

# Modeling Support Provision in Intimate Relationships

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Whereas supportive interactions are usually studied from the perspective of recipients alone, the authors used a dyadic design to incorporate the perspectives of both provider and recipient. In 2 daily diary studies, the authors modeled provider reports of support provision in intimate dyads over several weeks. The 1st involved couples experiencing daily stressors ( $n = 79$ ); the 2nd involved couples experiencing a major professional stressor ( $n = 196$ ). The authors hypothesized that factors relating to (a) recipients (their requests for support, moods, and stressful events), (b) providers (their moods and stressful events), (c) the relationship (relationship emotions and history of support exchanges), and (d) the stressor (daily vs. major stressors) would each predict daily support provision. Across both studies, characteristics of providers, recipients, and their relationship emerged as key predictors. Implications for theoretical models of dyadic support processes are discussed.

**Keywords:** support provision, dyadic relationships, emotions, multilevel models, daily diary studies

Social affiliation is considered to be a basic psychological need (Ryan & Deci, 2000), and a primary way adults fulfill this need is to form an intimate relationship with another person. Once formed, intimate relationships can be potent—and often primary—sources of emotional and practical support in times of stress. Indeed, it is common in social epidemiology to use marital status as a proxy measure of social support availability (e.g., Berkman & Breslow, 1983). The equation of marital status with social support has been justified by evidence that married people live longer, recover more quickly from mental and physical illnesses, and are less likely to engage in risk-taking behavior than those who are not married (for a review, see Coombs, 1991).

Despite this evidence, there are indications that merely having an intimate partner does not imply that a person will receive effective support (Coyne & Bolger, 1990). Even when the support is well-intended, it can be inappropriate, untimely, or excessive

(Coyne, Wortman, & Lehman, 1988). Further, when couples confront severe or chronic stressors, the partner may become overwhelmed and essentially incapable of being supportive. For example, in a study of breast cancer patients and their significant others Bolger, Foster, Vinokur, and Ng (1996) reported that the greater the patients' distress in the month immediately following diagnosis, the less likely their husbands provided support over the subsequent 6 months. This finding underscores the fact that support provision itself can be a variable process.

To date, published studies on enacted support have usually focused on the perspective of the distressed, injured, or ill persons who are the recipients of the support (e.g., Neff & Karney, 2005; Sandler & Barrera, 1984; Sarason, Sarason, & Pierce, 1990). A second characteristic of the literature is that supportive acts are treated as causes rather than consequences, whether in naturalistic studies of social interaction (e.g., Bolger, Zuckerman, & Kessler, 2000; Collins, Dunkel-Schetter, Lobel, & Scrimshaw, 1993; Gleason, Iida, Bolger, & Shrout, 2003) or in laboratory experiments (e.g., Bolger & Amarel, 2007; Feeney & Collins, 2001). Support events, however, emerge from the prior social exchanges of both providers and recipients, and they are likely to be contingent on a variety of cognitive and emotional factors that accompany these exchanges. The research reported below attempts to move beyond these traditional limitations by using data from both providers and recipients to study the genesis of support provision in intimate dyads.

We build on the broad conceptual analysis of the support provision process described by Dunkel-Schetter and Skokan (1990). They classified the determinants of support provision into four categories: (a) recipient factors, (b) provider factors, (c) relation-

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This work was partially supported by National Institute of Mental Health Grant R01-MH60366. We gratefully acknowledge Janet Krone Kennedy for collecting the data for Study 1 and Christina Gunther, Renata Goldshteyn, and Lauren Rusen for their help in collecting the data for Study 2. We thank members of the New York University Couples Laboratory for their helpful comments and suggestions on drafts of this article.

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ship factors, and (d) stressor factors. Although they did not say so explicitly, some components of these factors were thought to relate to the overall likelihood that support would be provided (e.g., more empathic providers might provide support over a wide range of situations), whereas others were thought to relate to responsiveness to situations (e.g., the level of distress manifested by the potential recipient at a given time, or the appraisal of the amount of stress that is expected in a given situation).

Dunkel-Schetter and Skokan's (1990) review is now more than 15 years old, yet few researchers have examined its components empirically. An exception is Jung (1989), who focused on a recipient factor: recipients' efforts to resolve the problem. He found that when participants were asked to recall a past instance of support provision, they were more likely to provide support when they thought that the recipients were making an effort to resolve the problem. Feeney and Collins (2001) focused on a provider factor: providers' attachment styles. They found that anxiously attached individuals provided higher levels of emotional support to partners who were soon to engage in a stressful lab task and that the additional support was unrelated to the need expressed by their partners. Applying reciprocity theory to the process of support provision, Knoll, Burkert, and Schwarzer (2006) focused on a relationship factor: history of support exchanges. As predicted, they found that receiving support increased the likelihood of support provision.

Still missing from the support literature is a comprehensive consideration of the possible multiple influences on support provision posited by Dunkel-Schetter and Skokan (1990). Also missing is a clear distinction between between-couple level influences (i.e., characteristics of relationship that fosters support) and within-couple processes (i.e., situations that make support provision more or less likely). Within-couple processes can only be examined when there are multiple opportunities to observe whether support is provided under certain circumstances. In this article, we attempt to address the limitations of the literature by reporting on two daily diary studies that allow an examination of within-couple support provision processes. In examining these processes, we consider a number of predictors of social support provision that were anticipated by the Dunkel-Schetter and Skokan analysis. We concentrate on predictive factors that can help explain why support might be provided on one day but not on another.

### Recipient Factors

One of the most salient predictors of support provision is the request for support (e.g., Hobfoll & Lerman, 1989). Requests for support may be expressed either directly or indirectly (Eckenrode & Wethington, 1990). Direct requests for support are more likely to lead to support, as they avoid ambiguity (Barbee, Cunningham, Winstead, & Derlega, 1993), and therefore we hypothesized that on days when the potential recipient reported seeking support, support provision would be more likely to occur.

One way support can be indirectly requested is by an open expression of distress by the potential recipient. Greater recipient distress should motivate increased support provision by the provider because intimate relationships tend to follow communal norms (Clark & Mills, 1979). The defining feature of a communal relationship is that partners feel responsible for one another's welfare and give benefits in response to the others' needs, and thus

both members of the couple are expected to provide support when the partner is in need. Reducing the partner's distress is also likely to be an important goal for a variety of reasons, such as the purely altruistic motive of caring for the partner or the purely selfish motive of getting the partner in a position in which he or she is less distressed and better able to fulfill one's own needs. In the support mobilization literature, the level of distress experienced by potential recipients is an important predictor of receiving support (e.g., Hobfoll & Lerman, 1989; Kaniasty & Norris, 1995). For example, Kaniasty and Norris (1995) found that participants who reported being highly impacted by Hurricane Hugo received more support compared with participants who did not. In our study, we hypothesized that distress of the recipient would be related to increased likelihood of support provision, even after adjusting for explicit requests for support.

### Provider Factors

Recipient factors alone are not enough to ensure that support is provided. Even when the partner is distressed and the opportunity is there to provide support, support is not always given (Cutrona, 1996). One such factor that may enhance or hinder support provision is the potential provider's motivation to provide support. If the motivation is high, then one is more likely to provide support; on the other hand, if the motivation is low, then one is less likely to provide support. Another factor that may influence support provision is limitation or lack of provider resources (Feeney & Collins, 2001, 2003). There are at least two ways that the provider's resources may hinder support provision behavior: (a) It may limit one's capacity to notice the situation, and (b) it may limit one's capacity to execute the behavior. One indicator of strained provider resources is the occurrence of a stressful event to the potential provider. On a stressful day, potential providers may be more motivated to take care of their own needs rather than their partners'. For example, if a husband is preparing for a company presentation, he may be too busy working on his own project to encourage his wife for her job interview. It is also possible that stressors drain cognitive or physical resources to provide support. For example, if a wife spent the evening helping her daughter with her science project, she may be too tired to listen to her husband talk about his stressful day at work. Therefore, we expected that the likelihood of support provision would be inversely related to the number of stressors that the provider experiences.

Another way in which the provider's resources could be strained is the provider's own mood. A provider's negative mood, in so far as the provider is trying to cope with the negative mood, should influence the likelihood of support provision. Several studies have linked negative mood to self-focused attention (i.e., inward attention to one's thoughts and self; for a review, see Mor & Winquist, 2002). Negative moods often initiate attempts at mood regulation, which may cause attentional and cognitive demands (e.g., Larsen & Prizmic, 2004). Alternatively, it is also possible that negative mood promotes supportive behavior as a way of regulating one's mood (e.g., negative state relief model; Cialdini et al., 1987). Although studies have shown that providing support improves one's mood (e.g., Brown, Nesse, Vinokur, & Smith, 2003; Gleason et al., 2003), there is no empirical support that the potential provider recognizes that providing support improves his or her mood. Therefore, we hypothesized that the negative mood expe-

rienced by the provider may render him or her less likely to notice his or her partner's need for support and also drain resources that might normally be used to provide support.

Conversely, positive mood of the provider might indicate that resources are available, particularly generalized activation of awareness and the energy to implement any intentions to provide support (Trobe, Igou, & Burke, 2006). In addition, research from the helping literature suggests that positive moods promote helping behaviors (for a review, see Carlson, Charlin, & Miller, 1988). We hypothesized that support provision would be relatively less likely on days when providers reported more negative mood and more likely on days when positive mood was elevated.

### Relationship Factors

Emotions felt within the context of the relationship may also play an important role in predicting whether or not support is provided, especially the anxiety that individuals feel in their relationships. Considerable research has focused on attachment anxiety. According to adult attachment theory, those with an anxious attachment style tend to have less satisfying relationships, in part because they feel that they should be getting more love and more attention from their partners than they currently are and are worried that their partners will leave them (Hazen & Shaver, 1987). Their relationship problems are compounded by their tendency to seek excessive reassurance that they are wanted and loved (Shaver, Schachner, & Mikulincer, 2005).

When it comes to the provision of support, the picture is more complicated. Feeney and Collins (2001) found that anxious individuals tend to provide support in a way that is different from secure individuals. Anxious individuals tend to provide more controlling and compulsive (overinvolved) support to their partners, regardless of the partners' need for support, whereas secure individuals are more likely to provide support that is contingent on the needs or support seeking of their partners (Simpson, Rholes, Orina, & Grich, 2002). For those who are not anxiously attached, daily relationship anxiety is likely to be caused by the sense that they are not getting the attention and love that they need (a feeling experienced chronically by the anxiously attached). These individuals are then motivated to reduce the anxiety that they feel about the relationship by seeking love and approval from their partners. Similarly, when recipients' feel anxious in their relationship, they may seek love and approval from their partners by seeking support, thus leading to support mobilization. We proposed to test these ideas by hypothesizing that support provision would be more likely on days when both members of the couple were experiencing anxiety focused on the relationship, even after adjusting for the providers' general positive and negative moods and for the recipient factors reviewed above.

Relationship satisfaction can also play an important role in determining whether support is provided to the relationship partner (Dunkel-Schetter & Skokan, 1990). For example, in a study of 107 Israeli mothers, level of relationship satisfaction was a significant predictor of the amount of support received from their partners (Hobfoll & Lerman, 1989). Because this study was cross-sectional, the association between relationship satisfaction and support exchanges was examined between persons. In the current study, we hypothesized a within-dyad replication: On days when both members of the couple experienced higher levels of relationship satis-

faction, the provider would show a relatively higher likelihood of support provision.

Another aspect of the relationship that can affect the likelihood of support provision is the perceived balance in the relationship. Reciprocity theory and equity theory assume that individuals try to minimize the discomfort of being in an inequitable state (Uehara, 1995; Walster, Berscheid, & Walster, 1973). In the context of social support, equity theory hypothesizes that receiving support creates inequity in a relationship, motivating the recipient to provide support to restore equity. On the basis of this theory, we predicted that support provision would be more likely on days when the potential provider perceived that he or she had been the beneficiary of support from the partner.

### Stressor Factors

Support is usually conceived to be acts that are intended to reduce distress during a stressful situation (Thoits, 1995). Thus, the objective and appraised level of stress associated with a situation should be related to both the likelihood of support and the quality of that support. If the partner is experiencing a major acute stressor, the provider is more likely to give support because the expectations as a relationship partner are clear (Clark & Mills, 1979). However, if the stressor is minor, the provider may conserve resources for larger stressful events by withholding support (Hobfoll, 1988). Dunkel-Schetter and Skokan (1990) distinguished ambiguous stressors and unambiguous stressors. Support provision is more likely if situations are appraised as stressful by both potential support providers and recipients; therefore, if the stressors are unambiguous, it is more likely to be appraised as stressful by both parties. In this article, we report on support provision in the context of two classes of stressors: daily stressors and a major professional stressor. We predicted that support would be more likely on days when recipients reported that daily stressful events had occurred, and we predicted that the likelihood of support would increase as an acute stressful event drew near in time, but when an acute, unambiguous stressor was present, more support would be provided than when recipients were dealing with minor daily stressors.

### The Current Study

The factors we have reviewed arise from a variety of theoretical perspectives, and they are all plausible predictors of whether support is provided on a given day by an intimate partner. However, the literature contains no information about the relative importance of these factors, nor how each fits into the context of a daily support dynamic. It is the goal of this article to provide such information. Our conceptualization of the social support process requires the use of methods capable of capturing the effects of recipient, provider, and relationship factors on this dynamic process as it unfolds in the daily lives of intimate couples. Daily process methods are ideally suited for addressing these questions and represent an innovative approach to the study of social psychological processes such as support provision (Bolger, Davis, & Rafaeli, 2003).

Although we are interested in social support within the context of an intimate relationship, we focus on the reported behavior of the support provider on a given day. Providers' behavior can be

influenced by any combination of the factors just reviewed, and the relative importance of these factors may vary from couple to couple. We will take these sources of variance into account in our analyses.

We use data from two studies of coping and support in couples to examine predictors of support provision.<sup>1</sup> Study 1 addresses the support provision process in everyday life, whereas the purpose of Study 2 was to examine the same process when the potential recipient was undergoing a significant stressor. The first data set used to test these hypotheses was first described in Kennedy, Bolger, and Shrout (2002). Seventy-nine couples who were cohabiting for at least 6 months were asked to report on support provided, sought, and received as well as their general moods and relationship moods on a daily basis for 28 days. A second data set, used to extend the results from Study 1, is a daily diary study of 196 couples who were followed for 44 days (described in detail below). These two samples were similar in that they were composed of couples who had been cohabiting for at least 6 months and were asked to answer identical questions. However, a major difference between Study 1 and Study 2 is that one member of each couple in Study 2 was approaching a major stressful event. The couples in Study 2 were recruited from recent law school graduates in which the graduates were preparing to take the state bar examination.

The majority of the predictions are the same for both sets of variables, and we have summarized these in Table 1. The primary difference is that Study 2 involves a major acute life stressor, and consequently we expected higher levels of support in this context. This expectation is reflected in Hypothesis 9 in Table 1.

## Study 1

### Method

#### Design and Participants

To recruit couples, we designed flyers describing the study and inclusion criteria and posted and placed them in mailboxes of

graduate students in various fields within several urban universities. To be eligible to participate, couples had to be in a romantic relationship and had to have been cohabiting for a minimum of 6 months at the time of the study. Interested participants either called or e-mailed researchers to receive further information about the study. The researchers encouraged potential participants to forward the information via e-mail to their friends or colleagues who might have an interest in participating in this study. In addition, friends and colleagues of members of the Couples Research Lab were recruited, both within and outside the university. Of the 114 individuals who showed interest in the study, 104 couples (208 individuals) agreed to participate.

A total of \$50 per couple was offered for participating in this study, and each couple was also given a chance to win \$1,000. An initial payment of \$10, two consent forms, two background questionnaires, and two return envelopes were sent to each couple that agreed to participate in the study. Couples completed the background questionnaires 1 to 4 weeks prior to the start of the diary period. Background questionnaires consisted of demographic information and other scales that are not pertinent to the present investigation.

Two weeks before the start of the diary period, both members of each couple received a packet containing 4 weeks of daily diary questionnaires and four return envelopes. Each week's diary consisted of seven identically structured diaries, which included questions regarding social support exchanges, daily moods, and daily relationship moods. Participants were instructed not to share or discuss their answers with their partners when completing the questionnaires. Each week's diary was returned upon completion.

Ninety-two couples returned both background questionnaires (184 participants; 90% of the original sample), and 82 couples returned at least 1 week of diaries. Five couples dropped out after the first week of the study, and two couples dropped out after the second week of the study. Sixty-three percent of the participants (104 participants) completed all 28 days of diaries. The most frequent reason couples reported for withdrawing from the study was a lack of time. Because our inclusion criteria did not specify the sexual orientation of the couples, the sample included 2 same-sex couples. Because we cannot assume a similar process for

Table 1  
Summary of Main Hypotheses Regarding Support Provision

Number	Hypothesis
1	Recipients' distress will increase the likelihood of support provision by providers.
2	Recipients' explicit requests for support (support seeking) will increase the likelihood of support provision by providers.
3	Providers' anxious mood will decrease the likelihood of support provision.
4	Providers' positive mood will increase the likelihood of support provision.
5	Providers' daily stressful events will decrease the likelihood of support provision.
6	Both providers' and recipients' relationship anxiety will increase the likelihood of support provision.
7	Both providers' and recipients' relationship satisfaction will increase the likelihood of support provision.
8	Providers' receipt of support on the previous day will increase the likelihood of support provision.
9	The level of support provision will be higher for Study 2 compared with Study 1.

<sup>1</sup> Data from Study 1 were first published in the *Journal of Personality* (Kennedy, Bolger, & Shrout, 2002). In this publication, Kennedy and colleagues examined the consequences of witnessing interparental aggression in childhood for daily conflict in adult intimate relationships. The second article reporting findings from this data set was published in the *Personality and Social Psychology Bulletin* (Gleason, Iida, Bolger, & Shrout, 2003). In this article, Gleason et al. (2003) reported the effects of receiving and providing support on individuals' general moods (as measured by the shortened version of Profile of Mood States) on the same day. The data from Study 2 are described in Gleason, Iida, Bolger, and Shrout, in press, which extends the finding of Gleason et al. (2003) to relationship intimacy. We report the effect of receiving and providing support on both negative and positive mood as well as intimacy and the correlation between the effects. The current analyses and findings are a follow-up to the results reported by Gleason et al. (2003, in press). Although Gleason et al. (2003) have shown that providing support (and especially providing when also receiving) has positive effects on the individual (it decreases negative mood and increases positive mood), this article identifies the determinants of daily support provision rather than the effect that provision has on both recipients and providers.



same-sex couples, they were not included in the final sample. One couple in our study, who did not complete one of the daily variables of interest, was not included in the final sample. Therefore, our final sample consisted of 79 couples.

The average age of the participants in the final sample was 29.4 years ( $SD = 6.7$ ), and 54% of the participants were students. Fifty-four percent of the participants were married, and the average length of cohabitation was 3.8 years ( $SD = 4.22$ ). The sample was composed of 67.7% Caucasian, 6.8% Asian, 6.8% Latino, 6.2% African American, and 12.4% other ethnicity.

Because these are paper-and-pencil diaries, we do not have evidence that participants in our studies followed the diary instructions faithfully or accurately. However, Green and her colleagues (Green, Rafaeli, Bolger, Shrout, & Reis, 2006) demonstrated the psychometric equivalency of data obtained using paper-and-pencil diaries and electronic diaries. The data from these paper-and-pencil diary studies did not differ from electronic data for which the completion time and day were compliant with instructions. Although these results do not directly address the issue of measurement validity, they do suggest that earlier concerns about quality of data from paper-and-pencil diaries may be overstated.

## Measures

*Providers' emotional support provision.*<sup>2</sup> Providers' provision of emotional support to their partner was assessed each evening. Each measure consisted of a single item, in which participants were asked to report "any help [they] PROVIDED for a worry, problem or difficulty to [their] partner." We gave some examples of emotional support, such as listening and comforting. Support provision was coded 1, and a lack of provision was coded 0. Across all couples, the median proportion of days on which support was provided was 0.22, and the lower and upper quartiles were 0.11 and 0.48. We conceptualize *social support* as a behavior performed for the partner with the intention of helping the spouse for a worry, problem, or difficulty, which is conceptually distinct from general loving acts expressed by individuals.

*Providers' support receipt.* Providers' receipt of emotional support from their partner was also assessed each evening. Each measure consisted of a single item, in which participants reported whether they had received emotional support (as defined above) from their partner within the previous 24 hr. Support receipt was coded 1, and a lack of receipt was coded 0.

*Recipients' support seeking.* Participants reported every evening whether they sought emotional support from their partners. This measure consisted of a single item, in which participants reported whether they had sought emotional support (as defined above) from their partners in the past 24 hr. Support seeking was coded 1, and lack of seeking was coded 0.

*Providers' and recipients' moods.* Participants were asked to report on their anxious mood and positive mood twice a day using items from the Profile of Mood States (Lorr & McNair, 1971). For each mood, the three highest loading items from a factor analysis conducted by Lorr and McNair were used. Anxious mood consisted of the items *on edge*, *uneasy*, and *anxious*, which resulted in between-subjects reliability of 0.79 and within-subject reliability of 0.82.<sup>3</sup> Positive mood consisted of the items *cheerful*, *vigorous*, and *lively*, which resulted in between-subjects reliability of 0.80

and within-subject reliability of 0.81. The participants were asked to indicate the extent to which they were experiencing these emotions "right now," upon waking in the morning and immediately prior to retiring at night. In the following analysis, only the morning mood is used. Ratings were on a 5-point scale, ranging from 1 (*not at all*) to 5 (*extremely*). The scores were rescaled to a 0-to-10 interval,<sup>4</sup> and a mean for each mood was obtained by averaging the rescaled values of the relevant items.

*Providers' and recipients' daily stressors.* Participants were asked to report on stressful events using a 10-item checklist each evening. The list consisted of events such as extra work at school or work, transportation problems, headache, and conflict with a coworker. Each item was coded 1 if the participants checked the item, and 0 if they did not. The daily stressors variable was a sum of the count of items the participants checked. Because we wanted to limit the daily stressors to the events outside of the relationship, we opted not to include conflict with the relationship partner as part of the scale.

*Providers' and recipients' relationship moods.* Providers were asked to report on their relationship anxiety and satisfaction each evening, using a modification of a measure used by Simpson (1990). Relationship anxiety consisted of the items *fearful* and *worried*, which resulted in between-subjects reliability of 0.85 and within-subject reliability of 0.79. Relationship satisfaction consisted of the items *content* and *satisfied*, which resulted in between-subjects reliability of 0.63 and within-subject reliability of 0.76. The participants were asked to indicate the extent to which they were experiencing these emotions within their relationships "right now," immediately prior to retiring at night. Ratings were on a 5-point scale, ranging from 1 (*not at all*) to 5 (*extremely*). The scores for each item were rescaled to a 0-to-10 interval, and a mean for each relationship mood was obtained by averaging the rescaled values of the relevant items.

*Diary day.* A variable representing the length of time the participants were in the study was created that increased by an increment of one for each additional day. The variable was centered at Day 13 to facilitate the interpretation of the regression intercept in terms of likelihood of support provision in the

<sup>2</sup> The pattern for practical support provision is similar to that for emotional support provision but results in fewer significant findings. The results for practical support provision are available from Masumi Iida upon request.

<sup>3</sup> These reliabilities are calculated using the method described in Cranford et al. (2006). The between-subjects reliabilities reported here can be interpreted as the between-subjects reliability of the average of the measures taken on the same fixed day (denoted as  $R_{IF}$  in Cranford et al., 2006). The within-subject reliabilities reported here can be interpreted as the reliability of change within subject throughout the study (denoted as  $R_c$  in Cranford et al., 2006).

<sup>4</sup> The results are the same with traditional scaling approaches. We rescaled the scores to a 0–10 scale to make these variables more comparable to each other and to make the interpretation of the b-weights easier. The traditional scaling makes it harder to compare the magnitude of these effects because we have mood variables that range from 1 to 5, hours spent together ranging from 0 to 18, and support variables that were dichotomous. For a discussion on the usefulness of this strategy, see Cohen, Cohen, West, and Aiken (2003; p. 156).

Table 2  
*Descriptive Statistics for Daily Variables in Study 1*

Motivation	Variable	<i>M</i>	<i>SD</i>	Range
Recipient factors	Recipients' anxiety	1.35	1.53	0–10
	Recipients' positive mood	3.59	2.00	0–10
	Recipients' daily stressors	1.90	1.41	0–10
	Recipients' seeking support	0.17	0.33	0–1
Provider factors	Providers' anxiety	1.35	1.53	0–10
	Providers' positive mood	3.59	2.00	0–10
	Providers' daily stressors	1.90	1.41	0–10
Relationship factors	Providers' relationship anxiety	0.74	1.40	0–10
	Recipients' relationship anxiety	0.74	1.40	0–10
	Providers' relationship satisfaction	5.91	2.12	0–10
	Recipients' relationship satisfaction	5.91	2.12	0–10
	Providers' receipt of support	0.38	0.44	0–1
	Providers' time spent with partner	3.40	2.14	0–10
Control variables	Providers' yesterday provision	0.32	0.41	0–1

middle of the study. This resulted in a variable that ranged from –13 to 14.

*Daily time spent together.* The amount of hours the providers spent with their partners was assessed by asking them, each evening, the number of hours they spent with their partner during the past 24 hr (not counting time sleeping). Because the 99th percentile of the hours spent together was 18 hr, we coded any responses greater than 18 hr as 18. The response was rescaled to a 0-to-10 interval.

*Providers' gender.* Male participants were coded as –0.5, and female participants were coded as 0.5.

### Statistical Methods

We hypothesized that three different sets of daily process variables would be related to daily support provision: recipient factors (recipients' morning anxious mood, recipients' morning positive mood, recipients reported daily stressors, and recipients' seeking support), provider factors (providers' anxious mood, providers' positive mood, providers' reported stressors), and relationship factors (providers' relationship anxiety, providers' relationship satisfaction, providers' report of receiving support). The likelihood of support provision on a given day was modeled as a function of these variables and two other covariates, hours spent together with the partner and provider's report of providing support on the previous day (see Appendix A).

Because the dependent variable was binary (whether support was provided on a given day or not), we used logistic regression to model the likelihood of support provision within couples over time. This model was embedded in a hierarchical linear model (HLM) framework, and estimated using HLM 5 (Raudenbush, Bryk, Cheong, & Congdon, 2000). The sampling units in the study were couples rather than individuals, and so our Level 1 statistical model described within-couple variation over time. Within each couple, each partner was treated as a provider and a recipient, and thus there were two records for each day within couple. Within each partner, there were 28 daily records. Therefore, the maximum number of records that a couple contributed was 56 (see Laurenceau & Bolger, 2005, for a detailed description of dyadic diary data structure). Provider gender was used to distinguish the members of the couple in the analysis.

The within-couple logistic analysis allowed each couple member's report of support provision on a given day to be modeled. Of special note is that providers' support yesterday was included in the model to account for autocorrelation effects. We also examined gender interactions for all variables but only found evidence for gender differences in the coefficient for providers' support yesterday.

The second level of the HLM allowed us to examine whether the within-couple effects varied over couples. This level also provided the formal representation of the average of the Level 1 coefficients, which are called *fixed effects*. If there was evidence that the coefficients varied systematically over couples (after taking into account the expected variance because of estimation error), then it was possible to estimate the variance of these couple effects. This parameter is called the *random effect*. Both fixed and random effects are influenced by the scaling of the independent variables. We chose to center the independent variables around the grand-mean of the sample so the intercept reflects the likelihood of support provision on the average day. We examined the random effects of all the variables but only found evidence for two: the intercept and the coefficient for gender. Lastly, the results are based on what Raudenbush and Bryk (2002) call a unit-specific analysis rather than a population-average analysis. Because the unit-specific analysis allows us to interpret the fixed effects as averages over the unit-specific random effects, we chose it over the population-average analysis (see Raudenbush & Bryk, 2002, pp. 301–304).

### Results

Table 2 shows the means and standard deviations for each daily variable in the model.<sup>5</sup> The means for the positive mood scales (recipients' and providers' positive mood and providers' relationship satisfaction) tended to be higher than for the negative mood scales. Appendix B shows the average of within-couple correla-

<sup>5</sup> The standard deviations reported here are the within-subject variation and not a combination of variation over days and subjects.

Table 3  
*Multilevel Results for Likelihood of Support Provision for Study 1*

Fixed effect coefficients	$\gamma^a$	SE	Odds
Intercept	-1.297**	0.121	0.27
Recipients' anxiety (morning), H1	0.134**	0.038	1.14
Recipients' positive mood (morning), H1	-0.070*	0.029	0.93
Recipients' daily stressors (evening), H1	0.108**	0.041	1.11
Recipients' report of seeking support (evening), H2	0.117	0.199	1.12
Providers' anxiety (morning), H3	-0.001	0.037	1.00
Providers' positive mood (morning), H4	0.072*	0.029	1.07
Providers' daily stressors (evening), H5	0.055	0.039	1.06
Providers' relationship anxiety (evening), H6	0.080†	0.041	1.08
Recipients' relationship anxiety (evening), H6	0.015	0.043	1.02
Providers' relationship satisfaction (evening), H7	0.089**	0.029	1.09
Recipients' relationship satisfaction (evening), H8	0.063*	0.029	1.07
Providers' receipt of support (evening), H8	1.980**	0.118	7.24
Providers' report of time spent with partner (evening)	0.075**	0.026	1.08
Providers' gender (female)	-0.150	0.202	0.86
Providers' provision of support (yesterday evening)	0.842**	0.118	2.32
Providers' Provision (yesterday) $\times$ Gender	-0.610**	0.233	0.54
Diary day	0.020**	0.007	1.02

Note. Random effect variances (over couples): intercept,  $\tau = 0.837$ ,  $p < .01$ ; gender,  $\tau = 1.449$ ,  $p < .01$ . H = hypothesis.

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

<sup>a</sup>Parameter estimates ( $\gamma$ ) are in log-odds units from a logistic model. Support provision is based on evening reports by partner.

tions for the variables in Study 1.<sup>6</sup> The correlations among predictor variables were small to moderate in size, and more than half of them are significant. Providers' receipt and providers' provision had the largest correlation ( $r = .35$ ), followed by the negative correlation between providers' relationship anxiety and relationship satisfaction ( $r = -.33$ ). In general, the valence of the predictor variables determined the direction of the correlations, such that variables of the same valence were positively associated, and variables of the opposite valence were negatively associated.

Table 3 summarizes the multilevel analysis results for the log-odds of provision of emotional support in Study 1. Our tests of coefficient estimates were conservative because we used the number of couples (minus 1) as our degrees of freedom and a  $t$  distribution instead of a  $z$  distribution to evaluate the significance of our effects. We also tested the assumption of binomial residual dispersion (Raudenbush & Bryk, 2002). We found the residual variance to be slightly underdispersed (0.90). Given that a correction for this would make the standard errors generally smaller, and therefore less conservative, we opted to present the original analysis without adjusting for underdispersion.

### Recipient Factors

There was evidence that providers were sensitive to their partners' needs when giving support (Hypothesis 1). Recipients' anxious mood predicted a significant increase in the likelihood of emotional support provision (fixed effect = 0.13, odds = 1.14),  $t(78) = 3.57$ ,  $p < .01$ . The odds ratio in the results indicates that providers were 14% more likely to provide support with each unit increase in recipients' anxious mood after adjusting for the other factors in Table 3. Recipients' report of daily stressful events was also associated with an increase in the likelihood of support provision (fixed effect = 0.11, odds = 1.11),  $t(78) = 2.65$ ,  $p <$

.01. In other words, the providers were 11% more likely to provide support with each unit increase in recipients' daily stressful events. On the other hand, recipients' positive mood was associated with a significant decrease in the likelihood of support provision (fixed effect = -0.07, odds = 0.93),  $t(78) = -2.40$ ,  $p < .05$ , such that providers were 7% less likely to provide support with each unit increase in the positive mood. It is surprising that we did not find evidence that recipients' requests for support were associated with support provision after adjusting for distress variables (Hypothesis 2; fixed effect = 0.12, odds = 1.12),  $t(78) = 1.29$ ,  $ns$ .

### Provider Factors

Our hypothesis that providers' general negative mood would decrease the likelihood of support provision (Hypothesis 3) was not supported in these data. Specifically, providers' reports of anxious mood did not influence the likelihood of provision (fixed effect = -0.01, odds = 1.00),  $t(78) = -0.03$ ,  $ns$ . However, providers' reports of positive mood were related to the likelihood of provision of support (Hypothesis 4), such that a unit increase in positive mood increased the likelihood by 7% (fixed effect = 0.07, odds = 1.07),  $t(78) = 2.47$ ,  $p < .05$ . As for the providers' daily stressors (Hypothesis 5), we did not find a significant association with the likelihood of provision of support (fixed effect = 0.06, odds = 1.06),  $t(78) = 1.42$ ,  $ns$ .

<sup>6</sup> We first calculated the across-day correlations among the daily variables within each of the 158 persons. We averaged the correlations across partners within a couple and then computed an average across couples. To test whether the average correlation was different from zero, we used a one sample  $t$  test with couple as the unit of analysis. Variation across the 79 independent correlation estimates was used to calculate the standard error for this test ( $df = 78$ ).

### Relationship Factors

Part of Hypothesis 6 was supported in this data set. In contrast to the results for providers' anxious mood in general, providers' anxiety about the relationship was marginally associated with support (fixed effect = 0.08, odds = 1.08),  $t(78) = 1.94$ ,  $p < .05$ . The providers were 8% more likely to provide support with each unit increase in their relationship anxiety. Contrary to the second part of Hypothesis 6, we did not find an association between recipients' relationship anxiety and support provision (fixed effect = 0.02, odds = 1.02),  $t(78) = 0.35$ , *ns*. There was evidence supporting Hypothesis 7. Both providers' and recipients' reports of relationship satisfaction were significantly associated with support provision: for providers' reports, (fixed effect = 0.09, odds = 1.09),  $t(78) = 3.10$ ,  $p < .01$ ; for recipients' reports, (fixed effect = 0.06, odds = 1.07),  $t(78) = 2.22$ ,  $p < .01$ . This suggests that with each unit increase in providers' relationship satisfaction the providers were 9% more likely to provide support. Similarly, with each unit increase in recipients' relationship satisfaction the providers were 7% more likely to provide support.

Consistent with Hypothesis 8, the reciprocity hypothesis, receiving support was associated with the likelihood of support provision, such that providers were 7.24 times more likely to give support on days when they themselves received support (fixed effect = 1.98, odds = 7.24),  $t(78) = 16.83$ ,  $p < .01$ . Another way of understanding this effect is that on the days when they received support, the probability of providing support was .67, whereas on days when they did not receive support the probability was .22.

### Control Variables

The amount of time spent with one's partner was an important predictor of providing support (fixed effect = 0.08, odds = 1.08),  $t(78) = 2.90$ ,  $p < .01$ , such that each additional unit of time (1.8 hr) spent together was associated with an 8% increase in the likelihood of provision. Adjusting for the other variables in the model, there was no overall gender difference in the likelihood of providing emotional support (fixed effect = -0.15, odds = 0.86),  $t(78) = -0.59$ , *ns*. Provision on one day was positively related to whether support had been provided on the previous day. On average, providers were twice as likely to provide support when support had been given on the previous day (fixed effect = 0.84, odds = 2.32),  $t(78) = 7.12$ ,  $p < .01$ . This effect was moderated by gender (fixed effect = -0.61),  $t(78) = -2.62$ ,  $p < .01$ , such that the strength of association of yesterday's provision to today's provision was weaker for women (odds = 1.20) than for men (odds = 1.47).<sup>7</sup> Lastly, the number of days elapsed in the study was a significant predictor of support, such that providers were more likely to provide support as the study progressed (fixed effect = 0.02, odds = 1.02),  $t(78) = 2.80$ ,  $p < .01$ .

### Between-Couple Variation

As noted earlier, multilevel models can allow the Level 1 coefficients to vary across the Level 2 units, which in our example would involve couple differences in the coefficients for the daily support predictors. Of all the Level 1 predictors, we found such random effects for only two: the intercept and gender. The random effects for the intercept parameter (variance estimate = 0.84),

$\chi^2(78, N = 79) = 341.67$ ,  $p < .01$ , tell us that couples differed in their overall likelihood of emotional support provision. Assuming that the effects are normally distributed in the population of couples, we can construct a range of intercepts that includes 95% of that population by adding  $\pm 2$  times the standard deviation of the effects, square root (0.84) = 0.91, to the fixed effect (-1.30 for the intercept). We carried out this calculation for the intercept and converted it to a probability of support provision and found that average probability of support provision is estimated to range from 0.04 to 0.63 in the population.

In addition to the intercept, we found that the difference in support provision between men and women in each couple differed across couples (variance estimate = 1.45),  $\chi^2(78, N = 79) = 204.24$ ,  $p < .01$ . Using the logic described for the intercept, we determined that the range of gender differences varied from odds of 9.8 to 0.08 across couples. In some couples, women were approximately 10 times as likely to provide support as their male partners, whereas in other couples women were 0.08 times as likely (which means that in those couples the men were  $1/0.08 = 12.4$  times as likely to provide support as the women). The fact that this range includes odds of 1 to 1 is consistent with the earlier observation that on average there is no gender difference.

### Discussion

There was substantial evidence that providers' reports of support provision varied systematically over days in conjunction with changes in the recipient, the provider and the relationship. Consistent with predictions based on the communal norm hypothesis, recipients' distressed mood and their stressful events predicted their partners' support provision. More specifically, recipients' anxious mood in the morning and frequency of daily stressors increased the likelihood of support provision, whereas recipients' positive mood decreased the likelihood of support provision.

Surprisingly, recipients' explicit support seeking was not associated with support provision after adjusting for stress and distress processes. In supplemental analyses not shown (available from Masumi Iida), we examined the unadjusted effect of explicit support seeking. We found that recipients' support seeking was significant when we limited the predictors in our model to include only the control variables. It appears that the requests for support were embedded in support transactions that were already taken into account by the other variables in the model.

Only one of the variables associated with provider factors predicted support provision. Providers' positive mood in the morning was associated with a greater likelihood of support provision that day, but neither providers' anxious mood nor providers' stressful events were associated with support provision. Although depletion of provider resources has been emphasized in the literature, there was no evidence that this was a major factor in the determination of which days led to support. Starting the day in a relatively good mood, on the other hand, seemed to facilitate the provider's ability to help his or her partner in our sample of young adults in intimate relationships.

The last set of factors that were examined, relationship factors, yielded interesting findings. Although the effect was marginal, the

<sup>7</sup> There were no other gender differences in our analyses; therefore, other gender interaction terms were not included in our final analyses.



potential providers appeared to be more likely to provide support on days when they were relatively more anxious in the relationship. It is interesting that there was no association between recipients' anxiousness in the relationship and support provision. These results partially support what we predicted from the attachment anxiety literature. When individuals experience anxiety in their relationships, it may act as a warning sign that something is wrong with the relationship. This suggests that relationship anxiety can promote relationship-enhancing behavior, such as support provision. However, it appears that potential providers are not responsive to recipients' anxious mood experienced in the relationship. We also found that support provision was more likely on days when both members of the couple were relatively more satisfied with the relationship, after adjusting for relationship anxiety and the other effects in Table 3. Lastly, consistent with an equity (Walster et al., 1973) or reciprocity (Uehara, 1995) prediction, receiving support on a given day predicted provision of support that day. It appears that balance of support exchanges within a relationship is an important factor to consider when examining support provision.

One unexpected finding from adjustment variables was that as the participants progressed in the study, they were more likely to provide support. We had included day in study to make the analyses comparable to those in Study 2, but we had no reason to predict an increase in support provision as Study 1 participants were not approaching a common stressful event. One possible explanation is that participating in the diary study actually influenced the participants and their relationships (Laurenceau & Bolger, 2005). Because of the intensive nature of the diary method, it is possible that the practice of monitoring their own behaviors made participants more responsive to their partners' needs. It is also possible that the participants were quicker to recognize their own behaviors and remember their supportive actions better. Future work should examine these possible unintended effects of participating in diaries.

## Study 2

In our second study, we examined couples in which one of the members was facing an intense professional stressor, the state bar examination. Because only one member of each couple was directly affected by the bar examination, the design also provides us with a clear recipient-provider role. We focused on the examinee as the key recipient (and not as a provider) to identify the determinants of support provision for people who are not experiencing such an extreme stressor. Because examinees are directly under the stress of preparing for the bar exam, the support provision mechanism may differ for this group compared with other groups. In this context, we hypothesized that the normative level of support provision would be greater (Hypothesis 9) and that the likelihood of support would increase as the bar exam drew near in time.

## Method

### Design and Participants

Participants were recruited by contacting over 100 law schools in the United States, 30 of which participated. Because access to students' marital or cohabitation status was not available, repre-

sentatives of the school were asked to distribute either a letter or an e-mail to their entire graduating class, a total of 5,372 law students. To be eligible for the study, potential participants had to be married or cohabiting with a romantic partner for at least 6 months at the time of the recruitment, and only one member of the couple could be planning to take the bar exam in July of that year. Of the 419 eligible couples who contacted the researchers, 303 agreed to participate, resulting in a 72% agreement rate.

Each couple was provided with a \$150 payment for participation and was given the opportunity to win \$1,000 upon completion of the study. Couples received an initial payment of \$10, two consent forms, two background questionnaires, and two return envelopes after they had agreed to participate in the study. They returned the completed questionnaires about 3 weeks prior to the beginning of the diary period, which consisted of the 5 weeks prior to the exam, the 2 days on which the exam took place, and 1 week after the exam. Approximately 1 to 2 weeks prior to the start of the diary period, both members of each couple received an initial packet containing the first batch of daily diary questionnaires, a return envelope, and instructions regarding the diaries. These packets were mailed to participants each week for the 6 weeks of the study. Each batch consisted of seven identical daily diaries, with the exception of the final batch, which contained nine diaries. The diary form was similar to Study 1 and included items assessing mood, relationship mood, and support transactions. Once again, participants were instructed to complete the questionnaires separately and not to discuss their answers with their partners.

Two-hundred and fifty-three couples returned both background questionnaires. One hundred and forty-one couples returned all materials, and 228 couples completed at least 1 week of diaries. As in Study 1, lack of time was the most frequent reason stated for withdrawing from the study. In our analyses, we excluded 9 same-sex couples for the same reasons given in Study 1. Lastly, 23 couples failed to complete some diary questionnaire items that were relevant to our study, so they were not included in our final analysis. Therefore, our final sample consisted of 196 couples.

The average age of the examinee was 29.1 years ( $SD = 5.6$ ), and the average age of the partner was 29.0 years ( $SD = 6.8$ ). Fifty percent of the examinees were men. Sixty-one percent of the couples were married, and participants had been cohabiting for an average of 3.7 years ( $SD = 3.3$ ). The ethnic composition of the sample was 82.3% Caucasian, 6.1% Asian, 4.2% Latino, 1.9% African American, 0.9% American Indian, and 4.7% other ethnicity for examinees; 81.4% Caucasian, 6.4% Asian, 5.9% Latino, 4.1% African American, 0.5% American Indian, and 1.8% other ethnicity for partners.

## Measures

*The bar exam as a major stressor.* We designed our study to capture increases in the anticipated stress of the bar examination. In particular, we expected the week immediately leading up to the examination to be the time of the highest threat, when the examination was imminent and there was little time for further preparation. In a similar diary study of students preparing to take the New York State Bar Examination, Bolger et al. (2000) found that anxiety was higher during the week immediately preceding the exam than it was during the 3 previous weeks.

To distinguish between a high and low stress period, we divided the pre-examination period into two phases, one including the first 28 days of the diary period and the other including Days 29 to 37 (the week before and including the exam days). A variable representing stress phase was created, in which low stress days were coded as 0 and high stress days were coded as 1.

*Providers' support provision.* Providers' (partners' of the examinees) provision of emotional support to their partner was assessed each day in the evening, using the single item described in Study 1. The median proportion of days in which support was provided was 0.54, and the lower and upper quartiles were 0.29 and 0.80.

*Providers' support receipt.* Providers' receipt of emotional support from their partners was also assessed each day in the evening, using the single-item measure used in Study 1. As in Study 1 and unless noted otherwise, this and all other independent variables were grand-mean centered to allow the intercept to be interpreted as the likelihood of support on the average day.

*Recipients' support seeking.* Recipients' (examinees') emotional support seeking was also assessed every evening, using the single-item measure from Study 1.

*Providers' and recipients' daily stressors.* Participants were asked to report each evening on stressful events using the 10-item checklist used in Study 1.

*Providers' and recipients' moods.* Participants were asked to report their positive and anxious mood twice a day using the same measures described in Study 1. The between-subjects reliability and within-subject reliability of examinees' anxious mood were 0.78 and 0.73, respectively; examinees' positive mood, 0.79 and 0.72; partners' anxious mood, 0.66 and 0.67; and partners' positive mood, 0.74 and 0.69. As in Study 1, the scores were rescaled to a 0-to-10 interval, and a mean for each mood was obtained by averaging the rescaled values of the relevant items.

*Providers' and recipients' relationship moods.* Participants were asked to report on their satisfied and anxious relationship mood each evening, using the same measures described in Study 1. The between-subjects reliability and within-subject reliability of providers' relationship anxiety were 0.74 and 0.71, respectively, and their relationship satisfaction was 0.87 and 0.75. As in Study 1, the scores were rescaled to a 0-to-10 interval, and a mean for

each relationship mood was obtained by averaging the rescaled values of the relevant items.

*Diary day.* As in Study 1, a variable representing the length of time the participants were in the study was created such that the day in study variable was incremented by units of one and was centered on Day 18. This resulted in a variable that ranged from -18 to 18. Only diary days in the period leading up to the exam and exam days were included in the current analysis.

*Daily time spent together.* As in Study 1, providers were asked to report the number of hours they had spent with their partners each day. In this study, 15 hr was the 99th percentile of the hours spent together. Therefore, we coded any response greater than 15 hr to equal 15. Like Study 1, the response was rescaled to a 0-to-10 interval.

### Statistical Methods

The methods used to replicate the findings from Study 1 in the stressed sample were a variation of those described in Study 1 (see Appendix C). However, unlike Study 1, each member of the couple was assigned a unique support recipient-provider role. We studied the support provided to the examinee, and thus this person was the designated support recipient, and the nonexaminee partner, referred to simply as the partner, was considered the support provider. This simplified the analysis relative to Study 1 in that we had only one provider and one recipient per couple. To focus on the stress period, we did not include diaries completed after the examination (Days 28–44) in the final analysis. We again used a multilevel model to analyze the data.

Because of the shift in the data structure, provider gender became a Level 2 (between-couple) variable in Study 2. We coded gender 0.5 for men and -0.5 for women.

### Results

Table 4 shows the means and standard deviations for each variable in the model. The means and standard deviations for provider factors variables were similar to the means and standard deviations from Study 1. However, the recipients in this sample reported higher levels of negative mood and lower levels of

Table 4  
Descriptive Statistics for Daily Variables in Study 2

Motivation	Variable	<i>M</i>	<i>SD</i>	Range
Recipient factors	Recipients' anxiety	2.82	1.86	0–10
	Recipients' positive mood	2.91	1.53	0–10
	Recipients' daily stressors	1.63	1.23	0–10
	Recipients' seeking support	0.36	0.38	0–1
Provider factors	Providers' anxiety	1.19	1.32	0–10
	Providers' positive mood	3.44	1.64	0–10
	Providers' daily stressors	1.55	1.15	0–10
	Providers' relationship anxiety	0.80	1.08	0–10
Relationship factors	Recipients' relationship anxiety	0.87	1.05	0–10
	Providers' relationship satisfaction	6.58	1.57	0–10
	Recipients' relationship satisfaction	6.59	1.45	0–10
	Providers' receipt of support	0.40	0.39	0–1
Control variables	Providers' time spent together	2.96	2.11	0–10
	Providers' previous day provision	0.54	0.41	0–1

positive mood. Appendix D shows the average within-couple correlations of the variables in our model. The correlations among predictor variables were small to moderate in size with more than half of the correlations being significant. The correlation between recipients' general anxiety and general positive mood was the largest in size ( $r = -.31$ ), followed by recipients' relationship anxiety and their relationship satisfaction ( $r = -.27$ ). As in Study 1, the valence of the component variables determined the directionality of the correlations.

Table 5 summarizes the multilevel analysis results for the log-odds of provision of emotional support. As in Study 1, we found the residual variance to be slightly underdispersed (0.91), and we decided not to adjust for this because it would make our standard errors less conservative.

### Recipient (Examinee) Factors

As in Study 1, providers appeared to be responsive to recipients' anxious mood (Hypothesis 1). Recipients' morning anxiety predicted an increase in the likelihood of support provision (fixed effect = 0.10, odds = 1.11),  $t(195) = 4.64$ ,  $p < .01$ . More concretely, for each unit increase in recipients' anxious mood, the providers were 11% more likely to provide support to their partners. Recipients' positive mood was not related to the likelihood of support provision (fixed effect =  $-0.01$ , odds = 1.00),  $t(195) = -0.12$ , *ns*. Unlike Study 1, recipients' report of daily stressful events was not associated with the likelihood of support provision after adjusting for other variables (fixed effect = 0.03, odds = 1.03),  $t(195) = 1.01$ , *ns*. A variable that captured the onset of the acute stressor, called stressor phase, distinguished the last week before the exam from the others. During the last week before the exam, compared with the first 4 weeks of the study, providers were more likely to provide emotional support to the recipients (fixed

effect = 0.65, odds = 1.91),  $t(195) = 4.70$ ,  $p < .01$ . In addition to this discrete jump in support provision, there was evidence that support increased steadily from day to day, as estimated by the day in study effect (fixed effect = 0.02, odds = 1.02),  $t(195) = 3.11$ ,  $p < .01$ .

Unlike Study 1, but consistent with our initial prediction, the likelihood of providing emotional support was predicted by the recipients' requests for emotional support (Hypothesis 2; fixed effect = 0.65, odds = 1.92),  $t(195) = 7.00$ ,  $p < .01$ . This coefficient indicates that providers were approximately twice as likely to provide emotional support if the recipients sought support, as compared with the days when they did not seek support. Another way of understanding this effect is that on the days when the recipients requested support the probability of providing support was .72, whereas on the days when recipients did not seek support the probability was .57.

### Provider Factors

In Study 2, none of the provider factors were associated with likelihood of support provision (Hypotheses 3, 4, and 5). Providers' anxious mood was not related to the likelihood of provision (fixed effect =  $-0.02$ , odds = 0.98),  $t(195) = -0.71$ , *ns*. Provider's positive mood was not associated with the likelihood of provision (fixed effect = 0.03, odds = 1.03),  $t(195) = 1.11$ , *ns*; and providers' report of daily stressful events was not predictive of support provision (fixed effect = 0.01, odds = 1.01),  $t(195) = 0.42$ , *ns*.

### Relationship Factors

The effects of relationship moods were similar to those found in Study 1. The providers' relationship anxiety was significantly

Table 5  
Multilevel Results for Likelihood of Support Provision to Examinee for Study 2

Fixed effect coefficients	$\gamma^a$	SE	Odds	$t(\text{diff})^b$
Intercept	0.291*	0.084	1.34	10.75**
Recipients' anxiety (morning), H1	0.102**	0.022	1.11	-0.70
Recipients' positive mood (morning), H1	-0.003	0.025	1.00	1.76
Recipients' daily stressors (evening), H1	0.030	0.030	1.03	-1.53
Stressor phase, H1	0.649**	0.139	1.91	N/A <sup>c</sup>
Diary day	0.018**	0.006	1.02	-0.23
Recipients' report of seeking support (evening), H2	0.651**	0.139	1.92	2.52**
Providers' anxiety (morning), H3	-0.021	0.029	0.98	-0.43
Providers' positive mood (morning), H4	0.025	0.022	1.03	-1.29
Providers' daily stressors (evening), H5	0.013	0.032	1.01	-0.83
Providers' relationship anxiety (evening), H6	0.150**	0.035	1.16	0.93
Providers' relationship satisfaction (evening), H7	0.123**	0.024	1.13	-0.57
Recipients' relationship anxiety (evening), H6	-0.025	0.034	0.98	1.34
Recipients' relationship satisfaction (evening), H7	-0.014	0.025	0.99	-1.98*
Providers' receipt of support (evening), H8	1.276**	0.093	3.58	-.69**
Provider's report of time spent with partner (evening)	0.108**	0.018	1.11	1.06
Providers' gender (female)	-0.338*	0.171	0.71	-0.75
Providers' provision of support (yesterday evening)	1.037**	0.111	2.82	1.06

Note. Random effect variances: intercept,  $\tau = 1.007$ ,  $p < .01$ ; providers' yesterday provision,  $\tau = 0.975$ ,  $p < .01$ . H = hypothesis.

\*  $p < .05$ . \*\*  $p < .01$ .

<sup>a</sup> Parameter estimates ( $\gamma$ ) are in log-odds units from a logistic model. Support provision is based on reports by partner in the evening. <sup>b</sup> The last column represents the  $t$  score difference for the coefficients of predictors from Study 1 to Study 2. <sup>c</sup>  $t(\text{diff})$  cannot be calculated because Study 1 did not have a stressor phase variable.

associated with the likelihood of provision of support (Hypothesis 6; fixed effect = 0.15, odds = 1.16),  $t(195) = 4.28$ ,  $p < .01$ , such that the providers were 16% more likely to provide support with each unit increase in providers' relationship anxiety. However, recipients' relationship anxiety was not associated with the likelihood of support provision (fixed effect =  $-0.03$ , odds = 0.98),  $t(195) = -0.74$ , *ns*. The providers' relationship satisfaction on a given day was associated with a greater likelihood of provision of support that day (Hypothesis 7; fixed effect = 0.12, odds = 1.13),  $t(195) = 5.09$ ,  $p < .01$ . The providers were 13% more likely to provide support with each unit increase in relationship satisfaction. Unlike the results from Study 1, recipients' relationship satisfaction on a given day was not associated with the likelihood of support provision (fixed effect =  $-0.01$ , odds = 0.99),  $t(195) = -0.55$ , *ns*.

As in Study 1, there was evidence of a support reciprocity norm, such that providers were more likely to give support if they themselves received support (Hypothesis 8; fixed effect = 1.28, odds = 3.58),  $t(195) = 13.76$ ,  $p < .01$ . This coefficient indicates that providers were approximately 3.6 times more likely to provide support to the recipients on days they received support than on days on which they did not receive support. Another way of understanding this effect is that on the days when they received support, the probability of providing support was .83, whereas on days when they did not the probability was .57.

### Control Variables

Similar to Study 1, the time spent with recipients predicted likelihood of providing support (fixed effect = 0.11, odds = 1.11),  $t(195) = 5.86$ ,  $p < .01$ , such that a unit increase in time spent together (1.5 hr) increased the likelihood of provision by 11%. The provider's report of providing emotional support the previous day strongly predicted the likelihood of providing support the following day (fixed effect = 1.04, odds = 2.82),  $t(195) = 9.30$ ,  $p < .01$ . There was a significant gender difference in the likelihood of providing emotional support (fixed effect =  $-0.34$ , odds = 0.71),  $t(195) = -1.98$ ,  $p < .05$ , such that men were 1.4 times more likely to provide emotional support to women than vice versa. No other variables in the model significantly interacted with gender.

### Between-Person Variation

As in Study 1, there was a significant random effect for the intercept parameter (variance estimate = 1.02),  $\chi^2(176, N = 178) = 523.94$ ,  $p < .01$ , which means that across couples, providers differed in the likelihood of emotional support provision to recipients. Assuming the intercepts in the population are normally distributed, we can construct a range of values that includes about 95% of the providers. We carried out this calculation for the intercept and found that 95% of couples lay in the interval of 0.15 to 0.91. In this study, provider's provision of support on the previous day also significantly varied across individuals (variance estimate = 0.96),  $\chi^2(177, N = 178) = 297.02$ ,  $p < .01$ , and 95% of couples lay in the interval of 0.29 to 0.95.

### Comparison of Effect Coefficients Between Study 1 and Study 2

The last column of Table 5 represents the *t* score difference for equivalent coefficients from Study 1 to Study 2. Most of the effects

were consistent across the two studies. As predicted (Hypothesis 9), the intercept, which can be understood as the mean probability of providing support when all other variables are centered around the grand mean, was significantly higher for Study 2 than for Study 1. This implies that the participants in Study 2 were significantly more likely to provide support than participants in Study 1 (fixed effect =  $-1.30$  for Study 1; fixed effect = 0.29 for Study 2). We also observed a difference between Study 1 and Study 2 in the effect of recipients' requests for support. In Study 2, the providers were significantly more responsive to their partners' seeking support (fixed effect = 0.11 for Study 1; fixed effect = 0.65 for Study 2). Another significant difference between Study 1 and Study 2 was the effect of recipients' relationship satisfaction. In Study 1, the recipients' relationship satisfaction was associated with significantly more support provision (fixed effect = 0.06), but this was not the case in Study 2 (fixed effect =  $-0.01$ ). The last difference between the two studies was that even though the receipt of support was related to support provision in both studies, this reciprocity effect was stronger for the nonstressed Study 1 sample than for the Study 2 sample, in which the recipients were going through an acute stressor (fixed effect = 1.98 for Study 1; fixed effect = 1.28 for Study 2).

### Discussion

Study 2 replicated most of the findings from Study 1. Thus, we found that recipient factors played an important role in predicting provision of support. The recipients' anxiety was associated significantly with a greater likelihood of support provision in both studies, and other variables that captured stressors in Study 2—days to the exam and stress phase—were significant predictors of support provision. Unlike Study 1, the recipients' explicit requests for emotional support were predictive of support provision in this study. Because the providers knew how stressful it was to prepare for the bar exam, they might have been more sensitive to requests for support. Lastly, even though the recipients' positive mood in this study was not significantly associated with support provision, the effects were in the same direction in both studies and were not significantly different from each other.

In Study 1, only one of the provider factors, the providers' positive mood, was predictive of support provision, but in this study there was no evidence that the provider factors were important. However, the effect of the provider's positive mood in this study was in the same direction as the one in Study 1, and again, they were not significantly different from each other.

The relationship factors had similar effects across Study 1 and Study 2. We replicated the providers' relationship moods findings, such that both feeling anxious in the relationship and feeling satisfied in the relationship, as reported by the providers, on a given day were associated with greater support provision. These patterns were observed even though the overall level of support provision was higher in Study 2. On the contrary, recipients' reports of relationship moods, both anxious mood and satisfaction, were not associated with the likelihood of support provision. It is also interesting to note that the reciprocity effect was not as strong of a predictor in this study compared with Study 1. This suggests that the reciprocity norm might be less important for support provision when the recipient is under acute stress compared with normal daily life. In Study 2, recipients' relationship satisfaction



was not related to the likelihood of support provision. This difference in effects might imply that recipients' feelings experienced in the relationship are more important in predicting support provision during the daily stressor period than the acute stressor period. In general, these findings and comparisons across studies suggest that support provision under acute stress is driven more by the need of the recipient than other kinds of factors.

### General Discussion

Previous studies have tended to treat support provision as a causal variable that is either manipulated or measured as it occurs naturally (e.g., Bolger et al., 2000). In the current studies, we treated support provision, reported by the provider, as an outcome. Guided by the organizing framework originally proposed by Dunkel-Schetter and Skokan (1990), we proposed that provision is a fluid process that is influenced by multiple factors, including recipient factors (recipients' distress level), provider factors (providers' moods), relationship factors (history of support exchanges, relationship moods), and stressor factors (daily vs. major stressors). By using a dyadic diary design, we were able to focus on within-couple processes and to allow for these processes to vary over couples. Despite the difference in the stressors they involved, there were only minor differences in the findings between Study 1 and Study 2.

### Recipient Factors

Individuals in an intimate relationship are likely to be motivated to reduce their partners' distress for a variety of reasons. In our studies, we found that the distress level of recipients, as represented by the recipients' reports of anxious mood, predicted emotional support provision on the same day. The predictive power of mood remained even after taking into account explicit support requests by the recipient. It is possible that providers were following the communal norm, and they felt the need to respond to their partners' distress. It is also possible that the support provision was more egoistically motivated, insofar as it met the goals of the provider to be active and responsive. From the current diary data, we were not able to distinguish different reasons why the individuals were motivated to reduce their partners' distress; however, it is of interest to do so in future studies. We are particularly interested in whether egoistically motivated supportive acts might have relatively more costs associated with them than benefits, such as increased negative mood and decreased positive mood (Bolger et al., 2000; see also Shrout, Herman, & Bolger, 2006). It is possible that egoistically motivated supportive acts may have negative effects on the recipients and that empathically motivated support may provide benefits.

These results extend findings from the social support mobilization literature, which has shown in retrospective reports that distressed individuals successfully mobilize support (Eckenrode, 1983). In a cross-sectional study, Finch et al. (1997) found that higher levels of psychological distress were associated with receiving support. Other researchers (e.g., Barrera, 1986) have also shown that people who experience higher levels of depressed mood and anxiety tend to receive higher levels of support from close others. These studies focused on the reports from the perspective of recipients of support, but our current report is the first

to show that a similar pattern emerges when examining the daily reports from the providers.

### Provider Factors

Originally, we predicted that certain experiences of the providers, such as negative mood or stressful events, would hinder their ability to provide support to their partners, independent of their partners' needs. We hypothesized that the negative events and mood would drain the potential providers' capacity and resources to attend to the other person's needs and that positive mood would facilitate capacity and resources. We found that negative mood was not associated with the support provision process in either study, but that positive mood was associated in Study 1. The results for positive mood in Study 2 did not replicate the significant finding of Study 1, but they were also not reliably different from the Study 1 finding. Thus, we consider this evidence preliminary. However, the pattern is consistent with the positive mood maintenance hypothesis in the helping literature. This hypothesis suggests that positive emotions can promote helping behaviors insofar as helping others can sustain the positive mood (Forest, Clark, Mills, & Isen, 1979). The current data, of course, cannot establish whether providers used support provision as a mood regulation strategy. The association we found might simply reflect that when providers feel more alert and vigorous, they have greater awareness and energy to provide support to their partners.

### Relationship Factors

Emotions experienced within the context of the relationship played an important role in predicting support provision. Our results suggest that when people feel insecure in their relationship, they may be more motivated to provide support to their partners. It is interesting to note that this effect only emerged when examining providers' relationship anxious mood, but there was no association between recipients' anxious relationship mood and support provision. According to the adult attachment literature, anxiously attached individuals provide support regardless of partners' needs as an effort to ensure that the partner stays committed to the relationship (Feeney & Collins, 2001). In our study, it is possible that our participants provided support to the partners on the days when they felt anxious in the relationship to ensure themselves of their partners' love and commitment. Our findings are also consistent with accommodation theory (Rusbult, Verette, Whitney, Slovik, & Lipkus, 1991), which suggests that in healthy relationships, individuals are more willing to inhibit tendencies to react negatively and instead engage in constructive reactions to a partner's destructive behavior. Feeling anxious in their relationship indicates that individuals perceive a problem in the relationship, so they may provide support to their partner as a means of resolving the problem in a constructive manner.

Perhaps paradoxically, but consistent with the existing literature, in both studies we found that support provision was more likely on days when the provider was relatively more satisfied with the relationship. Recipients' reports of relationship satisfaction were associated with support provision in Study 1, but there was no such association in Study 2 (the acute stress sample). We cannot rule out the possibility that this association reflects a reverse causal effect. Gleason (2005) found that providing support may increase

intimacy, so it is possible that it is the satisfaction that is following support events, rather than support being facilitated by satisfaction. Our data cannot resolve the direction of these same day effects. We did not find, however, any suggestion that satisfaction on one day increased support likelihood on the following day.

The pattern of data in both our studies was consistent with the reciprocity norm. Walster et al. (1973) argued that people are motivated to provide support when they perceive inequity in their relationship. In our studies, individuals were substantially more likely to provide support on days when they received support. Again, we did not ask about motives or goals in our diary studies, but our results suggest that at some level partners are aware of the support receipt and may be motivated to reciprocate the support. Because we did not directly ask about the intention to provide support, our results did not allow us to discuss the equity concern as a process in which individuals were consciously or unconsciously tracking the inputs and outputs. It is also possible that support processes do not involve such tracking in either stressed or nonstressed samples. Because providing support increases feelings of closeness (Gleason, 2005), it is possible that providers reciprocated support to maintain and enhance feelings of intimacy.

### *Stressor Factors*

An important contrast between our two studies is the presence of a major professional stressor in Study 2 compared with daily stressors in Study 1. Most predictors of support provision remained consistent across the two studies, but some of the effects were moderated by the stress context. One notable difference was the overall level of support provided in Study 2 relative to Study 1. This difference is one that is predicted by Dunkel-Schetter and Skokan (1990) on the basis of the distinction between how ambiguous and unambiguous stressors can mobilize support. The bar examination is an unambiguous stressor (Thompson & Bolger, 1999). It is objectively stressful and should be appraised as stressful by both potential support providers and recipients.

Another notable difference between the two stress contexts was that in Study 2, recipients' needs, such as explicit requests for emotional support, were more important in support provision than the providers' own states, such as providers' mood. This suggests that support provision is more recipients' need based under acute stress. Similarly, the reciprocity effect was not as strong in Study 2, which suggests that balancing the equity is not as important when the recipients' are under acute stress.

Even though considering these factors as independent factors helped guide the organization of this article, these factors should not be considered in isolation. For example, level of distress experienced by the recipients is considered one of the recipient factors, but the concept is closely related to the idea of empathy, which would be a provider factor. A second example is the request for support, which is classified as a recipient factor, but this could depend on relationship factors such as history of support exchanges or relationship mood. Categorizing these factors helps the conceptualization of the support provision process, but we consider these categories as a conceptual framework not a literal typology.

### *Individual Versus Relationship Moods*

In both studies, providers' morning anxiety was unrelated to support provision, but providers' relationship anxiety (measured in the evening) was associated with greater support provision. Similarly, recipients' relationship anxiety (measured in the evening) was unrelated to support provision, but recipients' morning anxiety was associated with greater increase in support provision. In supplemental analyses not shown (available from authors) we checked to be sure that time of day was not important. We found the same pattern of results when provider's general anxiety measured in the evening competed with relationship anxiety. It appears that Simpson's (1990) measure of anxiety in the relationship taps a state process like attachment traits and that it is notably different from overall anxiety even though it has a correlation with the latter ( $r = .16$  in Study 1;  $r = .20$  in Study 2).

### *Social Support and Loving Acts*

Our conceptualization of social support distinguishes social support behaviors from general loving acts expressed by individuals. For example, a man may buy a bouquet of flowers for his wife on a whim as he passes a store (a loving act) or he may make the purchase with an intention to cheer her up after hearing about her conflict with a colleague (social support). The loving act would not be defined as social support unless there was an intention of helping the spouse. In our studies, we explicitly asked participants to record "any help [they] PROVIDED for a worry, problem or difficulty to [their] partner," so the former behavior would not be coded as support. Whether the participants were able to distinguish between social support behaviors (behavior directed toward alleviating partners' distress) and simple loving acts remains an empirical question that goes beyond the current data. However, we want to make the distinction at the conceptual level, and our interest lies in examining support transactions and not general loving acts that are perceived to be supportive. Some of our findings are consistent with the distinction, especially the relation of support reports to recipient anxiety and stress in Study 2. Other findings would apply to both loving acts and support, notably the association of morning positive mood to helping the partner.

### *Implications*

Research on social support and coping with stress has consistently shown that supportive relationships can buffer individuals from the detrimental physical and psychological effects of stressful life situations. However, the temporal dynamics of this buffering process have not been identified. According to Cutrona (2004), seeking support is a main predictor of support provision by marital partners, and the kind of support individuals get from their spouses depends largely on the way they seek support. The results from our studies confirm that seeking support is an important predictor of providing support, especially under acute stressful situations, but that it is far from being the only factor (e.g., Conn & Peterson, 1989). Our findings further suggest that provider factors, such as positive mood, and relationship factors, such as history of support exchanges, are important predictors as well.

Although researchers in close relationships often focus on conflict, negative affect (Gottman, 1998), and partners' destructive

behaviors (Finkel & Campbell, 2001; Yovetich & Rusbult, 1994), this research examines one of the mechanisms through which relationships are maintained and enhanced. Social support is an important predictor of marital functioning (Conger, Rueter, & Elder, 1999; Pasch & Bradbury, 1998), and support transactions enhance perceived partner responsiveness, which is a core component of healthy, intimate relationships (Reis, Clark, & Holmes, 2004). Therefore, even if the effects of actual receipt of support are inconclusive, the concern of how to get partners involved in supportive transactions has been one of the central issues in relationship research (Cutrona, 2004; Feeney & Collins, 2003). This study extends previous research on support provision by exploring the within-couple process of support provision as influenced by recipient factors, provider factors, relationship factors, and stressor factors.

Thinking about support provision as a fluid process that involves the active engagement of two partners helps us understand the psychological experience of individuals who provide support. The findings from these studies help identify and integrate factors that decrease the likelihood of providing support as well as those that increase support provision. For example, providers are less likely to give support when the potential recipients are experiencing lower levels of anxiety or fewer stressful events. Given that obvious support has costs (Shrout et al., 2006), this restraint is likely to be beneficial to the potential recipient. Providers are also less likely to give support when they have not received support and when they are feeling less positive. These circumstances allow providers to conserve energy until the need for support emerges.

Lastly, our findings are related to the construct of *perceived partner responsiveness*, as developed by Reis et al. (2004). They defined perceived partner responsiveness as "a process by which individuals come to believe that relationship partners both attend to and react supportively to central, core defining features of the self" (p. 203). Our findings suggest one of the ways in which the process of perceived partner responsiveness may unfold over time. We found that when the recipients experienced higher levels of distress and requested support, the potential providers were more likely to provide support. Support provision, then, can be thought of as an expression of the responsiveness of one's partner and hence contributes to perceived partner responsiveness.

### *Future Directions*

Although our predictions were based on well-founded psychological theory, we did not attempt to combine them into a single theoretical explanation of what leads to support provision by intimate partners. Instead, we sought to provide a comprehensive empirical evaluation of a variety of predictions in a context in which the provider, recipient, and relationship processes competed against each other in explaining support provision. One future direction is to use these findings to build a self-regulation model to examine support provision and treat providing support to one's partner as a specific behavior that fulfills multiple goals (Kruglanski et al., 2002). The results from these studies imply that alleviating a partner's distress is an important motivation to provide support, as well as balancing equity within the relationship and maintaining the quality of the relationship. Thus, the provision of support may be motivated by and serve various goals for the self and the other. Taking the regulation approach to social support

provision also allows us to predict what happens when providing support conflicts with other important goals the providers might currently be pursuing. For example, there may be times when one's career goals might interfere with one's relationship goals. Despite high motivation to provide support for one's partner, if in a given context providing support is secondary to another goal (advancing one's career), support may not be offered. Exploring such possibilities would require developing measures of the relative importance and centrality of the various goals of the partner at the time of a given support provision opportunity.

Although we have mentioned that the factors that predict the provision of support could be motivations to provide support, our studies did not allow us to specify the motivation as conscious or unconscious. Research has suggested that in the context of relationships, many goals can be activated and pursued without conscious awareness (Fitzsimons & Bargh, 2003; Shah, 2003). Although there are no major differences between the results of Study 1 and Study 2, it is possible that the participants from Study 2 were more conscious of providing support to their partners because the recipient-provider roles were clearly defined in their situation. Given the broad array of goals and motives served by providing support to one's partner, however, we imagine that individuals in relationships may often be unaware of all sources of motivation for their supportive actions.

### *Limitations*

Although daily diary studies have important strengths for studying process, they also impose notable limitations (Bolger et al., 2003). The amount of information that one can collect is limited by concerns of participant burden. In our case, we used paper-and-pencil diary forms because it seemed to be more acceptable to participants at the time our data were collected. Because of the simplicity of this method, we have no way of assessing whether the participants filled out the daily diary every morning and every evening faithfully. Given the findings from Green et al. (2006), we are confident that the results would not change even if the data had been collected using electronic diaries, which have the possibility of verifying the time of completion of the diary. We also observed systematic and consistent patterns of support provision across two studies, which suggest that participants were not randomly filling out these dairies. However, whether compliance actually affects the results is something we need to address in future studies using electronic diaries. Another limitation of our findings is that even though our model suggests the order of the events leading to support provision is important, we cannot make conclusive causal inferences because of the correlational nature of our data. However, these two studies give enough evidence for situational determinants of support provision to bring them to a lab setting and examine the causal direction more precisely.

### *Conclusion*

In their now-classic article on the importance of social support for health outcomes, House, Landis, and Umberson (1988) emphasized the need for research on the determinants of social support. Almost 20 years later, it is fair to say that much of this work remains to be done. As yet, only a few studies have looked at providing support as a dependent variable (e.g., Knoll et al.,

2006). Given this context, the purpose of this investigation was to use existing theoretical research to predict support provision in intimate dyads. Our results confirm that the process involves characteristics of the providers, recipients, and their relationships. Although the literature is not yet at the stage in which these influences can be combined into a single theory, the results shown here provide useful constraints on the form such a theory will eventually take.

## References

- Barbee, A. P., Cunningham, M. R., Winstead, B. A., & Derlega, V. J. (1993). Effects of gender role expectations on the social support process. *Journal of Social Issues, 49*, 175–190.
- Barrera, M., Jr. (1986). Distinctions between social support concepts, measures, and models. *American Journal of Community Psychology, 14*, 413–445.
- Berkman, L. F., & Breslow, L. (1983). *Health and ways of living*. London: Oxford University Press.
- Bolger, N., & Amarel, D. (2007). Effects of social support visibility on adjustment to stress: Experimental evidence. *Journal of Personality and Social Psychology, 92*, 458–475.
- Bolger, N., Davis, A., & Rafaeli, E. (2003). Diary methods: Capturing life as it is lived. *Annual Review of Psychology, 54*, 579–616.
- Bolger, N., Foster, M., Vinokur, A. D., & Ng, R. (1996). Close relationships and adjustments to a life crisis: The case of breast cancer. *Journal of Personality and Social Psychology, 70*, 283–294.
- Bolger, N., Zuckerman, A., & Kessler, R. C. (2000). Invisible support and adjustment to stress. *Journal of Personality and Social Psychology, 79*, 953–961.
- Brown, S. L., Nesse, R. M., Vinokur, A. D., & Smith, D. M. (2003). Providing social support may be more beneficial than receiving it: Results from a prospective study of mortality. *Psychological Science, 14*, 320–327.
- Carlson, M., Charlin, V., & Miller, N. (1988). Positive mood and helping behavior: A test of six hypotheses. *Journal of Personality and Social Psychology, 55*, 211–229.
- Cialdini, R. B., Schaller, M., Houlihan, D., Arps, K., Fultz, J., & Beaman, A. L. (1987). Empathy-based helping: Is it selflessly or selfishly motivated? *Journal of Personality and Social Psychology, 52*, 749–758.
- Clark, M. S., & Mills, J. (1979). Interpersonal attraction in exchange and communal relationships. *Journal of Personality and Social Psychology, 37*, 12–24.
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Mahwah, NJ: Erlbaum.
- Collins, N. L., Dunkel-Schetter, C., Lobel, M., & Scrimshaw, S. C. (1993). Social support in pregnancy: Psychosocial correlates of birth outcomes and postpartum depression. *Journal of Personality and Social Psychology, 65*, 1243–1258.
- Conger, R. D., Rueter, M. A., & Elder, G. H., Jr. (1999). Couple resilience to economic pressure. *Journal of Personality and Social Psychology, 76*, 54–71.
- Conn, M. K., & Peterson, C. (1989). Social support: Seek and ye shall find. *Journal of Social and Personal Relationships, 6*, 345–358.
- Coombs, R. H. (1991). Marital status and personal well-being: A literature review. *Family Relations: Interdisciplinary Journal of Applied Family Studies, 40*, 97–102.
- Coyne, J. C., & Bolger, N. (1990). Doing without social support as an explanatory concept. *Journal of Social and Clinical Psychology, 9*, 148–158.
- Coyne, J. C., Wortman, C. B., & Lehman, D. R. (1988). The other side of support: Emotional overinvolvement and miscarried helping. In B. Gottlieb (Ed.), *Marshaling social support: Formats, processes, and effects* (pp. 305–330). Thousand Oaks, CA: Sage.
- Cranford, J. A., Shrout, P. E., Iida, M., Rafaeli, E., Yip, T., & Bolger, N. (2006). A procedure for evaluating sensitivity to within-person change: Can mood measures in diary studies detect change reliably? *Personality and Social Psychology Bulletin, 32*, 917–929.
- Cutrona, C. E. (1996). *Social support in couples: Marriage as a resource in times of stress*. Thousand Oaks, CA: Sage.
- Cutrona, C. E. (2004, January). *Social support elicitation in couples: What works?* Paper presented at the meeting of the Society of Personality and Social Psychology, Austin, TX.
- Dunkel-Schetter, C., & Skokan, L. A. (1990). Determinants of social support provision in personal relationships. *Journal of Social and Personal Relationships Special Issue: Predicting, activating and facilitating social support, 7*, 437–450.
- Eckenrode, J. (1983). The mobilization of social supports: Some individual constraints. *American Journal of Community Psychology, 11*, 509–528.
- Eckenrode, J., & Wethington, E. (1990). The process and outcome of mobilizing social support. In S. Duck & R. C. Silver (Eds.), *Personal relationships and social support* (pp. 83–103). London: Sage.
- Feeney, B. C., & Collins, N. L. (2001). Predictors of caregiving in adult intimate relationships: An attachment theoretical perspective. *Journal of Personality and Social Psychology, 80*, 972–994.
- Feeney, B. C., & Collins, N. L. (2003). Motivations for caregiving in adult intimate relationships: Influences on caregiving behavior and relationship functioning. *Personality and Social Psychology Bulletin, 29*, 950–968.
- Finch, J. F., Barrera, M., Jr., Okun, M. A., Bryant, W. H. M., Pool, G. J., & Snow-Turek, A. L. (1997). The factor structure of received social support: Dimensionality and the prediction of depression and life satisfaction. *Journal of Social and Clinical Psychology, 16*, 323–342.
- Finkel, E. J., & Campbell, W. K. (2001). Self-control and accommodation in close relationships: An interdependence analysis. *Journal of Personality and Social Psychology, 81*, 263–277.
- Fitzsimons, G., & Bargh, J. A. (2003). Thinking of you: Nonconscious pursuit of interpersonal goals associated with relationship partners. *Journal of Personality and Social Psychology, 84*, 148–163.
- Forest, D., Clark, M. S., Mills, J., & Isen, A. M. (1979). Helping as a function of feeling state and nature of the helping behavior. *Motivation and Emotion, 3*, 161–169.
- Gleason, M. E. J. (2005). Is receiving support a mixed blessing? Evidence for dual effects of support on psychological outcomes. *Dissertation Abstracts International, Section B: The Sciences and Engineering, 65* (9-B), 4896. (UMI No. AAI3146656)
- Gleason, M. E. J., Iida, M., Bolger, N., & Shrout, P. E. (2003). Daily supportive equity in close relationships. *Personality and Social Psychology Bulletin, 29*, 1036–1045.
- Gleason, M. E. J., Iida, M., Bolger, N., & Shrout, P. E. (in press). Receiving support as a mixed blessing: Evidence for dual effects of support on psychological outcomes relationships. *Journal of Personality and Social Psychology*.
- Gottman, J. M. (1998). Psychology and the study of the marital processes. *Annual Review of Psychology, 49*, 169–197.
- Green, A. S., Rafaeli, E., Bolger, N., Shrout, P. E., & Reis, H. T. (2006). Paper or plastic? Data equivalence in paper and electronic diaries. *Psychological Methods, 11*, 87–105.
- Hazen, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology, 52*, 511–524.
- Hobfoll, S. E. (1988). *The ecology of stress*. Washington, DC: Hemisphere.
- Hobfoll, S. E., & Lerman, M. (1989). Predicting receipt of social support: A longitudinal study of parents' reactions to their child's illness. *Health Psychology, 8*, 61–77.



- House, J. S., Landis, K. R., & Umberson, D. (1988, July 29). Social relationships and health. *Science*, 241, 540–545.
- Jung, J. (1989). Social support rejection and reappraisal by providers and recipients. *Journal of Applied Social Psychology*, 19, 159–173.
- Kaniasty, K., & Norris, F. H. (1995). In search of altruistic community: Patterns of social support mobilization following Hurricane Hugo. *American Journal of Community Psychology*, 23, 447–477.
- Kennedy, J. K., Bolger, N., & Shrout, P. E. (2002). Witnessing interpersonal psychological aggression in childhood: Implications for daily conflict in adult intimate relationships. *Journal of Personality*, 70, 1051–1077.
- Knoll, N., Burkert, S., & Schwarzer, R. (2006). Reciprocal support provision: Personality as a moderator? *European Journal of Personality*, 20, 217–236.
- Kruglanski, A. W., Shah, J. Y., Fishbach, A., Friedman, R., Chun, W. Y., & Sleeth-Keppler, D. (2002). A theory of goal systems. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 34, pp. 331–378). San Diego, CA: Academic Press.
- Larsen, R. J., & Prizmic, Z. (2004). Affect regulation. In R. F. Baumeister & K. D. Vohs (Eds.), *Handbook of self-regulation: Research, theory, and applications* (pp. 40–61). New York: Guilford Press.
- Laurenceau, J., & Bolger, N. (2005). Using diary methods to study marital and family processes. *Journal of Family Psychology*, 19, 86–97.
- Lorr, M., & McNair, D. N. (1971). *The Profile of Mood States manual*. San Diego, CA: Educational and Industrial Testing Service.
- Mor, N., & Winquist, J. (2002). Self-focused attention and negative affect: A meta-analysis. *Psychological Bulletin*, 128, 638–662.
- Neff, L. A., & Karney, B. R. (2005). Gender differences in social support: A question of skill or responsiveness? *Journal of Personality and Social Psychology*, 88, 79–90.
- Pasch, L. A., & Bradbury, T. N. (1998). Social support, conflict, and the development of marital dysfunction. *Journal of Consulting and Clinical Psychology*, 66, 219–230.
- Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Thousand Oaks, CA: Sage.
- Raudenbush, S. W., Bryk, A. S., Cheong, Y. F., & Congdon, R. T., Jr. (2000). *HLM 5: Hierarchical linear and nonlinear modeling* [Statistical software manual]. Lincolnwood, IL: Scientific Software International.
- Reis, H. T., Clark, M. S., & Holmes, J. G. (2004). Perceived partner responsiveness as an organizing construct in the study of intimacy and closeness. In D. J. Mashek & A. P. Aaron (Eds.), *Handbook of closeness and intimacy* (pp. 201–225). Mahwah, NJ: Erlbaum.
- Rusbult, C. E., Verette, J., Whitney, G. A., Slovick, L. F., & Lipkis, I. (1991). Accommodation processes in close relationships: Theory and preliminary empirical evidence. *Journal of Personality and Social Psychology*, 60, 53–78.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68–78.
- Sandler, I. N., & Barrera, M. (1984). Toward a multimethod approach to assessing the effects of social support. *American Journal of Community Psychology*, 12, 37–52.
- Sarason, B. R., Sarason, I. G., & Pierce, G. R. (1990). Traditional views of social support and their impact on assessment. In B. R. Sarason, & I. G. Sarason (Eds.), *Social support: An interactional view* (pp. 9–25). Oxford, England: Wiley.
- Shah, J. (2003). Automatic for the people: How representations of significant others implicitly affect goal pursuit. *Journal of Personality and Social Psychology*, 84, 661–681.
- Shaver, P., Schachner, D. A., & Mikulincer, M. (2005). Attachment style and excessive reassurance seeking, relationship processes, and depression. *Personality and Social Psychology Bulletin*, 31, 343–359.
- Shrout, P. E., Herman, C., & Bolger, N. (2006). The costs and benefits of practical and emotional support on adjustment: A daily diary study of couples experiencing acute stress. *Personal Relationships*, 13, 115–134.
- Simpson, J. A. (1990). Influence of attachment styles on romantic relationships. *Journal of Personality and Social Psychology*, 59, 971–980.
- Simpson, J. A., Rholes, W. S., Orina, M. M., & Grich, J. (2002). Working models of attachment, support giving, and support seeking in a stressful situation. *Personality and Social Psychology Bulletin*, 28, 598–608.
- Thoits, P. A. (1995). Stress, coping, and social support processes: Where are we? What next? *Journal of Health and Social Behavior* 35(Extra Issue), 53–79.
- Thompson, A., & Bolger, N. (1999). Emotional transmission in couples under stress. *Journal of Marriage and the Family*, 61, 38–48.
- Trope, Y., Igou, E. R., & Burke, C. T. (2006). Mood as a resource in structuring goal pursuit. In J. P. Forgas (Ed.), *Affect in social thinking and behavior* (pp. 217–234). New York: Psychology Press.
- Uehara, E. S. (1995). Reciprocity reconsidered: Gouldner's "moral norm of reciprocity" and social support. *Journal of Social and Personal Relationships*, 12, 482–502.
- Walster, E., Berscheid, E., & Walster, G. W. (1973). New directions in equity research. *Journal of Personality and Social Psychology*, 25, 151–176.
- Yovetich, N. A., & Rusbult, C. E. (1994). Accommodative behavior in close relationships: Exploring transformation of motivation. *Journal of Experimental Social Psychology*, 30, 138–164.

## Appendix A

## Multilevel Equations for Study 1

Level 1 Equation:

$$\begin{aligned} \text{Log}[p_{ijt}/(1 - p_{ijt})] = & \beta_{0i} + \beta_{1i}RAnx_{ijt} + \beta_{2i}RPos_{ijt} + \beta_{3i}RStress_{ijt} + \beta_{4i}RSeek_{ijt} + \beta_{5i}PAnx_{ijt} \\ & + \beta_{6i}PPos_{ijt} + \beta_{7i}PStress_{ijt} + \beta_{8i}PRAnx_{ijt} + \beta_{9i}RRAnx_{ijt} + \beta_{10i}PRSat_{ijt} \\ & + \beta_{11i}RRSat_{ijt} + \beta_{12i}PR_{ijt} + \beta_{13i}PH_{ijt} + \beta_{14i}Gend_{ij} + \beta_{15i}PP_{ij(t-1)} + \beta_{16i}Day_{ijt} \end{aligned}$$

Level 2 Equation:

$$\beta_{0i} = \gamma_{00} + u_{0i}$$

$$\beta_{14i} = \gamma_{140} + u_{14i}$$

Note.  $p_{ijt}$  = the probability of providing emotional support to the recipient for partner  $j$  from couple  $i$  on day  $t$ ;  $RAnx_{ijt}$  = recipients' anxiety (morning);  $RPos_{ijt}$  = recipients' positive mood (morning);  $RStress_{ijt}$  = recipients' daily stressors (evening);  $RSeek_{ijt}$  = recipients' report of seeking support (evening);  $PAnx_{ijt}$  = providers' anxiety (morning);  $PPos_{ijt}$  = providers' positive mood (morning);  $PStress_{ijt}$  = providers' daily stressors (evening);  $PRAnx_{ijt}$  = providers' relationship anxiety (evening);  $RRAnx_{ijt}$  = recipients' relationship anxiety (evening);  $PRSat_{ijt}$  = providers' relationship satisfaction (evening);  $RRSat_{ijt}$  = recipients' relationship satisfaction (evening);  $PR_{ijt}$  = providers' receipt of support (evening);  $PH_{ijt}$  = providers' report of time spent with partner (evening);  $Gend_{ij}$  = gender of the provider for couple  $i$  (coded  $-0.5$  for male,  $0.5$  for female);  $PP_{ij(t-1)}$  = providers' provision of support (yesterday evening);  $Day_{ijt}$  = diary day (centered around the 13th day of the study).

## Appendix B

Mean Within-Couple Correlations of the Variables in Study 1 ( $N = 79$ )

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Ps' provision (p.m.)	—														
2. Rs' anxiety (a.m.)	.08**	—													
3. Rs' positive mood (a.m.)	-.01	-.19**	—												
4. Rs' daily stressors (p.m.)	.06*	.16**	-.14**	—											
5. Rs' report of seeking support (p.m.)	.07†	.05	-.02	.03	—										
6. Ps' anxiety (a.m.)	.02	.03	-.01	.01	.06*	—									
7. Ps' positive mood (a.m.)	.00	-.01	.09**	-.06**	-.02	-.19**	—								
8. Ps' daily stressors (p.m.)	.00	.02	-.06**	.15**	.03	.15**	-.15**	—							
9. Ps' relationship anxiety (p.m.)	-.01	.09**	-.05	.05†	.01	.16**	-.01	.09**	—						
10. Rs' relationship anxiety (p.m.)	-.02	.14**	-.02	.13**	.05	.09**	-.04	.05**	.14**	—					
11. Ps' relationship satisfaction (p.m.)	.07**	-.03	.09**	-.08**	-.02	-.08**	.12**	-.13**	-.33**	-.11**	—				
12. Rs' relationship satisfaction (p.m.)	.01	-.09**	.14**	-.14**	.04†	-.03	.08**	-.08**	-.11**	-.33**	.23**	—			
13. Ps' receipt of support (p.m.)	.35**	.01	.05†	-.01	.16**	.10**	-.03	.08**	.02	.01	.07*	.04	—		
14. Ps' time spent with partner (p.m.)	.13**	-.07**	.12**	-.19**	.11**	-.09**	.13**	-.19**	-.08**	-.06*	.19**	.18**	.18**	—	
15. Ps' provision (yesterday p.m.)	.10**	.03	-.04	.03	.01	.03	.05*	.01	.04	-.01	.00	.00	.00	.05†	—

Note. P = provider; R = recipient.

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

(Appendixes continue)

## Appendix C

## Multilevel Equations for Study 2

Level 1 Equation:

$$\begin{aligned} \text{Log}[p_{it}/(1 - p_{it})] = & \beta_{0i} + \beta_{1i}RAnx_{it} + \beta_{2i}RPos_{it} + \beta_{3i}RStress + \beta_{4i}StressPhase_{it} + \beta_{5i}Day_{it} + \beta_{6i}RSeek_{it} + \beta_{7i}PAnx_{it} \\ & + \beta_{78i}PPos_{it} + \beta_{89i}PStress_{it} + \beta_{10i}PRAnx_{it} + \beta_{11i}RRAnx_{it} + \beta_{12i}PRSat_{it} \\ & + \beta_{13i}RRSat_{it} + \beta_{14i}PR_{it} + \beta_{15i}PH_{it} + \beta_{16i}PP_{i(t-1)} \end{aligned}$$

Level 2 Equation:

$$\beta_{0i} = \gamma_{00} + \gamma_{01}Gend_i + u_{0i},$$

$$\beta_{16i} = \gamma_{160} + u_{16i}$$

Note.  $p_{it}$  = the probability of providing emotional support to the recipient for couple  $i$  on day  $t$ ;  $RAnx_{it}$  = recipients' anxiety (morning);  $RPos_{it}$  = recipients' positive mood (morning);  $StressPhase_{it}$  = stress phase (0 for first 4 weeks of the study, 1 for the last week before the exam);  $Day_{it}$  = diary day (centered around the 18th day of the study);  $RSeek_{it}$  = recipients' report of seeking support (evening);  $PAnx_{it}$  = providers' anxiety (morning);  $PPos_{it}$  = providers' positive mood (morning);  $PStress_{it}$  = providers' daily stressors (evening);  $PRAnx_{it}$  = providers' relationship anxiety (evening);  $RRAnx_{it}$  = recipients' relationship anxiety (evening);  $PRSat_{it}$  = providers' relationship satisfaction (evening);  $RRSat_{it}$  = recipients' relationship satisfaction (evening);  $PR_{it}$  = providers' receipt of support (evening);  $PH_{it}$  = providers' report of time spent with partner (evening);  $PP_{i(t-1)}$  = providers' provision of support (yesterday evening);  $Gend_i$  = gender of the provider for couple  $i$  (coded  $-0.5$  for male,  $0.5$  for female).

## Appendix D

Mean Within-Couple Correlations of the Variables in Study 2 ( $N = 196$ )

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Ps' provision (p.m.)	—														
2. Rs' anxiety (a.m.)	.15**	—													
3. Rs' positive mood (a.m.)	-.04*	-.31**	—												
4. Rs' daily stressors (p.m.)	-.02	.08**	-.10**	—											
5. Rs' report of seeking support (p.m.)	.16**	.11**	-.04*	.03*	—										
6. Ps' anxiety (a.m.)	.03†	.18**	-.08**	.02	.03†	—									
7. Ps' positive mood (a.m.)	.02	-.09**	.15**	-.03	.00	-.22**	—								
8. Ps' daily stressors (p.m.)	-.01	.03	-.04**	.07**	-.04*	.14**	-.17**	—							
9. Ps' relationship anxiety (p.m.)	.03	.09**	-.05**	.05**	.01	.19**	-.05**	.06**	—						
10. Rs' relationship anxiety (p.m.)	-.04*	.06**	.00	.11**	.00	.04†	-.03	.08**	.11**	—					
11. Ps' relationship satisfaction (p.m.)	.10**	-.03	.06**	-.03*	.03	-.06**	.13**	-.09**	-.26**	-.10**	—				
12. Rs' relationship satisfaction (p.m.)	.06**	-.05**	.13**	-.09**	.06**	.01	.03*	-.06**	-.09**	-.27**	.20**	—			
13. Ps' receipt of support (p.m.)	.18**	-.06**	.06**	-.04*	.03†	.04*	.01	.04*	-.06*	-.01	.17**	.06**	—		
14. Ps' time spent with partner (p.m.)	.10**	-.16**	.19**	-.06**	.06**	-.09**	.15**	-.09**	-.06**	-.03†	.13**	.09**	.15**	—	
15. Ps' provision (yesterday p.m.)	.13**	.11**	.00	.00	.04*	.02	.05**	.01	.04*	-.04*	.03	.07**	.02	.01	—

Note. P = provider; R = recipient.

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

Received April 18, 2006

Revision received July 3, 2007

Accepted July 10, 2007 ■