the experience of emotion is associated with one's perceptions of relationship need fulfillment, as well as being associated with inequality in partners' dependence on one another. We hope that the current study serves as a catalyst to further investigations in this area.

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