

# Perceived Partner Reactions to Diagnosis and Treatment of Breast Cancer: Impact on Psychosocial and Psychosexual Adjustment

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Two studies examined breast cancer patients' perceptions of their partners' reactions to their diagnosis and treatment as influences on 3 aspects of patients' well-being: psychosexual adjustment, emotional distress, and marital satisfaction. Study 1, cross-sectional, indicated that partner initiation of sex, frequency of sex, a positive 1st sexual experience after treatment, and especially perception of the partner's emotional involvement in the relationship, were relevant to these outcomes. Study 2, longitudinal, confirmed many of these findings in prospective tests across 1 year of recovery after surgery. Partner involvement prospectively predicted all 3 outcomes. Partner initiation of sex predicted greater marital satisfaction; partner adverse reaction to the scar predicted less marital satisfaction. Rated quality of the 1st sexual experience after treatment predicted less distress. The pattern suggests that women's impressions of their partners' emotional involvement after surgery for breast cancer forecast their adjustment in sexual, marital, and emotional arenas over the following year.

Women who are diagnosed with and treated for breast cancer face challenges on many levels. Most women with early-stage breast cancer (who thus have a good prognosis) do not experience severe long-term psychological problems, but almost all experience some difficulties in adjustment, particularly early in the experience (Bloom et al., 1987; Compas & Luecken, 2002; Hjerl, Andersen, Keiding, Mortensen, & Jørgensen, 2002; Irvine, Brown, Crooks, Roberts, & Browne, 1991; Moyer & Salovey, 1996; Nosarti, Roberts, Crayford, McKenzie, & David, 2002). The psychosocial sequelae of this disease include emotional distress, sexual and relationship difficulties (Henson, 2002; Tan, Waldman, & Bostick, 2002), and concerns for the future stemming from both the possibility of relapse and the long-term impact of the cancer treatment (Moyer & Salovey, 1996; Spencer et al., 1999). Clearly, however, some women are more resilient than others.

The psychosocial and psychosexual adjustment of the patient varies with a number of factors, including aspects of her intimate relationship (Holmberg, Scott, Alexy, & Fife, 2001). Interpersonal relationships play a key role in how people cope with distress and adjust to life crises of all kinds, including breast cancer (Abend & Williamson, 2002; Bloom, Stewart, Johnston, Banks, & Fobair, 2001; Holland & Holahan, 2003; Manne, 1998; Michael, Berk-

man, Colditz, Holmes, & Kawachi, 2002). The role of the marital (partner) relationship is particularly important, because research has consistently found that a good marital relationship predicts better emotional adaptation to breast cancer (Coyne & Anderson, 1999; Ghizzani, Pirtoli, Bellezza, & Velicogna, 1995; O'Mahoney & Carroll, 1997; Skerrett, 1998).

There is evidence that diagnosis and treatment of breast cancer can place strains on a relationship, potentially leading to marital discord (Carter, Carter, & Siliunas, 1993; Northouse, Templin, Mood, & Oberst, 1998; Wai Ming, 2002). Both partners in an intimate relationship experience distress when one of them has a serious illness (Northouse et al., 1998), and this distress can adversely affect both the couple's communication and their sexual relationship (Ben-Zur, Gilbar, & Lev, 2001; Holmberg et al., 2001; Lindholm, Rehnsfeldt, Arman, & Hamrin, 2002; O'Mahoney & Carroll, 1997). Partners of women with cancer sometimes communicate in ways that are unsupportive, and the perception of lack of support can adversely influence the woman's emotional well-being (e.g., Gurowka & Lightman, 1995; Lyons, Sullivan, Ritvo, & Coyne, 1995; Manne, Taylor, Dougherty, & Kemeny, 1997). Alternatively, a partner who makes his support clear can help foster enhanced well-being.

Marital satisfaction is tied in part to sexual functioning (Ghizzani et al., 1995). This suggests the importance of women's sexual adjustment to breast cancer. The literature suggests that sexuality is one area of functioning that is most affected among women with breast cancer (Abt, McGurrin, & Heintz, 1978; Andersen & Jochimsen, 1985; Dorval, Maunsell, Deschenes, Brisson, & Masse, 1998; Ganz et al., 1996; Henson, 2002; Meyerowitz, Desmond, Rowland, Wyatt, & Ganz, 1999; Schain, 1988; Tan et al., 2002; Wabrek & Wabrek, 1976; Winer et al., 1999; Wolberg, Romsaas, Tanner, & Malec, 1989; Yurek, Farrar, & Andersen, 2000), though there is also evidence that these effects are less salient when the surgery is farther in the past (Ganz, Rowland, Desmond, Meyerowitz, & Wyatt, 1998; Meyerowitz et al., 1999). Body image concerns during sexual intimacy are salient even among healthy women (Margolin & White, 1987; Wiederman,

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Data collection was supported by National Cancer Institute Research Grant CA64710 and Department of Defense Training Grant J4236-DAMD1794. Preparation of the article was facilitated by National Cancer Institute Grants CA78995 and CA84944. We thank Robert P. Derhagopian, the members of the Division of Surgical Oncology at the Sylvester Comprehensive Cancer Center, and the Dade County American Cancer Society for their help in recruiting participants. We are also grateful to the participants for sharing their experiences with us.

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2000), and these concerns are amplified among women who have experienced disfigurement of their breasts, a symbol of a woman's femininity and sexuality (Hopwood et al., 2000). Women's feelings of attractiveness and sexuality are further assailed by side effects of adjuvant treatment. Radiation, chemotherapy, and anti-hormone therapies cause fatigue, nausea, hair loss, and reduced estrogen levels (Kaplan, 1992). These side effects often lead to a decline in sexual functioning, embodied in decreased sexual interest and activity as well as pain or difficulty with sexual intercourse. Body image concerns may be further increased if the woman perceives her partner as reacting negatively to her scarring and the side effects of her treatment.

All of these considerations suggest that how the woman's partner reacts to her situation is likely to be an important influence on her adjustment in several respects (cf. Manne, 1998). One study bearing on this issue found that the husband's coping behaviors and his ratings of the relationship were the best predictors of the woman's psychological distress (Hannum, Giese-Davis, Harding, & Hatfield, 1991). In another study, the husband's evaluation of the woman's physical appearance was a better predictor of her marital satisfaction than was her own negative body image (Wai Ming, 2002). That study also included reports of qualitative analyses of the women's verbalizations of factors leading to any marital problems the couple was experiencing. The most common theme in these reports was the partner's lack of understanding; second most common was the disruption of the couple's sexual relationship by the breast cancer treatment; third most common was a lack of support from the partner.

In sum, it appears that perceived reactions of the woman's partner represent an important influence on the woman's response to the diagnosis and treatment of this disease (Holmberg et al., 2001; Lyons et al., 1995; Manne, 1998, 1999; Vess, Moreland, Schwebel, & Kraut, 1988; Zunkel, 2002). Given this, it seems important to know more about how partner reactions relate to the patient's emotional, psychosexual, and marital well-being, whether the effect is an adverse one or a beneficial one. Providing more information on this issue was the goal of the research reported here.

We examined the partner's impact indirectly, via the women's perceptions of their partner's reactions to their own cancer experience. We explored several aspects of perceived partner reactions as predictors of several aspects of the women's well-being. Given evidence of the importance of the sexual relationship, some of the predictor variables were explicitly sexual: We asked women to report on the frequency of their sexual activity, the quality of the first sexual experience they had had after the surgery, and their perceptions of their partner's sexual interest in them (as reflected in the extent to which their partner initiated sexual activity). Other predictors relate more to perceived emotional aspects of the relationship. We asked women to report their partner's level of positive emotional involvement in the relationship and the extent to which their partner had an adverse reaction to the surgical scar. We used all of these variables to predict three distinguishable aspects of the women's well-being: their emotional distress, their psychosexual adjustment, and their marital (relationship) satisfaction.

We anticipated that these various adjustment variables would relate to perceptions of greater positive emotional involvement on the part of the partner and to more positive sexual experiences. However, in many ways this research is exploratory. It is uncertain, for example, whether all the predictors should relate equally

well to all the outcomes. We report the relations found in two separate samples: a relatively large, cross-sectional sample, and a smaller, longitudinal sample. The first study permits us to establish a basic pattern of relations among the variables. The second study permits us to examine how the associations develop over time. It also allows us to consider the possibility of reverse causality in the pattern of associations.

## Study 1

### *Method*

#### *Participants*

Women in this study were recruited from Miami, Florida, area hospitals and practices. For the analyses reported here, only women who were married or in an equivalent partnered relationship ( $N = 170$ ) were retained from the larger sample that had been recruited (Spencer et al., 1999). All aspects of the project had been approved by the institutional review board of the University of Miami and, in some cases, by additional institutional review boards. Recruitment and assessment windows for this cross-sectional study had been established, for reasons unrelated to this report, at 3, 6, and 12 months postsurgery. Time since surgery had no effect on the relations among variables reported here.

Recruitment was as follows: Typically, the woman's physician sent a letter introducing the study as an investigation of women's experiences after being treated for breast cancer and asking her to consider participating (although some queries were initiated at office visits). Respondents indicated (by return mail) when they might be reached by phone; female students called them, explained the study's procedures, and mailed consent forms and questionnaire packets to those who remained interested in participating. Each participant was paid \$40 upon return of the packet. Approximately 80% of the women initially contacted by letter participated.<sup>1</sup>

Participants had Stage 0 ( $n = 10$ ), Stage I ( $n = 94$ ), or Stage II ( $n = 66$ ) breast cancer. Nodal involvement ranged from 0 to 21 ( $M = 0.95$ ,  $SD = 2.89$ ). Sixty-nine participants had had mastectomies, 101 had had lumpectomies (tumor excision); 43 had undergone reconstructive surgery; 108 reported having radiation, 68 had chemotherapy, and 64 were using tamoxifen (these were not mutually exclusive).

The majority of the women were non-Hispanic White ( $n = 110$ ), but 43 were Hispanic, and 17 were African American. Exclusion criteria were history of psychiatric hospitalization (no participant was actually excluded for this reason), prior cancer other than noninvasive skin cancer (3 participants were excluded for this reason), and major concurrent disease (no participant was excluded for this reason). The women had completed an average of 14.39 years of education ( $SD = 2.81$ ). Full-time employment was reported by 75 participants, part-time employment was reported by 19, and 76 did not work outside the home. The sample ranged in age from 31 years to 82 years ( $M = 52.60$ ,  $SD = 11.32$ ).

#### *Predictor Measures*

Several predictor variables used in this study were judgments made by the patient about her partner and his reactions to the situation. Some of these were single items, and in one case two items were combined into an index. Our use of single items appears justified in these cases, given considerable evidence that single-item reports are as informative as multi-

<sup>1</sup> Both samples in this research have already been used to test other hypotheses involving other variables. The sample of Study 1 first appeared in Spencer et al. (1999), and the sample of Study 2 first appeared in Carver et al. (1998). However, no previous report of data from either sample has examined the predictor variables that are under study here.

item scales when the qualities being assessed are relatively intuitive (Burisch, 1984a, 1984b; Helgeson, 1992; Manne, 1999; Robins, Hendin, & Trzesniewski, 2001; Russell, Weiss, & Mendelsohn, 1989).<sup>2</sup>

*Partner positive emotional involvement.* This index in Study 1 was formed from two items on which participants rated, on a 5-point scale ranging from *not at all* (1) to *extremely* (5), their partner's level of emotional involvement in the relationship. The items were "To what extent is your partner currently expressing affection toward you?" and "To what extent have you and your partner been fighting or experiencing friction between you?" Means for the items were 3.91 ( $SD = 1.15$ ) and 1.76 ( $SD = 1.01$ ), respectively, suggesting relatively positive emotional involvement. Cronbach's alpha for this index, after reversal of the item that asked about fighting, was .57.

*Negative partner reaction to scar.* Perceptions of adverse responses to the surgical scar by the partner were assessed by the following item: "To what extent do you think your partner feels bothered by the scar?" Responses were made on a 5-point scale ranging from *not at all bothered* (1) to *extremely bothered* (5). The mean for this item was 1.40 ( $SD = 0.74$ ), indicating minimal adverse response.

*Frequency of sex, quality of first sex, and partner initiation of sex.* Participants were asked to make three ratings pertaining to sex if they were currently in a sexual relationship (144 responded to these items). They reported the current frequency of their sexual activity ("How frequently are you currently having sex with your partner?"), assessed as times per month ( $M = 4.87$ ,  $SD = 4.16$ ). They also rated the quality of the first sexual experience after the surgery ("The very first time after the surgery, was it a good experience overall for you, a bad experience, or neither?") on a 5-point scale (1 = *very bad*, 2 = *a little bad*, 3 = *neither*, 4 = *fairly good*, and 5 = *very good*). The mean for this item (which was completed by 126 participants) was 3.67 ( $SD = 1.09$ ). Finally, participants rated their partner's sexual interest in them ("To what extent does your partner currently initiate sexual activity?") on a 5-point scale (1 = *hardly at all*, 2 = *less often than I do*, 3 = *about as often as I do*, 4 = *more often than I do*, and 5 = *almost always*). The mean for this item was 3.62 ( $SD = 1.23$ ). Each item was used separately.

### Adjustment Measures

We examined three different aspects of well-being: psychosexual adjustment, emotional distress, and marital (relationship) satisfaction.

*Psychosexual adjustment.* We assessed psychosexual well-being using a set of items that Carver et al. (1998) culled from previous studies of the impact of mastectomy versus lumpectomy on well-being. The items were selected because they previously had shown differences between women who received mastectomies and women who received lumpectomies. The items are self-ratings of attractiveness ("How physically attractive do you feel you are?"), sexual desirability ("How sexually desirable do you feel you are?"), and femininity ("How feminine, or how much like a woman, do you feel you are?"), rated on scales ranging from *not at all* (1) to *extremely* (5). As responses to these three items were highly correlated (correlations ranged from .63 to .78), we combined them into an index ( $M = 3.51$ ,  $SD = 0.88$ ;  $\alpha = .87$ ).

*Distress.* Emotional distress was assessed by a series of affect-descriptive adjectives used in prior breast cancer research (Carver et al., 1993). Respondents rated the degree to which they had experienced each feeling "during the past week including today," with response options ranging from *not at all* (1) to *extremely* (5). Assessed were anxiety (i.e., "tense," "nervous," and "anxious"), depression (i.e., "helpless," "unhappy," "worthless," and "hopeless"), and anger (i.e., "angry," "resentful," and "grouchy"). In a sample of 235 students, these scales correlated .87, .93, and .87, respectively, with comparable scales from the Profile of Mood States (McNair, Lorr, & Droppleman, 1981). Although there are circumstances in which it is desirable to distinguish among these negative feeling states (e.g., Carver, 2004), in this sample the affects were strongly inter-related. For this reason, we created an index of mood disturbance (cf. Trunzo & Pinto, 2003) by averaging the 10 items ( $\alpha = .87$ ). The mean

distress rating was 1.76 ( $SD = 0.70$ ), indicating a mild level of negative affect.

*Marital satisfaction.* We assessed women's overall satisfaction with their relationship using a single item that instructed respondents,

Choose a number from 1 to 7 that best describes your current degree of happiness in your relationship, using 4 to indicate *happy*—the amount of happiness that the average woman has in her relationship; 7 to indicate *extreme joy*; and 1 to indicate *extreme unhappiness*.

A full scale ranging from 1 to 7 was also provided. The mean response to this item was 4.71 ( $SD = 1.88$ ), suggesting that the women in the sample, on the whole, felt they were slightly more happy in their relationship than the average woman.

### Results

Preliminary analyses determined which demographic and treatment variables related to predictor variables and thus needed to be controlled. Variables tested in this way were age, employment status, marital status, education level, surgical procedure, stage of disease, number of positive nodes, ethnicity, use of tamoxifen, radiation, and chemotherapy. Variables with a significant association with any predictor ( $p < .05$ ) were controlled for in all analyses that involved that predictor.

Age related negatively to reports of sexual frequency. Surgical procedure related to reports of the partner being bothered by the incision (lower ratings among lumpectomy than mastectomy patients). Partners of lumpectomy patients were reported to initiate sexual activity more frequently than partners of mastectomy patients. Radiation treatment related inversely to how bothered the partner was by the incision.

There was also one ethnic difference (assessed by analysis of variance, followed by post hoc comparisons). Black patients reported more negative partner reactions to the incision ( $M = 1.50$ ,  $SD = 0.83$ ) than did non-Hispanic White patients ( $M = 1.27$ ,  $SD = 0.50$ ); Hispanics reported even more negative partner reactions ( $M = 1.78$ ,  $SD = 0.75$ ) than did Black patients. We controlled ethnicity in subsequent analyses by creating two dummy variables (one coding non-Hispanic Whites and Hispanics as 0 and African Americans as 1, and a second coding non-Hispanic Whites and African Americans as 0 and Hispanics as 1) and entering them as control variables.

Relations of each psychological predictor with each outcome variable are shown in Table 1. These associations were computed separately for each predictor as a standardized regression coefficient, with the controls incorporated as we have just described. As can be seen, all but two of the predictors related to all three outcome variables. These individual tests were followed by multiple regression analysis (separately for each outcome) in which the predictors were entered together (along with the controls). These analyses established the extent to which predictors made distinct contributions versus contributions that were redundant. The regression analyses are described next.

<sup>2</sup> The samples reported on here were used to study a variety of distinct research questions, which entailed completion of a large number of measures. This created considerable response burden for participants. To reduce this burden, we used brief measures whenever possible (cf. Carver, Meyer, & Antoni, 2000).

Table 1  
*Summary of Individual Regression Analyses Relating Each Psychosocial Predictor Variable Separately to Psychosexual Adjustment, Emotional Distress, and Marital Satisfaction, Study 1*

Predictor variable	Outcome variable		
	Psychosexual adjustment	Emotional distress	Marital satisfaction
Partner positive emotional involvement	.32**	-.42**	.61**
Current frequency of sex	.25**	-.32**	.35**
Partner initiates sexual activity	.17	-.29**	.30**
Negative partner reaction to surgical scar	-.19*	.25**	-.14
First postsurgical sexual experience	.34**	-.27**	.35**

Note. Values are standardized regression coefficients. Controls were included as needed.

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

### Psychosexual Adjustment

Analysis of psychosexual adjustment yielded a significant overall equation,  $R^2 = .22$ ,  $F(10, 112) = 3.15$ ,  $p < .01$  (all tolerances exceeded .62 in the analyses reported here). Perception of the partner's negative reactions to the incision and ratings of the first postsurgical sexual experience both uniquely contributed to psychosexual adjustment,  $\beta = -.18$ ,  $t(161) = 1.90$ ,  $p = .06$ ; and  $\beta = .28$ ,  $t(161) = 3.11$ ,  $p < .01$ , respectively. The less the women perceived their partner to be bothered by the scar and the more positively they rated their first postsurgical sexual experience, the stronger were their feelings of femininity and attractiveness.

### Emotional Distress

Analysis of emotional distress, with the same set of predictors, also yielded a significant overall equation,  $R^2 = .27$ ,  $F(10, 112) = 4.20$ ,  $p < .001$ . The partner's positive emotional involvement contributed uniquely to distress,  $\beta = -.22$ ,  $t(161) = 2.12$ ,  $p < .05$ ; and the contribution of ratings of the first postsurgical sexual experience approached significance,  $\beta = -.16$ ,  $t(161) = 1.87$ ,  $p = .06$ . Thus, the more participants perceived their partner to be emotionally involved with the relationship, the less emotionally distressed they felt.

### Marital Satisfaction

The same set of variables was used to predict marital satisfaction, again yielding a significant overall equation,  $R^2 = .52$ ,  $F(10, 110) = 11.85$ ,  $p < .001$ . The partner's emotional involvement, participants' ratings of the first postsurgical sexual experience, and the extent to which the partner initiated sex all contributed to prediction of perceived quality of the marriage,  $\beta = .59$ ,  $t(161) = 7.08$ ,  $p < .001$ ;  $\beta = .16$ ,  $t(161) = 2.24$ ,  $p < .05$ ; and  $\beta = .15$ ,  $t(161) = 2.17$ ,  $p < .05$ . The more the women saw their partner as emotionally involved in the relationship, the better the first postsurgical sexual experience was; the more they perceived their partner to be initiating sex, the more satisfied they were with their marriage.

### Discussion

Women in Study 1 had been treated surgically for early-stage breast cancer 3, 6, or 12 months before data collection. Each reported her perceptions of her partner's responses to the situation,

and each reported her perceptions of several aspects of the couple's sexual relations after the surgery. Each woman also reported on several aspects of her current well-being.

Analyses revealed that the woman's perception of having a positively involved partner related positively to her own well-being. Similarly, perceived sexual interest from her partner, sexual frequency, and positive perceptions of the first sexual interaction after surgery all related to her well-being. Of particular interest was the predictive power of positive perceptions of the first sexual interaction after surgery, which contributed uniquely in multivariate analyses of each of the outcome variables.

Although these findings are intriguing, they also are obviously limited in an important way. The study was cross-sectional, with all variables collected in the same assessment. There is no way to know whether the women's perceptions of their partner's responses or of their sexual relations influenced the variables we treated as outcomes or whether all the perceptions simply form an aggregate perception of the women's present situation. We were able to take advantage of a second data set to address that question more directly.

### Study 2

Study 2 used a sample that was followed longitudinally for a year, starting at the time of the diagnosis and surgery. Many of the variables in Study 1 were also used in Study 2. However, in this sample the measures were collected repeatedly over a year: at 3-, 6-, and 12-month follow-ups. Some of the variables were also assessed before surgery to provide baseline information. The longitudinal data set permitted us to conduct prospective tests from one time point to a subsequent time point, thereby addressing the question of temporal precedence.

### Method

#### Participants

Patients were recruited from the University of Miami Sylvester Comprehensive Cancer Center and from an independent practice in South Miami, Florida. As in Study 1, the study was presented as an investigation into the experiences of women during the time surrounding and after treatment for breast cancer. Exclusion criteria were prior history of psychiatric hospitalization (no participant was excluded), prior cancer (2 participants were excluded), and major concurrent disease (no participant was excluded) Approximately 85% of the women contacted who met

eligibility criteria agreed to participate. Because we were interested, in part, in effects over time, the sample discussed here includes only the 49 patients who completed the initial interview, the presurgery interview, and at least two of the three follow-ups. Eleven other patients missed either two or all three of the follow-up interviews and were omitted from the analyses. The omitted participants did not differ systematically from those retained.

The women in this study were diagnosed with either Stage I ( $n = 38$ ) or Stage II ( $n = 11$ ) breast cancer. Nodal involvement ranged from 0 to 9 ( $M = 0.80$ ,  $SD = 2.14$ ). Twenty-eight of the women had had modified radical mastectomies, and 21 had had lumpectomies. Sixteen subsequently underwent radiation therapy, 11 had chemotherapy, and 24 received tamoxifen. Fourteen of the women had had reconstructive surgery, most within the first 3 months. The women ranged in age from 28 years to 74 years ( $M = 51.47$ ,  $SD = 11.01$ ). All were married ( $n = 43$ ) or in an equivalent relationship ( $n = 6$ ). Most of the women were non-Hispanic White ( $n = 46$ ), with 3 identifying as Hispanic. The women had an average of 14.98 years of education ( $SD = 2.33$ ); 29 were currently employed, and 20 were retired or were not currently working outside the home.

### Procedure

This project was conducted as a series of interviews. Participants were referred to the project by their surgeon. They were recruited during their diagnostic office visit or within a few days afterward. After informed consent was obtained, an initial interview was conducted, and a presurgery interview took place the day before surgery (a postsurgery interview took place 7–10 days after the surgery date, but information from that interview is not used here). Follow-ups were conducted 3, 6, and 12 months later.

The initial and presurgical interviews (together) included assessment of demographic variables and baselines of sexual frequency, partner initiation of sex, and partner emotional involvement. Also assessed at this time were baselines of psychosexual adjustment, emotional distress, and marital satisfaction. Follow-ups included reassessment of all these variables other than the demographics, as well as partner reaction to the surgical incision (assessed at 3, 6, and 12 months). One further measure (evaluation of the first sexual experience postsurgery) was taken at the 3-month follow-up only.

### Predictor Measures

Many of the predictor variables were identical to those of Study 1. An exception is the index reflecting the partner's positive emotional involvement, which was slightly more elaborate.

*Partner's positive emotional involvement.* This index in Study 2 was created from four items. In addition to the two used in Study 1 (i.e., "To what extent is your partner currently expressing affection toward you?" and "To what extent have you and your partner been fighting or experiencing friction between you?"), participants responded to the following items: "How strongly does he now seem committed to, or psychologically involved in, your relationship?" and "Over the past couple of weeks, how often does your partner touch you in small ways during normal daily activities?" All were rated on a 4-point scale ranging from *not at all* (1) to *a lot* (4) rather than the 5-point scale used in Study 1. After reversal of the item assessing fighting, alpha for the set of four items averaged .86 across the repeated assessments. As in Study 1, we created the index of partner emotional involvement by standardizing responses to each item and averaging the items.

*Negative partner reaction to scar.* Women's perceptions of adverse responses to the surgical scar by their partner were assessed by the same item as in Study 1. Responses were made on a 4-point scale ranging from *not at all* (1) to *a lot* (4). Means of these responses across assessments are shown in Table 2.

*Frequency of sex, quality of first sex, and partner initiation of sex.* As in Study 1, participants who perceived themselves as being in a sexual relationship ( $n = 43$ ) made three ratings pertaining to sex (see Table 2). They reported the current frequency of their sexual activity as times per month. They rated the quality of the first sexual experience after the surgery, from *very bad* (1) to *very good* (5). Finally, they rated the level of their partner's initiation of sexual activity on a 4-point scale ranging from *not at all* (1) to *a lot* (4).

### Relations Among Predictors

Relations among predictors assessed at the same time point were examined. Only three predictors were measured as baselines before surgery.

Table 2  
Means and Standard Deviations of Predictor and Outcome Variables at Each Time Point, Study 2

Variable	Interview time frame								
	Presurgery		Follow-up						
	<i>M</i>	<i>SD</i>	3 months		6 months		12 months		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Predictor</b>									
Partner positive emotional involvement <sup>a</sup>									
Partner expressing affection (1–4)	3.45	1.11	3.49	0.83	3.33	0.93	3.41	1.00	
(Reversed) friction (1–4)	3.60	0.89	3.34	0.94	3.29	1.05	3.27	1.04	
Partner committed (1–4)	3.57	0.94	3.62	0.82	3.54	0.85	3.50	1.00	
Partner touches you (1–4)	3.43	0.82	3.21	0.98	3.08	1.11	3.20	0.95	
Partner negative reaction to scar (1–4)			1.30	0.70	1.31	0.78	1.16	0.57	
Current frequency of sex (per month)	5.53	4.48	4.19	4.78	4.62	7.60	4.61	6.26	
Partner initiates sex (1–4)	3.16	0.99	2.79	1.08	2.88	1.16	2.91	1.20	
Rating of first postsurgical sex (1–5)			4.03	1.20					
<b>Outcome</b>									
Emotional distress (1–5)	2.26	0.69	1.86	0.44	1.87	0.52	1.94	0.51	
Psychosexual adjustment (1–5)	3.58	0.65	3.35	0.67	3.22	0.80	3.27	0.77	
Marital satisfaction (1–7)	5.96	1.51	5.70	1.67	5.50	1.80	5.66	1.86	

Note. Numerical scale range is given in parentheses.

<sup>a</sup> These four items were standardized and averaged at each time point as partner emotional involvement.

Perception of the partner's emotional involvement at that time did not relate to reported frequency of sex ( $r = .04$ ) but did relate to perceptions of his initiating sex ( $r = .34, p < .02$ ). Perception of the partner's emotional involvement and initiation of sex correlated even more strongly over time, averaging .59 at later assessments. The relation of the partner's emotional involvement to frequency of sex, however, remained nonsignificant over that period (average  $r = .21$ ).

Relations between the partner's adverse reaction to the incision and his emotional involvement varied greatly, from  $-.05$  at 3 months to  $-.49$  at 6 months to  $-.27$  at 12 months. The partner's reaction to the incision did not relate either to the woman's perception of her partner initiating sex (average  $r = -.14$ ) or to sexual frequency (average  $r = -.08$ ). Only baseline partner emotional involvement related significantly to participants' evaluation of the first sexual experience after surgery ( $r = .43, p < .007$ ).

Thus, in general, predictors were not strongly interrelated. The exception was a consistent, moderately strong association between perceptions of the partner's emotional involvement and perceptions of his initiation of sex. Given this pattern, each predictor was treated separately.

The predictor variables were all quite stable across time. Perception of partner emotional involvement correlated strongly over repeated measurements, averaging .77 across adjacent assessments. Perception of the partner's reaction to the scar was fairly strongly related across repeated assessments. From 3-month to 6-month assessment, the correlation was .82; from 6-month to 12-month assessment, it was .65. Sexual frequency was also stable over the year (average correlation across adjacent assessments = .75). Perception of partner initiation of sex became more stable over time, with  $r = .42$  from baseline to 3 months,  $r = .57$  from 3 to 6 months, and  $r = .88$  from 6 to 12 months.

### Adjustment Measures

**Distress.** Emotional distress was assessed by the Affects Balance Scales (ABS; Derogatis, 1975). The ABS assesses several qualities of emotion, both positive and negative. It is a series of adjectives, each a mood descriptor. Respondents indicate the extent to which they have had the feeling described for a specified time period, using response choices that range from *never* (1) to *always* (5). In this study, participants responded according to how they had been feeling "during the past week including today." As in Study 1, the scales measuring anxiety, depression, and hostility were strongly correlated and were combined into a measure of distress (see Table 2), with an average alpha of .83 across assessments.

**Psychosexual adjustment.** Psychosexual adjustment was assessed by an index formed from the same three items as were used in Study 1, with the same response options, ranging from *not at all* (1) to *extremely* (5). Average alpha across assessments was .80.

**Marital satisfaction.** Marital (relationship) satisfaction was again assessed by a single item, which differed slightly from the item used in Study 1. It read, "Rate how satisfied you are overall with your relationship with your partner, on a scale of 1–7 where 1 means *extremely dissatisfied*, 4 means *OK*, and 7 means *extremely satisfied*." A full scale ranging from 1 to 7 was also provided.

As in Study 1, the adjustment measures were moderately distinct from each other. The mean correlation between concurrent distress and psychosexual adjustment was  $-.38$ , the correlation between concurrent distress and marital satisfaction was  $-.20$ , and the correlation between concurrent measures of psychosexual adjustment and marital satisfaction was .32. Thus, they were examined separately as outcomes.

The adjustment variables also were all quite stable across time. The correlations between adjacent measures of distress averaged .70, the correlations between adjacent measures of psychosexual adjustment averaged .74, and the correlations between adjacent measures of marital satisfaction averaged .77. We note that the strong associations from one time to the next make it quite difficult, in principle, to predict changes across time.

### Results

We analyzed the data from the three time points that represent the trajectory of recovery from surgery (3, 6, and 12 months postsurgery). In some of these analyses (described below), we used baseline outcome data as covariates to test for change compared with the baseline. We examined the recovery period data using multilevel modeling procedures, also referred to as hierarchical linear modeling (Bryk & Raudenbush, 1992).<sup>3</sup> These procedures permit the testing of time-varying predictors of time-varying outcomes (both termed Level 1 variables) as well as predictors that are measured at a single time point (termed Level 2 variables).

In conducting these analyses, we also used a multiple imputation strategy for dealing with missing data (Graham & Schafer, 1999; Schafer & Graham, 2002; West, 2001). Although we restricted the data set to participants who had missed no more than one follow-up assessment, that still left some degree of missing data. Multiple imputation deals with this by estimating missing values on the basis of the overall structure of relations among all the variables in the data set, and it maintains the distributional properties of the variables in doing so. This imputation procedure is repeated independently several times (five times, in the present case). The result was five data sets, no two of which are identical, and each of which has plausible values replacing missing data. These data sets are analyzed separately, and the outcomes are combined, yielding a single set of associations (see Rubin, 1987, for greater detail). This procedure has been shown to be robust for data sets as small as this one (Graham & Schafer, 1999).

Because the HLM strategy tests the trajectory of relations over time, it was also necessary to test potential control variables in a manner different from that used in Study 1. Again, the question was whether potential control variables related significantly to predictors. However, most of the predictors were assessed repeatedly over time. For each predictor that was assessed repeatedly, we tested a model in which the potential control variable was entered as a Level 2 predictor and the true predictor was entered as a repeatedly measured outcome. Variables were retained as Level 2 controls if they related significantly ( $p < .05$ ) to the predictor's trajectory. Variables tested in this way were age, employment status, marital status, years married, education, ethnicity, disease stage, number of positive nodes, surgical procedure, use of tamoxifen, chemotherapy, and radiation. These analyses revealed significant associations for one demographic and one medical variable: Age predicted sexual frequency; extent of surgery predicted partner sexual interest, partner negative reactions to the scar, quality of first sexual experience after surgery, and perceived partner emotional involvement. Age and surgery type were included as controls in the analyses to which they pertain.

### Predictors Relating to Concurrent and Prospective Outcomes

Because these analyses were exploratory, we tested each predictor dimension separately with each outcome. The first postsurgical sexual experience was collected only once and thus was a Level 2 predictor. We examined all predictors in the following

<sup>3</sup> Preliminary analyses tested a variety of exploratory regression models predicting outcomes separately at different time points. A description of those analyses can be obtained from Charles S. Carver.

way: We treated the predictor (e.g., perceived partner emotional involvement) as a time-varying covariate in predicting the outcome (e.g., psychosexual adjustment), controlling for time (i.e., a linear trend in the outcome). An association would appear as a significant effect of the predictor on the intercept of the outcome. An increase in the association across repeated measures would appear as a significant effect of the predictor on the slope of the outcome. Then we tested a second model, in which the presurgical level of the outcome variable was included as a Level 2 predictor (along with the time-varying predictor at Level 1). This model tests whether the predictor predicts the outcome over repeated measurements even when the initial level of the outcome is controlled for.

We also evaluated models testing time-lagged predictions—that is, models in which the predictor at 3 months relates to the outcome at 6 months and the predictor at 6 months relates to the outcome at 12 months (all in one equation). This model tests for prediction forward in time from predictor to outcome. Finally, we repeated this time-lagged test, again including the baseline of the outcome variable as a Level 2 predictor. This evaluates whether the forward prediction in time withstands a control for the baseline value of the outcome variable. We describe the results (including effect size, computed as a correlation from  $t$  ratios; Rosenthal & Rosnow, 1984) in the following sections, by outcome variable.

**Psychosexual adjustment.** Psychosexual adjustment was predicted significantly by concurrent partner emotional involvement across the study's span (see Table 3). When a control was added for presurgical levels of psychosexual adjustment, this relation remained significant. Perceived partner emotional involvement also predicted psychosexual adjustment at the subsequent assessment (i.e., as a lagged dependent variable), and this relation also remained significant when a control was added for presurgical levels of psychosexual adjustment.

Similar results emerged for reports of the partner initiating sexual activity. Perceived partner sexual interest was a consistent predictor of psychosexual adjustment over repeated measures, and this relation was maintained even after a control was added for presurgical levels of psychosexual adjustment (see Table 3). Partner sexual interest also predicted psychosexual adjustment at the next assessment, and this relation held when a control was added for baseline psychosexual adjustment.

Reports of partner's negative reaction to the scar were somewhat weaker as predictors of psychosexual adjustment. They con-

sistently predicted this outcome over repeated measures, and the relation was maintained when a control was added for baseline psychosexual adjustment (see Table 3). However, negative reactions to the scar did not predict lagged adjustment. Evaluations of the first sexual experience after surgery also predicted psychosexual adjustment (see Table 3), but this effect did not hold when baseline adjustment was controlled. This pattern is consistent with the position that psychosexual adjustment influenced quality of the first posttreatment sex rather than vice versa. Frequency of sex failed to predict psychosexual adjustment.

**Distress.** Reports of emotional distress across the study period related significantly to perceptions of partner emotional involvement and partner sexual interest (see Table 4). In each case, the association remained significant when baseline distress was included in the equation. Neither of these measures predicted time-lagged emotional distress, however.

Also predicting emotional distress were participants' ratings of the first sexual experience after surgery. This association remained significant when we controlled for presurgical distress. The first postsurgery sex also yielded an additional effect on distress that is not shown in Table 4. Specifically, ratings of the first sex also predicted the slope of subsequent distress,  $B = -.009$ ,  $SE = .004$ ,  $t(46) = -2.02$ ,  $p = .049$ . The effect was that lower ratings of the sexual experience predicted increasing (relative) levels of distress across the subsequent 9 months. This effect was also maintained when baseline distress was controlled,  $B = -.009$ ,  $SE = .004$ ,  $t(46) = -2.01$ ,  $p = .05$ . Because the first sexual experience was rated only once, this variable was not tested as a recurrent predictor of time-lagged distress. In contrast to these effects, neither negative perceived partner reactions to the scar nor frequency of sex related significantly to emotional distress over time.

**Marital satisfaction.** Partner emotional involvement significantly predicted marital satisfaction in all tests conducted (see Table 5). The concurrent association across repeated measures was significant and was maintained when a control was added for baseline marital satisfaction. Partner emotional involvement also predicted marital satisfaction at the subsequent time point. This forward prediction was also maintained when baseline marital satisfaction was controlled.

A similar pattern of results emerged when partner sexual interest was used as the predictor variable. The concurrent association across repeated measures was significant and was marginally sig-

Table 3  
Results of Multilevel Modeling Analyses Predicting Psychosexual Adjustment, Study 2

Predictor variable	<i>B</i>	<i>SE</i>	<i>t</i>	Approximate <i>df</i>	<i>p</i>	Effect size <i>r</i>
Partner emotional involvement	.080	.029	2.79	47	.008	.38
With control for baseline psychosexual adjustment	.076	.028	2.76	46	.009	.38
Partner emotional involvement, lagged outcome	.078	.031	2.54	47	.015	.35
With control for baseline psychosexual adjustment	.069	.027	2.57	46	.014	.35
Partner initiates sex	.192	.067	2.85	47	.007	.38
With control for baseline psychosexual adjustment	.168	.063	2.65	46	.011	.36
Partner initiates sex, lagged outcome	.153	.065	2.34	47	.024	.32
With control for baseline psychosexual adjustment	.136	.060	2.27	46	.028	.32
Partner's negative reaction to scar	-.323	.109	-2.96	47	.005	.40
With control for baseline psychosexual adjustment	-.294	.095	-3.10	46	.004	.42
Rating of first postsurgical sex	.185	.066	2.78	46	.008	.38

Note. All analyses control for surgical procedure.

Table 4  
Results of Multilevel Modeling Analyses Predicting Distress Emotions, Study 2

Predictor variable	B	SE	t	Approximate df	p	Effect size r
Partner emotional involvement	-.056	.019	-2.90	47	.006	.39
With control for baseline distress	-.059	.019	-3.12	46	.004	.42
Partner initiates sex	-.122	.048	-2.56	47	.014	.35
With control for baseline distress	-.121	.042	-2.91	46	.006	.39
Rating of first postsurgical sex	-.122	.043	-2.83	46	.007	.38
With control for baseline distress	-.111	.036	-3.05	45	.004	.41

Note. All analyses control for surgical procedure.

nificant when a control was added for baseline marital satisfaction (see Table 5). Partner sexual interest also predicted marital satisfaction at the subsequent time point, and the forward prediction was maintained when a control was added for baseline marital satisfaction.

In contrast to these outcomes, the other three measures generally failed to predict marital satisfaction. There was no significant relation for frequency of sex or the woman’s evaluation of the first sexual experience. Partner negative reaction to the scar did predict lagged marital satisfaction,  $B = -.891$ ,  $SE = .302$ ,  $t(46) = 2.95$ ,  $p = .005$ , but this effect did not remain when baseline satisfaction was included.

Multiple Predictors

The associations reported in Tables 3–5 were examined with one predictor at a time. We also conducted analyses in which combinations of two or more predictors were entered at once. Only models with controls for baselines were tested. All these analyses included partner emotional involvement and partner initiation of sex as predictors; some also included other variables. For psychosexual adjustment, when partner emotional involvement and initiation of sex were entered together, neither contributed unique variance either for concurrent outcomes or for lagged outcomes. For marital satisfaction, partner emotional involvement remained significant, but partner initiation of sex did not, for both concurrent and lagged outcomes. For distress, partner emotional involvement remained significant for both analyses, but partner initiation of sex did not. The evaluation of the first sexual experience continued to make its own unique contribution to both the intercept and the slope of distress, as before. Thus, the role of perceived partner’s

emotional involvement appeared more robust than that of perceived partner’s sexual interest, but the first sexual experience had its own reverberations on women’s emotional well-being.

Tests of Reverse Causality

We conducted one more set of analyses, examining the possibility of reverse influence. That is, these analyses tested whether psychosexual adjustment, emotional distress, or marital satisfaction might predict perceptions of partners’ involvement, adverse reactions to the scar, initiation of sex, or frequency of sex. The basic model we have described earlier (one variable tracking the trajectory of the other concurrently) is not informative as to direction of influence; thus, we focus in this section on tests in which prediction over time controlled for the baseline of the outcomes, which previously were predictors (see Table 6).

Analyses treating partner emotional involvement as an outcome yielded significant prediction from marital satisfaction, with respect to both same-time outcomes (controlling for baseline of partner emotional involvement) and time-lagged outcomes (i.e., predicting partner involvement at the next forward assessment, controlling for baseline involvement). Analyses of partner initiation of sex as an outcome also found significant prediction from marital satisfaction, and emotional distress as well. In both of these cases the prediction was significant for same-time outcomes and time-lagged outcomes. Psychosexual adjustment also predicted perceived partner sexual interest, although in this case the prediction was significant only with respect to the time-lagged outcome.

One final significant reverse-order prediction emerged: Marital satisfaction predicted time-lagged reports of frequency of sex.

Table 5  
Results of Multilevel Modeling Analyses Predicting Marital Satisfaction, Study 2

Predictor variable	B	SE	t	Approximate df	p	Effect size r
Partner emotional involvement	.432	.047	9.24	47	.001	.80
With control for baseline marital satisfaction	.254	.071	3.58	46	.001	.47
Partner emotional involvement, lagged outcome	.444	.048	9.17	47	.001	.80
With control for baseline marital satisfaction	.310	.069	4.49	46	.001	.55
Partner initiates sex	.614	.231	2.66	47	.011	.36
With control for baseline marital satisfaction	.356	.187	1.90	46	.063	.27
Partner initiates sex, lagged outcome	.768	.201	3.86	47	.001	.49
With control for baseline marital satisfaction	.501	.187	2.68	46	.011	.37

Note. All analyses control for surgical procedure.

Table 6  
*Results of Multilevel Modeling Analyses Predicting Reverse-Causality Patterns, Study 2*

Predictor variable	<i>B</i>	<i>SE</i>	<i>t</i>	Approximate <i>df</i>	<i>p</i>	Effect size <i>r</i>
Outcome variable: partner emotional involvement						
Distress	-1.363	.549	-2.49	47	.017	.34
Marital satisfaction	.458	.216	2.12	46	.039	.30
Marital satisfaction, lagged outcome	.684	.210	3.26	46	.002	.43
Outcome variable: partner initiation of sex						
Psychosexual adjustment, lagged outcome	.465	.184	2.53	46	.015	.35
Distress	-.578	.236	-2.45	47	.018	.34
Distress, lagged outcome	-.426	.213	-2.00	47	.051	.28
Marital satisfaction	.247	.074	3.35	46	.002	.44
Marital satisfaction, lagged outcome	.273	.072	3.77	46	.001	.49
Outcome variable: sexual frequency						
Marital satisfaction, lagged outcome	.843	.241	3.49	46	.001	.46

*Note.* All analyses control for baseline on the respective outcome variable. Analyses involving marital satisfaction and psychosexual adjustment also control for surgical procedure.

### Discussion

Study 2 followed women from the time of their surgery for breast cancer through the next year. We assessed the women's well-being and their perceptions of how their partners were reacting to them repeatedly over their recovery. As in Study 1, the data indicate that the women's well-being was strongly related to their perceptions of positive emotional involvement from the partner. This variable had prospective effects on all three outcomes in Study 2 when we controlled for baselines, a possibility that we could not assess in Study 1. Although some past research has found that partners' negative behavior has more impact on well-being than does supportive behavior (Manne et al., 1997), our finding indicates that positive behavior can also be important.

The prospective design also revealed evidence that the woman's perception of the partner's initiation of sex had prospective effects with regard to all three outcomes when we controlled for baselines. This pattern was very similar to that of perceived partner emotional involvement. Indeed, the two predictors were moderately strongly related to each other (correlations averaging .59 at follow-ups) and were largely redundant in multivariate tests.

One other prospective finding is worthy of note. The rated quality of the first sexual experience after the surgery related substantially to emotional distress at follow-ups, though it was generally not related to the other outcomes. Indeed, ratings of presurgical sex predicted emotional distress in a linearly increasing fashion across time.

The findings as a group appear to indicate that a woman's perception of her partner's positive connection to her, her perception of sexual interest from the partner, and her perception of the partner's sensitivity in resuming sexual aspects of the relationship all promote greater resilience in the woman and greater satisfaction in the relationship.

Another set of findings that emerged from Study 2, which could not have been tested in Study 1, was evidence of reciprocal relations among some of the variables under study. First, there appeared to be reciprocal influences between marital satisfaction, on the one hand, and perceptions of partners' emotional involve-

ment and sexual interest, on the other hand (see Tables 5 and 6). In each case, when the baseline level of one variable as an outcome was controlled for, that variable was predicted significantly over time by the other. This was true whether the tracking of the prediction over time was concurrent or was time lagged.

There also appeared to be reciprocal relations between perceptions that the partner was initiating sexual activity and psychosexual adjustment (see Tables 3 and 6). Again, when baseline levels of one of these as an outcome variable were controlled for, that variable was predicted significantly over time by the other one. In this case, however, prediction from psychosexual adjustment to partner sexual interest was significant only when the prediction was time lagged.

Evidence of a cycle of influence between distress and partner sexual interest also emerged. Partner initiation of sex predicted time-lagged distress (see Table 4), and distress predicted both concurrent and time-lagged partner initiation (see Table 6).

We prefer to interpret these effects as representing reciprocal influences from one variable to another. That is, perceiving (for example) that her partner is sexually interested in her may make a woman feel more feminine and more satisfied in the relationship; given that, she may behave in a more confident and self-assured way with her partner, which leads to a real increase in sexual interest. It is possible, of course, that these reciprocal relations represent instead generalization of a set of global positive perceptions on the part of the women that are not reflected in actual behavior. We have no way to distinguish between the two possibilities in the absence of data from the women's interactions with their partner. However, it should be clear that this alternative interpretation requires more than the assumption of a perceptual set, with perceptions generalizing from one measure to another. The reciprocal effects that were observed occurred with controls for prior levels of the outcome (in each direction). Whether the reciprocal influences are real or fantasy, they involve more than simply perceptual sets.

These reciprocal patterns are quite intriguing and are certainly worthy of further study. It is perhaps worth noting that this is not

the first time such spirals of reciprocal influence have been observed. Evidence has also been obtained of a maladaptive spiral of reciprocal influences between avoidant coping and distress among women with breast cancer (Carver et al., 1993; Culver, Arena, Antoni, & Carver, 2002). It bears repeating that evidence of these reciprocal patterns could not have been obtained without use of a prospective design.

### General Discussion

Study 1 examined a cross-sectional sample at a single point within the 1st year after surgery. Study 2 examined a smaller longitudinal sample across the 1st year after surgery. One strength of both of these studies (particularly Study 2) is that the experiences of the women were reported relatively soon after the cancer diagnosis and treatment rather than years later, which is often the case in studies of patient samples. The results of Study 2 generally replicate and extend the pattern found in Study 1. The clearest similarity in outcomes of the two studies is that both data sets indicate an important role for perceptions of positive emotional involvement on the partner's part. The importance of this variable is one of the clear messages conveyed by this research. The findings regarding perception of partner initiation of sex also resemble those of Study 1. One difference is that Study 2 found an impact of partner sexual interest on psychosexual adjustment (which had not been significant in Study 1) as well as on the other two outcomes.

Although the findings of Study 2 generally resemble those of Study 1, there are also some differences. One difference is the role played by reported current levels of sexual activity. This variable related to all three outcomes in Study 1, but it played virtually no role in Study 2. A second difference between outcomes is the pattern of associations for adverse partner reactions to the surgical scar. This variable did not relate to distress in Study 2, whereas it did in Study 1.

A final difference between outcomes is that the predictive effect of the rated quality of the first sexual experience after the surgery was far more specific in Study 2 than it was in Study 1. In Study 2 it related substantially to emotional distress but was generally not related to other outcomes, as it had been in Study 1. One possible interpretation of this difference derives from the fact that the first sexual experience postsurgery was far in the past for many participants in Study 1, most of whom reported on that experience at 6 or 12 months postsurgery. Perhaps participants' retrospections regarding that experience were somewhat colored by their current levels of marital satisfaction and psychosexual adjustment, which thereby inflated the correlations in Study 1.

### Limitations

Although we believe this research contributes important findings, its limitations should be noted. First, Study 2 in particular had only a modest sample size, raising concerns about statistical power. Despite this, an intelligible pattern of associations did emerge from even that study. Second, the research focuses on the women's perceptions of their partners and includes no reports from the partners themselves. An important goal for future research will be to assess partners' reactions directly and examine the accuracy of the women's perceptions of those reactions. Finally, the women who participated in this research were generally well-off psycho-

logically, relatively educated, affluent, and primarily Caucasian (though Study 1 had a fairly substantial minority representation). These issues all limit the generalizability of the findings. It is important to determine whether the pattern of relations generalizes across a broader span of demographic groups. Nonetheless, the studies do appear to provide useful information about the experiences of breast cancer patients.

Women's experiences with breast cancer often occur in the context of an intimate relationship. An intimate partner constitutes a critical source of support for a woman during this difficult time (Leiber, Plumb, Gerstenzang, & Holland, 1976; Thomas & Weiner, 1974). Despite the important role a partner plays in a woman's adjustment to such an illness, women as patients are often examined in isolation (e.g., Carver et al., 1993). The findings reported here suggest that a breast cancer patient's perceptions of how her partner is reacting to this event in her life plays a very important role in her own well-being.

Furthermore, the findings help to clarify which aspects of the partner's reactions influence the women's adjustment in what ways. The results indicate clearly that a key predictor of adjustment is the woman's perception that the partner is expressing emotional support and connection. The perception that the partner had an emotional involvement in the relationship strongly and consistently predicted women's sexual, marital, and emotional adjustment. Indeed, the relation between partners' emotional involvement and marital satisfaction was so strong as to suggest that the two may be virtually indistinguishable (cf. Fowers & Olson, 1993). At a minimum, perceived emotional involvement appears to be close to the core of the determinants of marital satisfaction.

With regard to sexual aspects of the relationship, the findings suggest that sex per se is generally less important than having a perception of the partner's sexual interest. Perception of partners' sexual interest was a prospective predictor of all three aspects of well-being in Study 2. These effects might be interpreted as meaning that sexual interest represents yet another aspect of the partner's emotional commitment to the relationship. That is, the partner's sexual interest helped lead the women to feel attractive and sexually desirable. The initiation of sex may also function as a type of emotional support by communicating to the women a desire for closeness and intimacy.

This interpretation is consistent with evidence that female cancer patients have an increased desire for nonsexual, affectionate behavior from their partner (e.g., hand holding, sitting close, and embracing) and a decreased desire for sexual intercourse (Leiber et al., 1976). Vess et al. (1988) reported similar findings, in which positive reactions from the husband assisted in the sexual adjustment of mastectomy patients. These findings all suggest that the importance of the sexual relationship lies in the perception of the partner's desire for closeness and intimacy rather than the sexual act itself.

There was one respect, however, in which the sexual act—or behaviors surrounding the act—appeared to carry great weight. That is, women's ratings of the quality of their first sexual experience after surgery were a consistent predictor of their levels of emotional distress. Indeed, in Study 2 this event was an increasingly better predictor of emotional distress over the next 9 months. This effect was independent of the other predictors of distress, remaining significant even in multivariate analyses. Given the nature of the item that the women completed in this regard, we

unfortunately are unable to specify what it was about the quality of the first sexual experience that mattered so much.

### Conclusion

Dealing with a diagnosis of and treatment for breast cancer is a difficult experience that can have many reverberations in the woman's close relationship (Carter et al., 1993; Ganz et al., 1996; Lyons et al., 1995; Manne et al., 1997; Northouse et al., 1998; Wai Ming, 2002; Yurek et al., 2000). The findings reported here suggest that an important role in the woman's adjustment is played by her perceptions of how her partner is reacting to her as she tries to cope with the situation. Women who see their partner as remaining emotionally connected to them and as retaining sexual interest in them adjust better than do women whose perceptions in these areas are less positive. These studies have clear limitations. We examined mostly women who were in good relationships and for whom adjustment was good. However, even in these relatively well-off samples, in which there was not a great deal of variability to account for, relations among these variables did emerge. Despite these limitations on generalizability, the results seem to be useful information in the attempt to better understand the experiences of women in this situation.

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Received October 4, 2003

Revision received December 22, 2003

Accepted May 3, 2004 ■