

The Interpersonal Process Model of Intimacy in Marriage: A Daily-Diary and Multilevel Modeling Approach

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This study used daily reports of interactions in marriage to examine predictions from the conceptualization of intimacy as the outcome of an interpersonal process. Both partners of 96 married couples completed daily diaries assessing self-disclosure, partner disclosure, perceived partner responsiveness, and intimacy on each of 42 consecutive days. Multivariate multilevel modeling revealed that self-disclosure and partner disclosure both significantly and uniquely contributed to the contemporaneous prediction of intimacy. Perceived partner responsiveness partially mediated the effects of self-disclosure and partner disclosure on intimacy. Global marital satisfaction, relationship intimacy, and demand–withdraw communication were related to daily levels of intimacy. Implications for the importance of perceived partner responsiveness in the intimacy process for married partners are discussed.

Keywords: intimacy, intimacy process, multilevel modeling, diary methods

The need to establish and maintain close relationships and connections with others has been identified as a central and fundamental human motivation (Baumeister & Leary, 1995). Most individuals see marriage as the most intimate adult relationship they experience and the relationship that serves as their primary source of affection and support (Levinger & Huston, 1990). Difficulties with intimacy are frequently implicated in decisions to seek counseling for marital problems (Veroff, Kulka, & Douvan, 1981), whereas increasing or enhancing intimacy is often one of the goals of marital or couples-based therapy.

There is a lack of basic research on intimacy processes in marriage and how members of intimate relationships derive a sense of connectedness and support in their everyday lives. Intimacy is often conceived as an individual or relationship quality and is assessed in a global, cross-sectional

fashion. Such an approach neglects the interpersonal and process-oriented nature of spouses' daily experiences in their interactions. The significance of understanding adaptive interpersonal processes, such as intimacy, for well-being and optimal living is becoming increasingly recognized as a necessary area of study (Ryff & Singer, 2000). Moreover, a greater understanding of the process that underlies intimacy can assist in identifying what is going awry when couples complain of loss of intimate and loving feelings (Huston, Caughlin, Houts, Smith, & George, 2001). Our overarching goal of this study was to examine empirically a process model of intimacy by examining reports of daily marital interactions in a sample of married couples.

A Process Model of Intimacy in Close Relationships

Despite the variety of definitions and operationalizations of intimacy that appear in the close relationships literature (see Laurenceau, Rivera, Schaffer, & Pietromonaco, 2004; Prager, 1995), all have at least one important aspect in common—a feeling of closeness and connectedness that develops through communication between partners (Perlman & Fehr, 1987). One model, the interpersonal process model of intimacy, originally proposed by Reis and Shaver (1988), and expanded by Reis and Patrick (1996), attempts to explain the dyadic communication process that contributes to the experience of closeness and connectedness. This model provides a conceptualization of intimacy that speaks to its multiple components, addresses its temporal nature, and explicitly guides its operationalization and measurement.

According to Reis and Shaver (1988), *intimacy* is an

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(often momentary) experiential outcome of an interpersonal, transactional *intimacy process* reflecting two principal components: self-revealing disclosure and partner responsiveness. The intimacy process is initiated when one partner (the speaker) communicates personally relevant and revealing information to another partner (the listener). In return, the listener must emit disclosures and behaviors that are responsive to the specific content of the initial disclosure and that convey understanding, validation, and caring for the speaker (i.e., partner responsiveness). For the interaction to be experienced as intimate by the speaker, the speaker must also perceive the listener's responses as demonstrating understanding, acceptance, validation, and care (i.e., perceived partner responsiveness). Thus, an important mechanism that mediates the link between a speaker's self-disclosure and corresponding experience of intimacy is the degree of partner responsiveness that is perceived by the speaker. Perceiving a partner's responsiveness communicates that the speaker is valued by the listener and encourages further disclosure from the speaker. In addition, the listener's subsequent disclosure in response to the speaker's disclosure contributes to the speaker perceiving greater partner responsiveness, which in turn contributes to greater intimacy for the speaker. Moreover, the roles of speaker and listener in this process are dynamic and fluid. Because of the transactional nature of this process, as each partner's self becomes known and validated by the other, the experience of mutual intimacy is increased.

Despite the model's theoretical importance, specific empirical support for the conceptualization of intimacy as the outcome of an interpersonal process is only beginning to emerge (Laurenceau et al., 2004). In an unpublished experience sampling study using college students (Lin, 1992, as cited in Reis & Patrick, 1996), participants completed a diary of all their social interactions that were at least 10 min long over a 10-day period. Average ratings of self-disclosure and partner responsiveness predicted levels of overall perceived relationship intimacy. Moreover, partner responsiveness was a more important predictor of intimacy ratings than was self-disclosure. Lin (1992) also found that when both types of self-disclosure were entered as predictors, the association between emotional self-disclosure and relationship intimacy was significant, whereas that of factual self-disclosure was not. More recent evidence comes from two experience sampling studies, in which university participants provided ratings of self-disclosure, perceived partner disclosure, perceived partner responsiveness, and feelings of intimacy immediately after social interactions over a 1-week (Laurenceau, Feldman Barrett, & Pietromonaco, 1998, Study 1) or 2-week (Laurenceau et al., 1998, Study 2) period. Participants reported on a range of interpersonal interactions and social relationships. Both self-disclosure and partner disclosure were significant predictors of intimacy on an interaction-by-interaction basis. Perceived partner responsiveness emerged as a partial mediator of these processes. These findings suggest that effects of disclosures on feelings of intimacy depend, in part, on the perceptions and evaluations of a partner's response. The results also indicate that self-disclosure of emotion was a

more important predictor of intimacy than was self-disclosure of facts and information. Consistent with these findings, Lippert and Prager (2001) asked a sample of romantic, cohabiting couples to complete interaction diaries assessing intimacy, disclosure of private information, expression of emotion, and perceptions of being understood by one's partner. Ratings of intimacy on an interaction-by-interaction basis were significantly predicted by both disclosures and perceptions of partner understanding.

Although evidence is emerging for the intimacy process as a model underlying general interpersonal relationships, a major limitation of past investigations is the almost exclusive use of university participants in limited close relationship contexts. Although topographically similar in some ways, the interpersonal relationships of college students likely differ greatly from more committed, ongoing, marital relationships. When individuals are asked to provide an exemplar of an intimate and close adult relationship in Western societies, marriage most frequently comes to mind (Sedikides, Olsen, & Reis, 1993). According to the line of research on communal relationships (see Reis, Clark, & Holmes, 2004), one's spouse is at the top of a hierarchy of expected responsiveness within one's social network. Specifically, there is a strong communal norm in marriage, whereby spouses feel a greater sense of responsibility for being responsive to their marriage partners than do spouses in other weaker communal relationships (e.g., friendships and dating relationships). Therefore, we expect that perceptions of partner responsiveness play a much more important role in the experience of intimacy in marriage than in other interpersonal relationships. An important extension of the existing work on intimacy as an interpersonal process is to examine central aspects of the model in married couples.

The Intimacy Process in Marriage

The importance of the self-disclosure and partner responsiveness components of the intimacy process have been indirectly implicated in the development of close, satisfying, and adaptive marital relationships. The intimacy process reveals itself when a marriage is functioning well, and its absence is indicative of dysfunction when a marriage is functioning poorly (Fruzzetti, 1996). For example, researchers have found that members of dissatisfied marriages often invalidate disclosed feelings about relationship problems or issues, eroding the impact of positive exchanges and, consequently, marital satisfaction (Clements, Markman, Cordova, & Laurenceau, 1997; Gottman, 1994). Moreover, expression of emotions and receiving validation from one's partner have been identified as two significant change processes in couples interventions (Greenberg, James, & Conry, 1988). Recently, Huston et al. (2001) suggested that disillusionment in marriage reflects an abatement of seeing partners as responsive and affectionate and is more important than is conflict to developmental processes leading to divorce.

Findings such as these strongly suggest that self-revealing disclosure (particularly that consisting of emotions) and responsiveness (in the form of understanding and

validation) in marital interactions is characteristic of spouses in satisfied and adaptive marriages. Moreover, Reis and Shaver (1988) have argued that disclosure–responsiveness exchanges that lead to intimacy between relationship partners accumulate and are “digested” to more global, positive evaluations of the relationship (such as marital satisfaction or trust). Although the ecological validity of global measures of relationship functioning rarely have been examined in light of daily relationship experiences, it follows that spouses who report greater global relationship functioning in their marriages overall would also report greater levels of intimacy in their daily reports of marital interactions.

A specific maladaptive communication pattern that has been linked to dysfunction in marriage is the demand–withdraw pattern (Christensen & Heavey, 1990; Fruzzetti, 1996; Gottman, 1994). Demand–withdraw is an interaction pattern where one partner pushes a relationship issue during conflict and the other pulls away from these advances. The effect of this pattern on the experience of intimacy is that the more each partner holds his or her position, the less that each partner feels that his or her needs are being responded to in the interaction, leading eventually to decreases in intimacy for both partners. We hypothesized that demand–withdraw communication would be negatively related to daily reports of intimacy for two reasons. First, the demand–withdraw interaction sequence can be considered a failure of the disclosure–responsiveness exchange in the intimacy process. A demand is the disclosure of a need that, when responded to with partner withdrawal rather than partner responsiveness, results in the discloser’s perception that there is a lack of valuing, understanding, and care from the partner. The lack of these responsiveness indicators should be associated with lower ratings of intimacy. Second, although demand–withdraw communication usually is evidenced in relationship conflict, the pattern has been described as self-reinforcing and absorbing (Fruzzetti, 1996; Gottman, 1994) and likely has carry-over effects to interactions outside of the context of relationship problems. While demand–withdraw communication has been linked to relationship functioning in nondistressed community samples of couples (e.g., Heavey, Christensen, & Malamuth, 1995), its putative links to daily intimacy experiences in marital interactions have not yet been investigated.

Overview of the Present Study

We assessed components of the intimacy process using a daily-diary method whereby spouses independently completed a structured diary each evening over a period of 42 days. Diary methodologies of this type allow participants to give more detailed, accurate, and focused accounts of actual, everyday social activity (Bolger, Davis, & Rafaeli, 2003; Laurenceau & Bolger, 2005) and better capture the dynamic nature of the process of intimacy that appears static with the use of more conventional, cross-sectional designs (Duck & Sants, 1983). In addition to the diary variables, husbands and wives also completed measures of global

marital satisfaction, overall relationship intimacy, and demand–withdraw communication.

First, we tested the hypothesis that self-disclosure, partner disclosure, and perceived partner responsiveness are important components to the experience of intimacy across daily reports of interactions between married partners. We predicted that perceived partner responsiveness would mediate the impact of self- and partner disclosures on intimacy and that the strength of the perceived partner responsiveness–intimacy link would be greater than has been found in more general interpersonal relationships (i.e., Laurenceau et al., 1998). Moreover, we explored husband–wife differences in the intimacy process. Second, we hypothesized that levels of global marital functioning are related to differential engagement in the intimacy process. Specifically, we predicted that couples who reported more globally satisfying and intimate relationships would report greater daily levels of intimacy across the diary period, whereas couples who reported greater demand–withdraw communication would report lower daily levels of intimacy.

Method

Participants

Married couples were recruited from a region of central Pennsylvania to participate in a “study on daily experiences in marital relationships.” Advertisements were placed in the local area newspaper, and flyers were posted at various public locations. Approximately 150 couples responded to the advertisements by phone to request additional information. When potential participants called in to the lab, research assistants explained to the spouses that the study would consist of completion of a diary measure each evening for 42 evenings and that each couple would be offered \$30, a T-shirt, and a coffee mug for their participation. A total of 116 couples initially volunteered to begin participation in the diary study. Twenty couples dropped out after having begun the study, resulting in 96 couples who fully completed the study procedure. Couples who did and did not complete the diary study did not differ on the demographic variables detailed below.

These 96 couples were married for an average of 9.32 years ($SD = 9.50$, range = .17–52.5). Husbands averaged 35.27 years of age ($SD = 10.56$, range = 20–75); wives averaged 34.27 years of age ($SD = 9.97$, range = 21–74). For 86 (90%) husbands, this was their first marriage; this was also true for 82 (85%) wives. Twenty-four husbands (25%) completed high school, 40 (42%) completed college, 23 (24%) completed a master’s degree, and 5 (9%) completed a doctorate. One (1%) wife completed grammar school, 25 (26%) completed high school, 47 (49%) completed college, 20 (21%) completed a master’s degree, and 3 (3.1%) completed a doctorate. Ninety-one (95%) husbands and 90 (94%) wives were self-reported Caucasians.

Procedure

One research assistant was assigned to each couple and visited their home three times over the course of the study. At the first visit, the research assistant explained the study’s procedure and answered any questions, obtained informed consent, collected demographic information, and administered cross-sectional measures. Next, spouses were instructed to complete independently a daily-diary questionnaire during the evening on each of 42 consecutive days (6 weeks). If the first visit took place in the evening,

the first diary was completed at the end of the first visit. The research assistant explained the procedure for completing the diary and defined various terms on the diary form. For example, intimacy was defined as a momentary feeling of closeness or connectedness toward one's spouse that was not specific to physical contact. Each partner was given a written set of diary study instructions and definitions for reference throughout the study.

To help preserve confidentiality and ensure response integrity and honesty, each spouse was given a set of 42 adhesive labels with which to seal closed each completed daily-diary form. Spouses were instructed to fold each completed diary form in thirds and to use the adhesive label to seal it shut. At the end of the first visit, the members of each couple were given a sufficient number of diaries to take them through the midpoint of the 42-day recording period (i.e., 21 days), and a tentative appointment for the second visit was made. The research assistant phoned couples the following evening and spoke to each spouse individually to answer any questions that may have come up about the diary procedures. Couples were also called on a weekly basis to help ensure they were following the study procedure and completing diaries appropriately and to remind couples of the importance of completing the diaries independently.

The second visit was conducted at approximately the midpoint of the 42-day recording period. At this visit, the research assistant collected each spouse's completed diaries for the first half of the recording period and scheduled a tentative final visit. After completion of the final week of diary recordings, the research assistant visited each couple a final time at their home to collect the completed diaries for the second half of the recording period, to provide couples with remuneration for their participation in the study, and to debrief couples.

Daily-Diary Measure

A diary measure was constructed to assess the variables theorized in Reis and Shaver's (1988) interpersonal process model of intimacy and was modeled after the form used by Laurenceau et al. (1998). The diaries contained items that asked spouses to summarize and report the amount of self-disclosure, partner disclosure, perceived partner responsiveness, and intimacy across all interactions with their spouse during that particular day. Responses to diary items were rated on 5-point Likert scales (1 = *very little*, 5 = *a great deal*) to maintain a consistent metric across items (Nezlek, 2001). Whereas the following diary variables are part of a larger diary form that also assesses daily affect, only those relevant to the current study are reported here.

Self-disclosure. Spouses rated the degree to which they disclosed facts and information (one item), the degree to which they disclosed their thoughts (one item), and the degree to which they disclosed their feelings (one item) across all the interactions that they had with their spouse during the day. A self-disclosure summary variable was created using an average of these three items (Day 1 alphas for husbands and wives were .82 and .84, respectively).

Partner disclosure. Spouses rated the degree to which they perceived that their partner disclosed facts and information (one item), the degree to which they perceived disclosure of their partner's thoughts (one item), and the degree to which they perceived disclosure of their partner's feelings (one item) across all the interactions that they had with their spouse during the day. A partner disclosure summary variable was created using the average of these three items (Day 1 alphas for husbands and wives were .77 and .76, respectively). For the sake of brevity, the "perceived" part of the partner disclosure label was omitted in reporting results.

Perceived partner responsiveness. Spouses rated the degree to which he or she felt understood (one item), validated (one item), accepted (one item), and cared for by his or her partner (one item) across daily marital interactions (Day 1 alphas for husbands and wives were .86 and .88, respectively). A perceived partner responsiveness summary variable was created.

Intimacy. Spouses rated the amount of closeness that they experienced across the marital interactions with their spouse that day. We chose to use the term *closeness*, rather than *intimacy*, to ensure that participants were rating the degree of psychological, rather than physical or sexual, proximity (Reis, Lin, Bennett, & Nezlek, 1993). Despite the potential measurements issues related to using a single item measure of intimacy, several researchers have demonstrated that single-item measures of intuitive concepts such as well-being (Diener, 1984) and intimacy (Aron, Aron, & Smollan, 1992) can be valid and justifiable, particularly in the context of a daily-diary methodology.

Measures of Relationship Functioning

Dyadic Adjustment Scale (DAS; Spanier, 1976). The DAS is a commonly administered, 32-item self-report measure used to assess global marital satisfaction. Scores range from 0 to 151, with higher scores indicating greater marital satisfaction. The mean DAS score for husbands in this sample was 112.64 ($SD = 12.73$), and the mean for wives was 113.92 ($SD = 14.34$). A matched pairs t test indicated that husbands and wives did not differ in their levels of global marital satisfaction, $t(95) = -1.06$, $p = .29$. Cronbach's alphas for the husband and wife DAS scales were .90 and .91, respectively.

Personal Assessment of Intimacy in Relationships (PAIR; Schaefer & Olson, 1981). The PAIR is a 36-item measure of the current overall level of intimacy in a relationship and consists of five intimacy subscales: Emotional, Social, Sexual, Intellectual, and Recreational (Schaefer & Olson, 1981). Because we were interested in a global measure of intimacy in relationships, we averaged the five subscales representing the various types of relationship intimacy into a total PAIR score. Total PAIR scores range from 0 to 96, with higher scores indicating greater relationship intimacy. The average total score on the PAIR for husbands and wives was 67.29 ($SD = 12.53$) and 69.85 ($SD = 12.69$), respectively. A matched pairs t test indicated that wives reported somewhat greater levels of global intimacy, $t(95) = -2.56$, $p = .03$. Cronbach's alphas for husband and wife total PAIR scales were each .87.

Communications Patterns Questionnaire (CPQ; Christensen & Heavey, 1990). The CPQ was developed to assess the occurrence of problematic interaction and communication patterns in close relationships. The man demand/woman withdraw communication (3 items) and woman demand/man withdraw communication (3 items) subscales of the CPQ were calculated and summed to create a total demand-withdraw communication scale. Higher scores on this scale indicated a greater likelihood of the use of demand-withdraw communication when discussing relationship problems. A matched pairs t test revealed a tendency for husbands' reports of total demand-withdraw communication to be somewhat larger than wives' reports, $t(93) = 2.00$, $p = .05$. In the current study, Cronbach's alphas for the total demand-withdraw scales were .66 for men and .67 for women.

Analyses were conducted to examine potential differences between the couples who completed the study versus those who did not complete the study on the three cross-sectional measures described above. Multivariate analyses of variance—with Husband Versus Wife as a within-subjects factor, Completers Versus Dropouts as a between-subjects factor, and an interaction term—

revealed that husband and wife dropouts did not differ from completers on these variables.

Results

Overview of Data Analytic Strategy

Diary data collected in this study conform to a multilevel data structure (Kenny, Kashy, & Bolger, 1998; Raudenbush & Bryk, 2002). In the current study, the daily-diary ratings of intimacy, self-disclosure, partner disclosure, and perceived partner responsiveness were the Level 1 data and were measured for each spouse on a daily basis. The Level 2 data unit was couple, with husband and wife global marital satisfaction and global relationship intimacy variables assessed at the beginning of the study for each unit. Hierarchical linear modeling (HLM) was an ideal choice for the analysis of these data because it estimates within-subject (Level 1 data) and between-subjects (Level 2 data) variation simultaneously, thus allowing for the modeling of each source of variation while taking into account the statistical characteristics of the other.

The multilevel multivariate statistical model for matched pairs, developed by Raudenbush, Brennan, and Barnett (1995), was used to assess the contemporaneous prediction of intimacy ratings by ratings of self-disclosure, partner disclosure, and perceived partner responsiveness across the 42-day diary recording period. This model resulted in a form of random coefficients, time-series regression. Specifically, the Level 1 model incorporates a Spouse \times Time interaction by pooling the relationship between criterion and individual predictors over time.¹ Variants of the following Level 1 within-couples model were used:

$$I_{it} = (\textit{wife})_{it} [\pi_{w0i} + \pi_{w1i}(SD)_{it} + \pi_{w2i}(PD)_{it}] + (\textit{husband})_{it} [\pi_{h0i} + \pi_{h1i}(SD)_{it} + \pi_{h2i}(PD)_{it}] + e_{it}, \quad (1)$$

where I_{it} is a spouse's intimacy rating for couple i on day t ($t = 1, 2, \dots, 42$ days); $(\textit{wife})_{it}$ is a dummy indicator that is 1 for all wives and 0 for all husbands; $(\textit{husband})_{it}$ is a dummy indicator that is 1 for all husbands and 0 for all wives; π_{w0i} and π_{h0i} are the model intercepts for wives and husbands, respectively; $(SD)_{it}$ is a spouse's self-disclosure rating for couple i on day t ; π_{w1i} and π_{h1i} are the regression coefficients representing the relationship between ratings self-disclosures and intimacy for wives and husbands, respectively, accounting for the effects of partner disclosure; $(PD)_{it}$ is a spouse's perception of his or her partner's disclosures for couple i on day t ; π_{w2i} and π_{h2i} are the regression coefficients representing the relationship between ratings of partner disclosure and intimacy for wives and husbands, respectively, accounting for the effects of self-disclosure; and e_{it} is a within-couples error component that is assumed to be normally distributed and to have no autocorrelation over time. Visual inspection of the distributions of Level 1 variables did not suggest any significant departures from normality. To test the adequacy of assuming nonautocor-

related error terms, we used SAS PROC AUTOREG as a procedure to test for lagged effects in the error structure. In this procedure, we estimated a time series regression model for each individual spouse using the three main predictors of interest in this study: self-disclosure, partner disclosure, and perceived partner responsiveness. A first-order autocorrelated error parameter was also estimated separately for each spouse. We found little evidence of autocorrelated errors: the average first-order autocorrelation of error terms was $-.02$ for husbands and $-.05$ for wives. On the basis of these findings, we believe that nonautocorrelated error terms may be an acceptable assumption to make when using this multivariate multilevel model.²

Initial Level 2 models were baseline models that defined each Level 1 parameter as an outcome variable consisting of an overall fixed effect plus a random effect. All time-varying and time-invariant predictors included in the models reported in this article were centered around the husbands' mean for the husband data and around the wives' mean for the wife data to allow for the interpretations of the intercepts for the average husband and wife. The raw coefficients from HLM outputs were standardized by means of estimates of pooled within-couples standard deviations for each variable. The outcome variable was entered in a null model, and the standard deviation of the Level 2 variance was used as an estimate of pooled within-couples standard deviation. These standardized coefficients were used as estimates for the path models.

Associations of Self-Disclosure, Partner Disclosure, and Perceived Partner Responsiveness

To examine the models depicted in Figures 1a and 1b, we first tested the associations between self-disclosure, partner disclosure, and intimacy and then evaluated whether perceived partner responsiveness mediated these effects. We began by estimating the within-couples model in Equation 1. As predicted, both self-disclosure and partner disclosure significantly predicted feelings of intimacy over the 42-day sampling period. Self-disclosure positively predicted intimacy above and beyond the effects of partner disclosure for both husbands and wives. Likewise, partner disclosure pos-

¹ Although these data contain repeated measures of variables across time, we did not expect the effect of time trends. To test this supposition, linear, quadratic, and cubic time effects were used as predictors of intimacy ratings in preliminary HLM models, and as expected, no significant time effects were found. Thus, time effects on intimacy were not included in any of the models reported in the results.

² These data were also analyzed using PROC AUTOREG in SAS to obtain time series regression parameters for husbands and wives within each couple and PROC REG to model individual variation around average parameter estimates for the sample. This analytic strategy accounted for potential autocorrelated errors in the individual spouses' time series data by including an AR(1) error parameter. These analyses produced a pattern of results that replicated those reported in the text but were not included because these analyses did not explicitly incorporate the multilevel data structure.

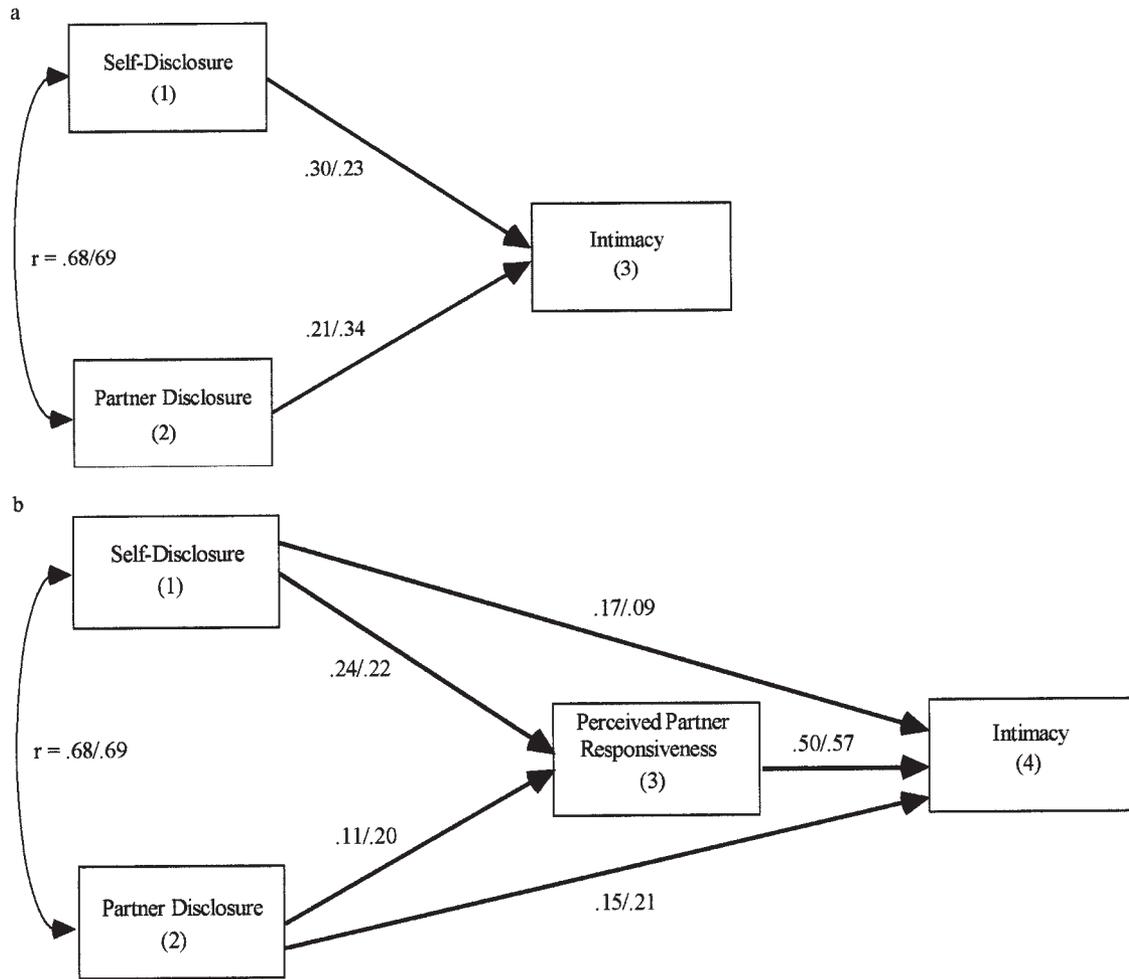


Figure 1. (a) Husband and wife average within-couples relationships of self-disclosure and partner disclosure to feelings of intimacy across daily ratings. Husband standardized coefficients appear first, followed by wife standardized coefficients. Paths are significant at $p < .01$; $N = 96$ couples. (b) Husband and wife average within-couples relationships containing perceived partner responsiveness as a mediator in the intimacy process. Husband standardized coefficients appear first, followed by wife standardized coefficients. Paths are significant at $p < .01$; $N = 96$ couples.

itively predicted intimacy above and beyond the effects of self-disclosure for both husbands and wives. These findings have been summarized using the path model depicted in Figure 1a.

As predicted, perceived partner responsiveness was a significant predictor of intimacy above and beyond the effect of the two disclosure predictors. When the paths depicted in Figure 1b were estimated using self-disclosure, partner disclosure, and perceived partner responsiveness as predictors, self-disclosure and partner disclosure continued to demonstrate significant direct effects to intimacy, but their effects were significantly reduced. A modification of Sobel's test of reduction in direct effects was used (Baron & Kenny, 1986; Kenny et al., 1998) to evaluate mediation (husband self-disclosure, $z = 6.97$, $p < .01$, and wife self-disclosure, $z = 9.10$, $p < .01$; husband partner disclosure, $z = 3.53$, $p < .01$, and wife partner disclosure, $z =$

6.94, $p < .01$). The results of the mediated model are reported in Table 1 and summarized in Figure 1b. These findings suggest that perceived partner responsiveness partially mediated the effect of the disclosure predictors on intimacy.³ In addition, we calculated the pooled within-subjects correlation between partner disclosure (rated by one partner) and self-disclosure (rated by the other) as an index of between-partner concordance. Husband self-

³ We explored whether there were any carry-over effects of intimacy from 1 day to the next to determine whether autoregressive effects might better account for the contemporaneous associations. Results indicate a significantly positive relationship between prior- and current-day intimacy for both husbands and wives. The 1-day autoregressive effect, however, did not affect the pattern of findings for the contemporaneous relationships between intimacy and components reported in the Results section.

Table 1
Fixed and Random Effects Regressing Intimacy on Self-Disclosure, Partner Disclosure, and Perceived Partner Responsiveness

Effect	Fixed			Random	
	Raw coefficient	SE	<i>t</i> (93)	Variance	χ^2
Husband intercept, B_{h00}	3.50	.030	116.83**	.074	465.34**
Wife intercept, B_{w00}	3.55	.026	137.20**	.052	425.61**
Husband self-disclosure, B_{h10}	.19 ^a (.17)	.023	7.98**	.016	126.58*
Wife self-disclosure, B_{w10}	.09 ^a (.09)	.022	3.98**	.018	153.77**
Husband partner disclosure, B_{h20}	.18(.15)	.024	7.30**	.018	135.23*
Wife partner disclosure, B_{w20}	.22(.21)	.023	9.61**	.021	159.68**
Husband perceived partner responsiveness, B_{h30}	.53 ^b (.50)	.024	21.87**	.032	208.76**
Wife perceived partner responsiveness, B_{w30}	.60 ^b (.57)	.020	30.20**	.020	210.30**

Note. Standardized regression coefficients appear in parentheses. ^aHusband and wife coefficients differed significantly, $\chi^2(1, N = 8.07)$, $p < .01$. ^bHusband and wife coefficients differed significantly, $\chi^2(1, N = 6.44)$, $p < .02$. * $p < .05$. ** $p < .01$.

disclosure was significantly correlated, on average, with wife partner disclosure, $r(94) = .66$, $p < .01$, and wife self-disclosure was significantly correlated with husband partner disclosure, $r(94) = .67$, $p < .01$.

There was also significant variability in the fixed effect estimates from the lower level within-couple equations. Table 1 contains the variance components associated with the random effects for the within-couples fixed effects depicted in Figure 1b. Results demonstrate that significant variance surrounded each coefficient for all models, indicating that overall levels of intimacy process components across the 42-day period and the strength of the relationships between intimacy process components varied from person to person in the sample.⁴ Husband and wife global satisfaction did not account for these individual differences in slopes.

Husband–Wife Differences in the Intimacy Process

Multivariate linear contrasts indicated that sex differences emerged in the magnitude of the mediated paths represented in Figure 1b. Self-disclosure continued to be a greater predictor of intimacy for husbands than it was for wives, $\chi^2(1) = 8.07$, $p < .01$. However, the difference between husbands and wives in the magnitude of the partner disclosure path was no longer significant. Perceived partner responsiveness was more important to the prediction of intimacy for wives than for husbands. Specifically, the path from perceived partner responsiveness to intimacy was significantly greater for wives than for husbands (see Table 1). The size of the path between self-disclosure and perceived partner responsiveness (not reported in the tables) did not differ between husbands and wives. Moreover, there was a tendency for the size of the path between partner disclosure and perceived partner responsiveness to be greater for wives than for husbands, $\chi^2(1) = 3.65$, $p < .06$. These results suggest tentative evidence that greater mediation exists for wives than for husbands for the partner disclosure effect. Greater mediation may represent the greater role that perceived partner responsiveness plays in the intimacy process for wives relative to husbands.

Marital Functioning and Daily Ratings of Intimacy

We predicted that average intimacy ratings across the 42-day period would be greater for spouses who were more globally satisfied, reported more overall relationship intimacy, and reported lower levels of demand–withdraw communication. To explain variation around average intimacy ratings, Level 2 explanatory models using these relationship-functioning predictors were constructed.

Results from three separate HLM models including husband and wife DAS, PAIR, and total demand–withdraw scores, respectively, as between-couples predictor variables of average daily intimacy ratings are presented in Table 2. The between-subjects standard deviations (e.g., husbands' intimacy $SD = .63$) reflect a considerable amount of variability across both husbands and wives in their average daily intimacy scores. Within-subjects standard deviations indicate that there is fluctuation in day-to-day intimacy scores around each spouse's mean level. Modeling the between-subjects variability, husbands who reported higher levels of global marital satisfaction also demonstrated higher average daily intimacy ratings, $B_{h01} = .020$, $p < .01$. In addition, wives who reported higher levels of global marital satisfaction also demonstrated higher average daily intimacy ratings, $B_{w02} = .016$, $p < .01$. To get a sense of the magnitude of these effects, a standardized regression coefficient was computed as the product of the raw coefficient by the ratio of the predictor and outcome pooled within-subject standard deviations. For the relationship between husband marital satisfaction and husband average daily intimacy, the raw coefficient of .020 converts to a standardized coefficient of .46 (a moderate effect). HLM models including husband and wife PAIR scores as between-couples predictors revealed a similar pattern of results. Husbands and wives who reported higher levels of overall

⁴ HLM deviance statistic comparisons for statistical models confirm the reported results based on individual parameter tests but were excluded for the sake of brevity.

Table 2
*Explaining Variance in Husband and Wife Average Daily Intimacy Ratings Using
 Husband and Wife Relationship Functioning Scores*

Fixed effect (<i>B</i>)	Estimate	<i>t</i> (95)	<i>p</i>	Between <i>SD</i>	Within <i>SD</i>
Husbands					
Husband intercept, B_{h00}	3.51			.63	.67
HDAS, B_{h01}	.020	3.39	<.01		
WDAS, B_{h02}	.006	1.13	<i>ns</i>		
HPAIR, B_{h01}	.020	3.41	<.01		
WPAIR, B_{h02}	.014	2.71	<.01		
HD-W, B_{h01}	-.020	-2.34	<.05		
WD-W, B_{h02}	-.002	-0.22	<i>ns</i>		
Wives					
Wife intercept, B_{w00}	3.55			.59	.77
HDAS, B_{w01}	.010	1.88	<i>ns</i>		
WDAS, B_{w02}	.016	3.41	<.01		
HPAIR, B_{w01}	-.001	-0.27	<i>ns</i>		
WPAIR, B_{w02}	.030	5.19	<.01		
HD-W, B_{w01}	-.004	-0.54	<i>ns</i>		
WD-W, B_{w02}	-.024	-3.19	<.05		

Note. HDAS = Husband Dyadic Adjustment Scale; WDAS = Wife Dyadic Adjustment Scale, HPAIR = Husband Personal Assessment of Intimacy in Relationships; WPAIR = wife personal assessment of intimacy in relationships; HD-W = Husband report of total demand-withdraw communication; WD-W = wife report of total demand-withdraw communication.

relationship intimacy also demonstrated higher corresponding average daily intimacy ratings. Moreover, husbands and wives who reported higher levels of total demand-withdraw communication reported lower corresponding average daily intimacy ratings.

Discussion

Findings from the current study point to the validity of Reis and Shaver's (1988) interpersonal process model as a framework for conceptualizing intimacy within the context of ongoing, daily marital interactions. Both self-disclosure and partner disclosure significantly predicted ratings of intimacy for husbands and wives on a day-to-day basis. Perceptions of responsiveness from one's spouse emerged as an important predictor of daily intimacy ratings, and the impact of self- and partner disclosures was explained, in part, by co-occurring increases in perceived partner responsiveness. It is noteworthy that these links were not attenuated by husband and wife reports of global satisfaction, suggesting a distinction between daily intimacy and global satisfaction. It was expected that perceived partner responsiveness would play a more important role in the experience of intimacy when compared with past findings on nonmarital interpersonal relationships. The values for the unstandardized coefficients capturing the link between perceived partner responsiveness and intimacy in Laurenceau et al.'s (1998) study were .11 (Study 1) and .36 (Study 2), neither of which falls within ± 2 standard error intervals of the corresponding .53 (for husbands) and .60 (for wives) coefficients in the present study. The more important role that perceived partner responsiveness plays in marital relationships is con-

sistent with corresponding communal norms in marriage (Reis et al., 2004).

Exploratory analyses indicated that the size of the association between perceived partner responsiveness and intimacy was larger for wives compared with husbands. This finding suggests that, relative to husbands, wives' increases in intimacy are more strongly dependent on feeling understood, validated, accepted, and cared for by one's partner. Moreover, research has suggested that women are more responsive communication partners than are men, implying that women may find partner responsiveness particularly important in facilitating intimacy (Reis & Patrick, 1996). In addition, self-disclosure emerged as a greater predictor of intimacy for husbands relative to wives, suggesting that husbands' felt intimacy is somewhat less dependent on how partners respond and somewhat more dependent on engaging in self-revealing disclosure. These findings imply that husbands and wives place somewhat different emphasis on the components of the process that contribute to their respective daily feelings of intimacy. Future work might determine whether the interpersonal process model should be elaborated to reflect these different foci.

Global indicators of positive and negative relationship functioning were predictably associated with daily reports of intimacy. As predicted, higher average daily intimacy ratings across the 42-day recording period were associated with greater marital satisfaction and overall relationship intimacy. In addition, greater levels of demand-withdraw communication were related to lower levels of daily intimacy ratings for both husbands and wives. Although the direction of causality cannot be determined from these data,

these findings strongly imply that levels of marital functioning (and dysfunction) are reflected in spouses' daily intimacy process.

Potential Limitations

Before moving to further interpretation of the current findings, there are potential limitations and caveats of this work that should be highlighted. First, because of the non-experimental nature of the design, strict causal statements cannot be made concerning the relationships between intimacy components. For example, whereas the implied direction of prediction was from disclosures and partner responsiveness to intimacy, it is also likely that greater intimacy engenders greater disclosure and responsiveness. The relations between the intimacy components are more transactional in nature than what could be conveyed by the methods used in this study. Second, Reis and Shaver (1988) described their model in terms of partner expressions, responses, and perceptions that occur within the context of individual interactions. These data were collected at the daily level of analysis and not on an interaction-by-interaction basis. The ratings provided by spouses did not fully reflect specific interpersonal exchanges and contingencies that occurred within their marital interactions. Third, the generalizability of the findings from this study may be limited because of the nature of the sample. Although these couples were recruited from a community, they volunteered for participation in the current study, were predominantly European American and well educated, and lived in a mostly rural setting.

Conceptual and Clinical Implications

The importance of partner responsiveness. Partner responsiveness has long been theorized to be a central and necessary component of the intimacy process (Sullivan, 1953). Yet, definitions and models of intimacy have tended to focus mainly on self-disclosure and disclosure reciprocity as vehicles toward, or indicators of, intimacy (e.g., Derlega, Metts, Petronio, & Margulis, 1993; Jourard, 1971; Morton, 1978). Some investigators have called for relationship research to acknowledge that intimacy is influenced not only by self-disclosure but also by other important factors such as the perceived quality of a partner's response (Reis et al., 2004). Results from this and other empirical studies on the interpersonal process model of intimacy (e.g., Laurenceau et al., 1998) indicate that feeling a sense of responsiveness (i.e., understanding, acceptance, validation, caring) from one's partner contributes to the prediction of intimacy above and beyond the contribution of self- and partner disclosures. Moreover, the influence of disclosures on intimacy was based partly on the effects of perceived partner responsiveness.

We believe that focusing on the role of disclosures alone leads to an incomplete understanding of the process through which intimacy develops. The conceptualization and measurement of intimacy should incorporate not only the communication of personally relevant aspects of the self but also

the impacts of partners' responses. In sum, self-disclosure itself is a necessary but not sufficient predictor of intimacy in marital interactions.

The process of intimacy and couple interventions. The current findings supporting Reis and Shaver's (1988) intimacy model in marriage are also consistent with clinically focused couples research. Most, if not all, couple therapy approaches place considerable import on the mutual exchange of self-disclosure and responsiveness. For example, one of the central tenets of emotionally focused couple therapy (Johnson & Greenberg, 1995) is that a spouse's disclosure of often unexpressed emotions and needs in the presence of a partner who is receptive and nonjudgmental leads to the experience of intimacy and short-circuits negative interaction patterns. More behaviorally oriented interventions (e.g., Gottman, Notarius, Gonso, & Markman, 1976) encourage the structured engagement in self-disclosure and partner responsiveness through acquisition and rehearsal of expression skills and listening skills, respectively. Although it has been argued that the structured use of expression and active listening skills does not reflect what couples actually do when they are trying to resolve marital conflicts (Gottman, Coan, Carrere, & Swanson, 1998), the current findings suggest that a process of self-revelation and responsiveness is linked to intimacy across spouses' everyday reports of marital interactions.

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