Modeling Support Provision in Intimate Relationships

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Citation Information:

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Abstract

Whereas supportive interactions are usually studied from the perspective of recipients alone, we used a dyadic design to incorporate the perspectives of both provider and recipient. In two daily diary studies we modeled provider reports of support provision in intimate dyads over several weeks. The first involved couples experiencing daily stressors (N=79), the second, couples experiencing a major professional stressor (N=196). We 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
Modeling Support Provision in Intimate Relationships

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 (see Coombs, 1991 for a review).

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 six 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; Sarason, Sarason & Pierce, 1990; Sandler & Barrera, 1984). 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: 1) recipient factors, 2) provider factors, 3) relationship factors, and 4) 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 fifteen 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 asked to recall a past instance of support provision, participants 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 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 hypothesize that on days when the potential recipient reports seeking
support, support provision will 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 where 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., Kaniasky & Norris, 1995; Hobfoll & Lerman, 1989). For example, Kaniasky and Norris (1995) found that participants who reported being highly impacted by Hurricane Hugo received more support compared to participants who did not. In our study we hypothesize that distress of the recipient will 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 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’s resources (Feeney & Collins, 2001, 2003). There are at least two ways that provider’s resources may hinder support provision behavior: 1) it may limit one’s capacity to notice the situation, and 2) 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 expect that the likelihood of support provision will 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; see Mor & Winquist, 2002, for a review). 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, Iida, Bolger & Shrout, 2003), there is no empirical support that the potential provider recognizes providing support improves one’s mood. Therefore, we hypothesize that the negative mood experienced 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 by the provider might indicate that resources are available, particularly generalized activation of awareness and the energy to implement any intentions to
provide support (Trope, Igou & Burke, in press). In addition, research from the helping literature suggests that positive moods promote helping behaviors (see Carlson, Charlin, & Miller, 1988 for review). We hypothesize that support provision will be relatively less likely on days when providers report more negative mood and more likely on days when positive mood is 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 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, Schanchner, & 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 (over-involved) 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, on a day-to-day basis, 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 will then be 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, and thus leading to support mobilization. We propose to test these ideas by hypothesizing that support provision will be more likely on days when both members of the couple are 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 or not 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 hypothesize a within-dyad replication: On days when both members of the couples experience higher levels of relationship satisfaction, the provider will 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 et al., 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. Based on this theory, we predict that support provision will be more likely on days when the potential provider perceives that he or she has 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) distinguish 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 predict that support will be more likely on days when recipients report that daily stressful events have occurred, and we predict that the likelihood of support will increase as an acute stressful event draws near in time, but when an acute, unambiguous stressor is present, more support will be provided than when people are 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 might 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.1 Study 1 addresses the support provision process in everyday life, whereas the purpose of Study 2 is to examine the same process when the potential recipient is undergoing a significant stressor. The first dataset 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 dataset, used to extend the results from Study 1, is a daily diary study of 196 couples who were followed for 44 days (to be described in detail later). 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 expect higher levels of support in this context. This expectation is reflected in Hypothesis 9 in Table 1.

Study 1

Design and Participants

To recruit couples, flyers describing the study and inclusion criteria were posted and placed 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 with their partner and to have been cohabiting for a minimum of 6 months at the time of the study. Interested participants either called or emailed researchers to receive further information about the study. The researchers encouraged potential participants to forward the information via email 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. One hundred and fourteen individuals showed interest in the study, and 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 $1000. 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 one to four weeks prior to the start of the diary period. Background questionnaires consisted of demographic information and other scales which 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 four 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 one 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. Since our inclusion criteria did not specify the sexual orientation of the couples, the sample included two homosexual couples. Since we cannot assume a similar process for homosexual 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, Shrodt, Bolger, & 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. 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 to [their] partner 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 hours. 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 hours. 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 (1971) were used. Anxious mood consisted of the items “on edge,” “uneasy,” and “anxious,” which resulted in between-person reliability of 0.79 and within-person reliability of 0.82. Positive mood consisted of the items “cheerful,” “vigorous,” and “lively,” which resulted in between-person reliability of 0.80 and within-person 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 will be used. Ratings were on a 5-point scale, ranging from “not at all” (1) to “extremely” (5). 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’ 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/work, transportation problems, headache, and conflict with a co-worker. 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-person reliability of 0.85 and within-person reliability of 0.79. Relationship satisfaction consisted of the items “content” and “satisfied,” which resulted in between-person reliability of 0.63 and within-person 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 “not at all” (1) to “extremely” (5). Only the provider’s relationship moods will be reported in the current analysis. 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 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 hours (not counting time sleeping). Because the 99th percentile of the hours spent together was 18 hours, we coded any responses greater than 18 hours 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 partner and providers’ 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 framework, and
estimated using HLM 5 (Raudenbush et al., 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 hierarchical linear model (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 due to 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, p. 301-304).

Results

Table 2 shows the means and standard deviations for each daily variable in the model. 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 correlations for the variables in Study 1. 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 \( r = 0.35 \), followed by the negative correlation between providers’ relationship anxiety and relationship satisfaction \( r = -0.33 \). 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 under-dispersed (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 another 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. Surprisingly, 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).

**Relationship factors.** Part of Hypothesis 6 was supported in this dataset. 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 < 0.05). 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 (fixed effect = 0.09, odds = 1.09, t(78) = 3.10, p < 0.01 for providers’ reports; fixed effect = 0.06, odds = 1.07, t(78) = 2.22, p < 0.01 for recipients’ reports). 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 p = .67, whereas on days when they did not receive support the probability was p = .22.
Control Variables. The amount of time spent with one’s partner was an important predictor of providing support (fixed effect = 0.08, \textit{odds} = 1.08, \( t(78) = 2.90, p<.01 \)), such that each additional unit of time (1.8 hours) 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, \textit{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, \textit{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 (\textit{odds}=1.20) than for men (\textit{odds}=1.47).\(^7\) 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, \textit{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, \( \chi^2 (78) = 341.67, p < 0.01 \)) tells 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 +/- 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 males and females in each couple differed across couples (variance estimate = 1.45, $\chi^2 (78) = 204.24, p < 0.01$). 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 females were approximately 10 times as likely to provide support as their male partners, whereas in other couples females were 0.08 times as likely (which means that in those couples the males were $1/.08=12.4$ times as likely to provide support as the females). The fact that this range includes an odd 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 provider's perception of 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 authors) 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. Another possible explanation for this counterintuitive finding could be
miscommunication between couples, such that the recipients’ seeking behavior is not perceived
accurately by the provider.

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 lead to support. Starting the day in a relatively good mood, on the
other hand, seemed to facilitate the provider's ability to help his/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 potential providers appeared to be more likely to
provide support on days when they were relatively more anxious in the relationship.
Interestingly, 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 to come 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 influences 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
makes participants more responsive to their partners’ needs. It is also possible that the
participants are 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 focus 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 to 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 draws near in
time.

*Design and Participants*

Participants were recruited by contacting over 100 law schools in the United States, thirty
of which participated. Because access to students’ marital or cohabitation status was not
available, representatives of the school were asked to distribute either a letter or an email 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. Four-hundred and nineteen eligible couples contacted the researchers,
and of those, 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 three weeks
prior to the beginning of the diary period, which consisted of the five weeks prior to the exam,
the two days on which the exam took place, and one week after the exam. Approximately one to
two 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 six 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 one 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 nine 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 male. 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 three 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, where 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 we note 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-person reliability and within-person 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-person reliability and within-person reliability of providers’ relationship anxiety were 0.74 and 0.71, respectively, and their relationship satisfaction 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 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 hours was the 99th percentile of the hours spent together. Therefore, we coded any response greater than 15 hours 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 non-examinee 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. 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 males and -0.5 for females.

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 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 \( r = -0.31 \), followed by recipients’ relationship anxiety and their relationship satisfaction \( r = -0.27 \). 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 under-dispersed \( (0.91) \), and we decided not to adjust for this since 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, \( odds = 1.11, t(195) = 4.64, p<0.01 \)). 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 to the first four 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<0.01). 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<0.01).

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<0.01). This coefficient indicates that providers were approximately twice as likely to provide emotional support if the recipients sought support, as compared to 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 $p = .72$, whereas on the days when recipients did not seek support the probability was $p = .57$.

**Provider factors.** In Study 2, none of the provider factors were associated with likelihood of support provision (Hypothesis 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,
and providers’ report of daily stressful events was not predictive of support provision (fixed effect = 0.01, \( \text{odds} = 1.01, t(195) = 0.42, ns \)).

**Relationship factors.** The effects of relationship moods were similar to those found in Study 1. The providers’ relationship anxiety was significantly associated with the likelihood of provision of support (Hypothesis 6), (fixed effect = 0.15, \( \text{odds} = 1.16, t(195) = 4.28, p<0.01 \)); 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, \( \text{odds} = 0.98, t(195) = -0.74, ns \)).

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, \( \text{odds} = 1.13, t(195) = 5.09, p<0.01 \)). 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, \( \text{odds} = 0.99, t(195) = -0.55, ns \)).

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, \( \text{odds} = 3.58, t(195) = 13.76, p<0.01 \)). This coefficient indicates that providers were approximately 3.6 times more likely to provide support to the recipients on days they received support than 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 \( p = 0.83 \), whereas on days when they did not the probability was \( p = 0.57 \).

**Control Variables.** Similar to Study 1, the time spent with recipients predicted likelihood of providing support (fixed effect = 0.11, \( \text{odds} = 1.11, t(195) = 5.86, p<0.01 \)), such that a unit
increase in time spent together (1.5 hours) 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<0.01). 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<0.05), 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) = 523.94, p < 0.01), 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) = 297.02, p < 0.01), 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 non-stressed Study 1 sample than for the Study 2 sample where 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 to Study 1. This suggests that the reciprocity norm might be less important for support provision when the recipient is under acute stress compared to 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, Zuckerman & Kessler, 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, in so far 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 are 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 (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 experienced higher levels of depressed mood and anxiety tended 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 non-stressed samples. Since providing support increases feeling 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 to 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) based on 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 suggest 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 the paper, 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 vs. 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 towards 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 (Yovetich & Rusbult, 1994; Finkel & Campbell, 2001), this research examines one of the mechanisms through which relationships are maintained and enhanced. Social support is an important predictor of marital functioning (Pasch & Bradbury, 1998; Conger, Rueter, & Elder, 1999), 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 (Feeney & Collins, 2003; Cutrona, 2004). 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, Clark and Homes (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 where 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, Shah, Fishbach, Friedman, Chun, & Sleeth-Keppler, 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 do 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). While 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, Davis & Rafaeli, 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 our 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 due to 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 paper 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 twenty 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, Burkert, & Schwarzer, 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 where 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


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This work was partially supported by grant R01-MH60366 from the National Institute of Mental Health. 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 would like to thank members of the NYU Couples Laboratory for their helpful comments and suggestions on drafts of this article. Correspondence concerning this article should be addressed to Masumi Iida, 6 Washington Place, Room 568, Department of Psychology, New York University, New York, New York, 10003; email: mi305@nyu.edu.
Footnotes

1 Data from Study 1 were first published in *Journal of Personality* (Kennedy, Bolger, & Shrout, 2002). In this publication, Kennedy and her colleagues examined the consequences of witnessing interparental aggression in childhood for daily conflict in adult intimate relationships. The second article reporting findings from this dataset was published in *Personality and Social Psychology Bulletin* (Gleason, Iida, Bolger & Shrout, 2003). In this paper, Gleason and her colleagues 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 is described in a manuscript under invited revision (Gleason, Iida, Bolger & Shrout, 2006), which extends the finding of Gleason et al. (2003) to relationship intimacy. We report the effect of receiving and providing support on both negative/positive mood as well and 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; 2006). While 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 paper identifies the determinants of daily support provision rather than the effect that provision has on both recipients and providers.

2 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 the authors upon request.

3 These reliabilities are calculated using the method described in Cranford, Shrout, Iida, Rafaeli, Yip & Bolger (2006). The between-person reliabilities reported here can be interpreted as the between-person reliability of the average of the measures taken on the same fixed day.
(denoted as $R_{1F}$ in Cranford et al., 2006). The within-person reliabilities reported here can be interpreted as the reliability of change within person throughout the study (denoted $R_c$ in Cranford et al., 2006).

4 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 1-5, hours spent together ranges from 0-18, and support variables that were dichotomous. For a discussion on the usefulness of this strategy, see Cohen, Cohen, West & Aiken, 2003, p.156.

5 The standard deviations reported here are the within-person variation and not a combination of variation over days and persons.

6 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 ($df = 78$).

7 There were no other gender differences in our analyses; therefore, other gender interaction terms were not included in our final analyses.
Table 1:

Summary of main hypotheses regarding support provision

<table>
<thead>
<tr>
<th>Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1. Recipients’ distress will increase the likelihood of support provision by providers.</td>
</tr>
<tr>
<td>H2. Recipients’ explicit requests for support (support seeking) will increase the likelihood of support provision by providers.</td>
</tr>
<tr>
<td>H3. Providers’ anxious mood will decrease the likelihood of support provision.</td>
</tr>
<tr>
<td>H4. Providers' positive mood will increase the likelihood of support provision.</td>
</tr>
<tr>
<td>H5. Providers’ daily stressful events will decrease the likelihood of support provision.</td>
</tr>
<tr>
<td>H6. Both providers’ and recipients’ relationship anxiety will increase the likelihood of support provision.</td>
</tr>
<tr>
<td>H7. Both providers' and recipients’ relationship satisfaction will increase the likelihood of support provision.</td>
</tr>
<tr>
<td>H8. Providers’ receipt of support on the previous day will increase the likelihood of support provision.</td>
</tr>
<tr>
<td>H9. The level of support provision will be higher for Study 2 compared to Study 1.</td>
</tr>
</tbody>
</table>
Table 2:

*Descriptive statistics for daily variables in Study 1*

<table>
<thead>
<tr>
<th>Motivation</th>
<th>Variable</th>
<th>Mean (SD)</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recipient factors</td>
<td>Recipients’ anxiety</td>
<td>1.35 (1.53)</td>
<td>0-10</td>
</tr>
<tr>
<td></td>
<td>Recipients’ positive mood</td>
<td>3.59 (2.00)</td>
<td>0-10</td>
</tr>
<tr>
<td></td>
<td>Recipients’ daily stressors</td>
<td>1.90 (1.41)</td>
<td>0-10</td>
</tr>
<tr>
<td></td>
<td>Recipients’ seeking support</td>
<td>0.17 (0.33)</td>
<td>0-1</td>
</tr>
<tr>
<td>Provider factors</td>
<td>Providers’ anxiety</td>
<td>1.35 (1.53)</td>
<td>0-10</td>
</tr>
<tr>
<td></td>
<td>Providers’ positive mood</td>
<td>3.59 (2.00)</td>
<td>0-10</td>
</tr>
<tr>
<td></td>
<td>Providers’ daily stressors</td>
<td>1.90 (1.41)</td>
<td>0-10</td>
</tr>
<tr>
<td>Relationship factors</td>
<td>Providers’ relationship anxiety</td>
<td>0.74 (1.40)</td>
<td>0-10</td>
</tr>
<tr>
<td></td>
<td>Recipients’ relationship anxiety</td>
<td>0.74 (1.40)</td>
<td>0-10</td>
</tr>
<tr>
<td></td>
<td>Providers’ relationship satisfaction</td>
<td>5.91 (2.12)</td>
<td>0-10</td>
</tr>
<tr>
<td></td>
<td>Recipients’ relationship satisfaction</td>
<td>5.91 (2.12)</td>
<td>0-10</td>
</tr>
<tr>
<td></td>
<td>Providers’ receipt of support</td>
<td>0.38 (0.44)</td>
<td>0-1</td>
</tr>
<tr>
<td>Control variables</td>
<td>Providers’ time spent with partner</td>
<td>3.40 (2.14)</td>
<td>0-10</td>
</tr>
<tr>
<td></td>
<td>Providers’ yesterday provision</td>
<td>0.32 (0.41)</td>
<td>0-1</td>
</tr>
</tbody>
</table>
Table 3:

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

<table>
<thead>
<tr>
<th>Fixed Effect Coefficients</th>
<th>$\gamma^a$</th>
<th>se</th>
<th>odds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-1.297**</td>
<td>0.121</td>
<td>0.27</td>
</tr>
<tr>
<td>Recipients’ anxiety (morning), H1</td>
<td>0.134**</td>
<td>0.038</td>
<td>1.14</td>
</tr>
<tr>
<td>Recipients’ positive mood (morning), H1</td>
<td>-0.070*</td>
<td>0.029</td>
<td>0.93</td>
</tr>
<tr>
<td>Recipients’ daily stressors (evening), H1</td>
<td>0.108**</td>
<td>0.041</td>
<td>1.11</td>
</tr>
<tr>
<td>Recipients’ report of seeking support (evening), H2</td>
<td>0.117</td>
<td>0.199</td>
<td>1.12</td>
</tr>
<tr>
<td>Providers’ anxiety (morning), H3</td>
<td>-0.001</td>
<td>0.037</td>
<td>1.00</td>
</tr>
<tr>
<td>Providers’ positive mood (morning), H4</td>
<td>0.072*</td>
<td>0.029</td>
<td>1.07</td>
</tr>
<tr>
<td>Providers’ daily stressors (evening), H5</td>
<td>0.055</td>
<td>0.039</td>
<td>1.06</td>
</tr>
<tr>
<td>Providers’ relationship anxiety (evening), H6</td>
<td>0.080†</td>
<td>0.041</td>
<td>1.08</td>
</tr>
<tr>
<td>Recipients’ relationship anxiety (evening), H6</td>
<td>0.015</td>
<td>0.043</td>
<td>1.02</td>
</tr>
<tr>
<td>Providers’ relationship satisfaction (evening), H7</td>
<td>0.089**</td>
<td>0.029</td>
<td>1.09</td>
</tr>
<tr>
<td>Recipients’ relationship satisfaction (evening), H7</td>
<td>0.063*</td>
<td>0.029</td>
<td>1.07</td>
</tr>
<tr>
<td>Providers’ receipt of support (evening), H8</td>
<td>1.980**</td>
<td>0.118</td>
<td>7.24</td>
</tr>
<tr>
<td>Providers’ report of time spent with partner (eve.)</td>
<td>0.075**</td>
<td>0.026</td>
<td>1.08</td>
</tr>
<tr>
<td>Providers’ gender (Female)</td>
<td>-0.150</td>
<td>0.202</td>
<td>0.86</td>
</tr>
<tr>
<td>Providers’ provision of support (yesterday evening)</td>
<td>0.842**</td>
<td>0.118</td>
<td>2.32</td>
</tr>
<tr>
<td>Providers’ provision (yesterday) X gender</td>
<td>-0.610**</td>
<td>0.233</td>
<td>0.54</td>
</tr>
<tr>
<td>Diary day</td>
<td>0.020**</td>
<td>0.007</td>
<td>1.02</td>
</tr>
</tbody>
</table>

Random Effect Variances (over couples)

<table>
<thead>
<tr>
<th></th>
<th>$\tau$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.837**</td>
</tr>
<tr>
<td>Gender</td>
<td>1.449**</td>
</tr>
</tbody>
</table>
Note. † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$.

Parameter estimates ($\gamma$) are in log-odds units from a logistic model. Support provision is based on evening reports by partner.
Table 4:

*Descriptive statistics for daily variables in Study 2*

<table>
<thead>
<tr>
<th>Motivation</th>
<th>Variable</th>
<th>Mean (SD)</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recipient factors</strong></td>
<td>Recipients’ anxiety</td>
<td>2.82 (1.86)</td>
<td>0-10</td>
</tr>
<tr>
<td></td>
<td>Recipients’ positive mood</td>
<td>2.91 (1.53)</td>
<td>0-10</td>
</tr>
<tr>
<td></td>
<td>Recipients’ daily stressors</td>
<td>1.63 (1.23)</td>
<td>0-10</td>
</tr>
<tr>
<td></td>
<td>Recipients’ seeking support</td>
<td>0.36 (0.38)</td>
<td>0-1</td>
</tr>
<tr>
<td><strong>Provider factors</strong></td>
<td>Providers’ anxiety</td>
<td>1.19 (1.32)</td>
<td>0-10</td>
</tr>
<tr>
<td></td>
<td>Providers’ positive mood</td>
<td>3.44 (1.64)</td>
<td>0-10</td>
</tr>
<tr>
<td></td>
<td>Providers’ daily stressors</td>
<td>1.55 (1.15)</td>
<td>0-10</td>
</tr>
<tr>
<td><strong>Relationship factors</strong></td>
<td>Providers’ relationship anxiety</td>
<td>0.80 (1.08)</td>
<td>0-10</td>
</tr>
<tr>
<td></td>
<td>Recipients’ relationship anxiety</td>
<td>0.87 (1.05)</td>
<td>0-10</td>
</tr>
<tr>
<td></td>
<td>Providers’ relationship satisfaction</td>
<td>6.58 (1.57)</td>
<td>0-10</td>
</tr>
<tr>
<td></td>
<td>Recipients’ relationship satisfaction</td>
<td>6.59 (1.45)</td>
<td>0-10</td>
</tr>
<tr>
<td></td>
<td>Providers’ receipt of support</td>
<td>0.40 (0.39)</td>
<td>0-1</td>
</tr>
<tr>
<td><strong>Control variables</strong></td>
<td>Providers’ time spent together</td>
<td>2.96 (2.11)</td>
<td>0-10</td>
</tr>
<tr>
<td></td>
<td>Providers’ previous day provision</td>
<td>0.54 (0.41)</td>
<td>0-1</td>
</tr>
</tbody>
</table>
Table 5.

**Multilevel Results for Likelihood of Support Provision to Examinee for Study 2**

<table>
<thead>
<tr>
<th>Fixed Effect Coefficients</th>
<th>$\gamma^a$</th>
<th>$se$</th>
<th>odds</th>
<th>$t(diff)^b$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.291*</td>
<td>0.084</td>
<td>1.34</td>
<td>10.78**</td>
</tr>
<tr>
<td>Recipients’ anxiety (morning), H1</td>
<td>0.102**</td>
<td>0.022</td>
<td>1.11</td>
<td>-0.73</td>
</tr>
<tr>
<td>Recipients’ positive mood (morning), H1</td>
<td>-0.003</td>
<td>0.025</td>
<td>1.00</td>
<td>1.75</td>
</tr>
<tr>
<td>Recipients’ daily stressors (evening), H1</td>
<td>0.030</td>
<td>0.030</td>
<td>1.03</td>
<td>-1.54</td>
</tr>
<tr>
<td>Stressor phase, H1</td>
<td>0.649**</td>
<td>0.139</td>
<td>1.91</td>
<td>N/A^c</td>
</tr>
<tr>
<td>Diary day</td>
<td>0.018**</td>
<td>0.006</td>
<td>1.02</td>
<td>-0.22</td>
</tr>
<tr>
<td>Recipients’ report of seeking support (evening), H2</td>
<td>0.651**</td>
<td>0.139</td>
<td>1.92</td>
<td>2.20**</td>
</tr>
<tr>
<td>Providers’ anxiety (morning), H3</td>
<td>-0.021</td>
<td>0.029</td>
<td>0.98</td>
<td>-0.43</td>
</tr>
<tr>
<td>Providers’ positive mood (morning), H4</td>
<td>0.025</td>
<td>0.022</td>
<td>1.03</td>
<td>-1.29</td>
</tr>
<tr>
<td>Providers’ daily stressors (evening), H5</td>
<td>0.013</td>
<td>0.032</td>
<td>1.01</td>
<td>-0.83</td>
</tr>
<tr>
<td>Providers’ relationship anxiety (evening), H6</td>
<td>0.150**</td>
<td>0.035</td>
<td>1.16</td>
<td>1.30</td>
</tr>
<tr>
<td>Providers’ relationship satisfaction (evening), H7</td>
<td>0.123**</td>
<td>0.024</td>
<td>1.13</td>
<td>0.90</td>
</tr>
<tr>
<td>Recipients’ relationship anxiety (evening), H6</td>
<td>-0.025</td>
<td>0.034</td>
<td>0.98</td>
<td>-0.73</td>
</tr>
<tr>
<td>Recipients’ relationship satisfaction (evening), H7</td>
<td>-0.014</td>
<td>0.025</td>
<td>0.99</td>
<td>-2.01**</td>
</tr>
<tr>
<td>Providers’ receipt of support (evening), H8</td>
<td>1.276**</td>
<td>0.093</td>
<td>3.58</td>
<td>-4.69**</td>
</tr>
<tr>
<td>Provider’s report of time spent with partner (eve.)</td>
<td>0.108**</td>
<td>0.018</td>
<td>1.11</td>
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<td>Providers’ provision of support (yesterday eve.)</td>
<td>1.037**</td>
<td>0.111</td>
<td>2.82</td>
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<table>
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<th>Random Effect Variances</th>
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<td>Intercept</td>
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<tr>
<td>Providers’ yesterday provision</td>
<td>0.975**</td>
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Note. † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$

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

\(^b\) The last column represents the $t$-score difference for the coefficients of predictors from Study 1 to Study 2.

\(^c\) $t(diff)$ cannot be calculated because Study 1 did not have a stressor phase variable.
Appendix A

Multi-level Equations for Study 1

Level 1 Equation:

\[
\log \left( \frac{p_{it}}{1 - p_{it}} \right) = \beta_{0i} + \beta_{1i} \text{RAnxit}_{it} + \beta_{2i} \text{RPosit}_{it} + \beta_{3i} \text{RStress}_{it} + \beta_{4i} \text{RSeek}_{it} + \beta_{5i} \text{PAnxit}_{it} \\
+ \beta_{6i} \text{PPosit}_{it} + \beta_{7i} \text{PStress}_{it} + \beta_{8i} \text{PRAnx}_{i(t-1)} + \beta_{9i} \text{RRAnxit}_{i(t-1)} + \beta_{10i} \text{PRSati}_{i(t-1)} \\
+ \beta_{11i} \text{RRSati}_{i(t-1)} + \beta_{12i} \text{PR}_{i(t-1)} + \beta_{13i} \text{PHit}_{it} + \beta_{14i} \text{Gend}_{i} + \beta_{15i} \text{PP}_{i(t-1)} \\
+ \beta_{16i} (\text{Gend}_{i} \times \text{PP}_{i(t-1)}) + \beta_{17i} \text{Day}_{it}
\]

Level 2 Equation:

\[
\beta_{0i} = \gamma_{00} + u_{0i} \\
\beta_{14i} = \gamma_{140} + u_{14i}
\]

Note: \( p_{it} \) = the probability of providing emotional support to the recipient for couple \( i \) on day \( t \);

\( \text{RAnxit}_{it} \) = Recipients’ anxiety (morning); \( \text{RPosit}_{it} \) = Recipients’ positive mood (morning); \( \text{RStress}_{it} \) = Recipients’ daily stressors (evening); \( \text{RSeek}_{it} \) = Recipients’ report of seeking support (evening);

\( \text{PAnxit}_{it} \) = Providers’ anxiety (morning); \( \text{PPosit}_{it} \) = Providers’ positive mood (morning); \( \text{PStress}_{it} \) = Providers’ daily stressors (evening); \( \text{PRAnx}_{it} \) = Providers’ relationship anxiety (evening);

\( \text{RRAnxit}_{it} \) = Recipients’ relationship anxiety (evening); \( \text{PRSati}_{it} \) = Providers’ relationship satisfaction (evening); \( \text{PRSati}_{it} \) = Recipients’ relationship satisfaction (evening); \( \text{PR}_{it} \) = Providers’ receipt of support (evening); \( \text{PHit}_{it} \) = Providers’ report of time spent with partner (evening); \( \text{Gend}_{i} \) = Gender of the provider for couple \( i \) (coded -0.5 for male, 0.5 for female); \( \text{PP}_{i(t-1)} \) = Providers’ provision of support (yesterday evening); \( \text{Day}_{it} \) = Diary day (centered around the 13)
### Appendix B

Mean within-couple correlations of the variables in Study 1 (N=79)

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<tr>
<td>2. Rs’ anxiety (AM)</td>
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<tr>
<td>3. Rs’ positive mood (AM)</td>
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<td>4. Rs’ daily stressors (PM)</td>
<td>0.06*</td>
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<td>5. Rs’ report of seeking support (PM)</td>
<td>0.07†</td>
<td>0.05</td>
<td>-0.02</td>
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<td>6. Ps’ anxiety (AM)</td>
<td>0.02</td>
<td>0.03</td>
<td>-0.01</td>
<td>0.01</td>
<td>0.06*</td>
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<tr>
<td>7. Ps’ positive mood (AM)</td>
<td>0.00</td>
<td>-0.01</td>
<td>0.09**</td>
<td>-0.06**</td>
<td>-0.02</td>
<td>-0.19**</td>
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<tr>
<td>8. Ps’ daily stressors (PM)</td>
<td>0.00</td>
<td>0.02</td>
<td>-0.06**</td>
<td>0.15**</td>
<td>0.03</td>
<td>0.15**</td>
<td>-0.15**</td>
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<td>9. Ps’ rel. anxiety (PM)</td>
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<td>0.14**</td>
<td>-0.02</td>
<td>0.13**</td>
<td>0.05</td>
<td>0.09**</td>
<td>-0.04</td>
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<td>10. Ps’ rel. satisfaction (PM)</td>
<td>0.07**</td>
<td>-0.03</td>
<td>0.09**</td>
<td>-0.08**</td>
<td>-0.02</td>
<td>-0.08**</td>
<td>0.12**</td>
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<td>11. Rs’ rel. satisfaction (PM)</td>
<td>0.01</td>
<td>-0.09**</td>
<td>0.14**</td>
<td>-0.14**</td>
<td>0.04†</td>
<td>-0.03</td>
<td>0.08**</td>
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<tr>
<td>12. Ps’ receipt of support (PM)</td>
<td>0.35**</td>
<td>0.01</td>
<td>0.05†</td>
<td>-0.01</td>
<td>0.16**</td>
<td>0.10**</td>
<td>-0.03</td>
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<tr>
<td>13. Ps’ time spent with partner (PM)</td>
<td>0.13**</td>
<td>-0.07**</td>
<td>0.12**</td>
<td>-0.19**</td>
<td>0.11**</td>
<td>-0.09**</td>
<td>0.13**</td>
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<td>14. Ps’ provision (yesterday PM)</td>
<td>0.10**</td>
<td>0.03</td>
<td>-0.04</td>
<td>0.03</td>
<td>0.01</td>
<td>0.03</td>
<td>0.05*</td>
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<td>9. Ps’ rel. anxiety (PM)</td>
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<tr>
<td>10. Rs’ rel. anxiety (PM)</td>
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<tr>
<td>11. Ps’ rel. satisfaction (PM)</td>
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<tr>
<td>12. Rs’ rel. satisfaction (PM)</td>
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<tr>
<td>13. Ps’ receipt of support (PM)</td>
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<td>14. Ps’ time spent with partner (PM)</td>
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<td>15. Ps’ provision (yesterday PM)</td>
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</tr>
</tbody>
</table>

Note. † \( p < 0.10 \); * \( p < 0.05 \); ** \( p < 0.01 \); Table in “Ps” denote “Providers” and “Rs” denote “Recipients”. 

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Modeling Support Provision 65
Appendix C

Multi-level Equations for Study 2

Level 1 Equation:

\[
\log \left( \frac{p_{it}}{1 - p_{it}} \right) = \beta_{0i} + \beta_{1i}RAnxit_{it} + \beta_{2i}RPosit_{it} + \beta_{3i}StressPhaseit + \beta_{4i}Day_{it} + \beta_{5i}RSeek_{it} \\
+ \beta_{6i}PAxit_{it} + \beta_{7i}PPosit_{it} + \beta_{8i}PStress_{it} + \beta_{9i}PRAxit_{it} + \beta_{10i}RRAnxit_{it} + \beta_{11i}PRSatit \\
+ \beta_{12i}RRSatit + \beta_{13i}PRit + \beta_{14i}PHit + \beta_{15i}PP_{i(t-1)}
\]

Level 2 Equation:

\[
\beta_{0i} = \gamma_{00} + \gamma_{01} Gend_i + u_{0i}, \\
\beta_{15i} = \gamma_{150} + u_{15i}
\]

Note: \(p_{it}\) = the probability of providing emotional support to the recipient for couple \(i\) on day \(t\); \(RAnxit_{it}\) = Recipients’ anxiety (morning); \(RPosit_{it}\) = Recipients’ positive mood (morning); \(StressPhase_{it}\) = Stress phase (0 for first four weeks of the study, 1 for the last week before the exam); \(Day_{it}\) = Diary day (centered around the 13); \(RSeek_{i}\) = Recipients’ report of seeking support (evening); \(PAxit_{it}\) = Providers’ anxiety (morning); \(PPosit_{it}\) = Providers’ positive mood (morning); \(PStress_{it}\) = Providers’ daily stressors (evening); \(PRAxit_{it}\) = Providers’ relationship anxiety (evening); \(RRAnxit_{it}\) = Recipients’ relationship anxiety (evening); \(PRSatit\) = Providers’ relationship satisfaction (evening); \(RRSatit\) = Recipients’ relationship satisfaction (evening); \(PRit\) = Providers’ receipt of support (evening); \(PHit\) = 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)

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<td>4. Rs’ daily stressors (PM)</td>
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<td>0.08**</td>
<td>-0.10**</td>
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<td>5. Rs’ report of seeking support (PM)</td>
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<td>0.03*</td>
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<tr>
<td>6. Ps’ anxiety (AM)</td>
<td>0.03†</td>
<td>0.18**</td>
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<td>7. Ps’ positive mood (AM)</td>
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<td>9. Ps’ rel. anxiety (PM)</td>
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<td>0.09**</td>
<td>-0.05**</td>
<td>0.05**</td>
<td>0.01</td>
<td>0.19**</td>
<td>-0.05**</td>
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<tr>
<td>10. Ps’ rel. anxiety (PM)</td>
<td>-0.04*</td>
<td>0.06**</td>
<td>0.00</td>
<td>0.11**</td>
<td>0.00</td>
<td>0.04†</td>
<td>-0.03</td>
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<tr>
<td>11. Ps’ rel. satisfaction (PM)</td>
<td>0.10**</td>
<td>-0.03</td>
<td>0.06**</td>
<td>-0.03*</td>
<td>0.03</td>
<td>-0.06**</td>
<td>0.13**</td>
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<tr>
<td>12. Rs’ rel. satisfaction (PM)</td>
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<td>-0.05**</td>
<td>0.13**</td>
<td>-0.09**</td>
<td>0.06**</td>
<td>0.01</td>
<td>0.03*</td>
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<tr>
<td>13. Ps’ receipt of support (PM)</td>
<td>0.18**</td>
<td>-0.06**</td>
<td>0.06**</td>
<td>-0.04*</td>
<td>0.03†</td>
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<td>0.01</td>
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<td>14. Ps’ time spent with partner (PM)</td>
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<td>-0.16**</td>
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<td>-0.06**</td>
<td>0.06**</td>
<td>-0.09**</td>
<td>0.15**</td>
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<tr>
<td>15. Ps’ provision (yesterday PM)</td>
<td>0.13**</td>
<td>0.11**</td>
<td>0.00</td>
<td>0.00</td>
<td>0.04*</td>
<td>0.02</td>
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<td>9. Ps’ rel. anxiety (PM)</td>
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<td>10. Rs’ rel. anxiety (PM)</td>
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<td>-0.09**</td>
<td>-0.27**</td>
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<tr>
<td>13. Ps’ receipt of support (PM)</td>
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<td>-0.06*</td>
<td>-0.01</td>
<td>0.17**</td>
<td>0.06**</td>
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<tr>
<td>14. Ps’ time spent with partner (PM)</td>
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<td>-0.06**</td>
<td>-0.03†</td>
<td>0.13**</td>
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<td>0.07**</td>
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Note. † p < 0.10; * p < 0.05; ** p < 0.01; Table in “Ps” denote “Providers” and “Rs” denote “Recipients”.