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Close Relationships and Adjustment to a Life Crisis: The Case of Breast Cancer

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When life crises occur, significant others are thought to help alleviate distress and resolve practical problems. Yet life crises may overwhelm significant others, eroding their ability to provide effective support. The accuracy of these contrasting accounts of relationship functioning was evaluated in a study of 102 breast cancer patients and their significant others, interviewed at 4 and 10 months after diagnosis. Results largely confirmed the negative account of relationship functioning. Although significant others provided support in response to patients' physical impairment, they withdrew support in response to patients' emotional distress. Moreover, support from significant others did not alleviate patients' distress or promote physical recovery. These results reveal limits to the effectiveness of close relationships in times of severe stress.

Supportive social relationships are thought to help people cope with stressful events. Close relationships such as marriage are thought to be particularly beneficial, as there is evidence that merely being in a close relationship predicts better adjustment to stressors (Burman & Margolin, 1992; S. Cohen & Wills, 1985; Ross, Mirowsky, & Goldstein, 1990; Wills, 1990). A major explanation for why close relationships are beneficial is that significant others are thought to provide enacted support, that is, emotional and instrumental help that reduces the effects of the stressor (Barrera, 1986). By this account, close relationships are beneficial because two processes occur. First, significant others are sensitive to the plight of the stressed person and respond by providing support (Dunkel-Schetter & Skokan, 1990; Gottlieb, 1988; Hobfoll & Vaux, 1993). Second, the support that they provide meets the needs of the stressed person and is therefore effective in reducing the practical problems associated with the event and in reducing distress (Cutrona, 1990; Cutrona & Russell, 1990).

Stressors vary in severity, however. Some are minor daily problems such as having too much to do at work; others are moderately difficult events such as facing a college examination; yet others are severe crises such as life-threatening illnesses (Kessler, Price, & Wortman, 1985; Silver & Wortman, 1980). By and large, the literature showing beneficial effects of close relationships is based on moderately severe stressors, such as those typically reported in life-event inventories. It is not clear, therefore, whether support mobilization and support effectiveness processes are evident during severe crises.

There is reason to suspect that they may not be. In crisis situations the very closeness of significant others to the crisis victim may, over time, make it difficult for them to maintain their support (Gottlieb & Wagner, 1991). For example, supporters in a close relationship with a crisis victim may become overwhelmed by chronic exposure to the victim's difficulties and concomitant distress (Coyne & Fiske, 1992). Thus, a contrasting account of how close relationships function during a life crisis is that the crisis may undermine the mobilization and effectiveness of support (Coyne, Ellard, & Smith, 1990; DiMatteo & Hays, 1981; Heller, 1979; Lehman, Ellard, & Wortman, 1986; Rook & Pietromonaco, 1987; Suls, 1982; Taylor & Aspinwall, in press; Wortman & Dunkel-Schetter, 1979). This negative account suggests that people may not receive effective support when they presumably need it most, during a life crisis.

It is important, therefore, to investigate the evidence in favor of each of these alternative accounts of how close relationships function during a life crisis. This is the purpose of the present study. We address two sets of hypotheses, each representing a particular account. To evaluate the appropriateness of the positive account, we tested whether significant others provided support during a life crisis, and whether this support was effective in reducing the distress and ameliorating the practical problems of the crisis victim. To evaluate the appropriateness of the negative account, we tested whether significant others' support was eroded during the crisis, and whether the support they did provide was ineffective or even exacerbated the crisis victim's problems or distress. We examined these alternative accounts as they

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pertain to close relationships where one partner has experienced a severe medical crisis, breast cancer.

Is Enacted Support Mobilized or Eroded During a Life Crisis?

We first consider prior research on the question of whether supportive acts in close relationships are mobilized or eroded during a life crisis. People experiencing a life crisis must cope with both the practical problems arising from the crisis and the distress evoked by the crisis (Lazarus & Folkman, 1984). Following surgery, many breast cancer patients have reduced upper body strength and mobility and find common household tasks difficult to do. They also experience high levels of psychological distress (Meyerowitz, 1980, 1983). At least initially, the severity of the stressor and associated distress will probably signal to significant others that the patient needs help and will lead them to increase their provision of support (Barrera, 1986; Dunkel-Schetter, Folkman, & Lazarus, 1987; Dunkel-Schetter & Skokan, 1990; Eckenrode & Wethington, 1990; Hobfoll & Lerman, 1988).

Although it is not clear whether these two indicators of the crisis, severity and distress, continue to mobilize support as time progresses, it is plausible that they do so. It is also possible, however, that they erode support. Thus, significant others of breast cancer patients may become overburdened by the practical demands placed on them, or exposure to the patient's distress may become unbearable. They may respond by reducing their support provision.

We consider first the evidence linking stressor severity to support provision. Studies using life-event inventories have shown that amount of life stress is positively associated with enacted support (e.g., Barrera, 1981; S. Cohen & Hoberman, 1983; Dunkel-Schetter et al., 1987; Hobfoll & Lerman, 1989; Sandler & Barrera, 1984). This pattern extends to the case of breast cancer. Neuling and Winefield (1988) found the amount of physical problems experienced by the patient predicted greater enacted support at 1 month after surgery. Although these studies suggest that stressor severity mobilizes support, all the studies are cross-sectional. Thus, it is not possible to exclude an alternative interpretation of the data—that enacted support may exacerbate the severity of stressful events or may even lead to exposure to other stressors.

Whereas stressor severity appears to mobilize support, a less clear-cut picture emerges for the distress of the affected person. The few direct investigations of whether distress mobilizes support have yielded mixed results (Barrera, 1986; Dunkel-Schetter & Skokan, 1990). Some studies show that distress is positively associated with enacted support (e.g., Hobfoll & Lerman, 1988; Revenson & Majerowitz, 1990), consistent with a mobilization effect. Others show negative associations (e.g., Lefcourt, Martin, & Saleh, 1984), consistent with an erosion effect. Further indirect evidence that distress may erode enacted support comes from studies showing that distress has a negative effect on social relationships. For example, living with a depressed person leads to increased depression in significant others and in roommates (Coyne et al., 1987; Hokanson, Lowenstein, Hedeen, & Howes, 1986; Joiner, 1994; Joiner, Alfano, & Metalsky, 1992). In couples coping with the husband's myocardial infarction, the wife's distress is strongly and positively associated with the husband's distress (Coyne & Smith, 1991). Anger in chronically ill patients alienates supporters over time (Lane & Hobfoll, 1992). Because distress in potential supporters is likely to impede their ability to behave supportively, these findings suggest that a contagion of distress from crisis victims to their significant others may lead to an erosion of enacted support.

In the specific case of breast cancer, Neuling and Winefield (1988) found that patient distress was positively related to enacted support 1 month after surgery. At 3 months after surgery, however, patient distress was unrelated to enacted support. This pattern suggests that support mobilization by distress in breast cancer patients may be limited to the early stages of the health crisis. A longer term follow-up might have revealed an erosive effect of distress.

In summary, the positive account of close relationships during a life crisis predicts that the severity of the event and distress of the affected person will mobilize support; the negative account predicts that they will erode support. The evidence appears to favor the positive account in the case of severity, but existing data must be interpreted cautiously because most studies have used cross-sectional designs and have not focused specifically on life crises. The evidence in the case of distress is mixed. There is some suggestion, however, that the distress of the affected person may mobilize support primarily in the early stages of a life crisis, whereas it may begin to erode support if the crisis becomes chronic. The present study focused on breast cancer patients who were past the immediate crisis stage; almost all patients had undergone surgery and were in the process of physical recovery. Thus it is of interest to know whether a mobilization or erosion pattern predominates during this stage.

Is Enacted Support Effective?

Support that is given in times of crisis may be effective in reducing crisis-associated difficulties and distress. In the case of breast cancer it may help patients to regain their physical health, return to their usual activities, and feel less distressed. Alternatively, it may be ineffective, or even harmful. For example, supporters may unintentionally hinder functional recovery by enabling or encouraging the patient to remain physically inactive. Supporters can contribute to the patient's distress when their support attempts are accompanied by expressions of hostility or criticism of the patient or hopelessness and despair about her prognosis.

The empirical literature provides little direct guidance about the effectiveness of enacted support in alleviating the practical consequences of the stressor. Indirect evidence from studies of patient samples suggests that at least some support attempts by significant others may be ineffective in promoting physical recovery. Patients report that significant others can do and say things that are unhelpful in addition to doing and saying things that are helpful (Dakof & Taylor, 1990; Martin, Davis, Baron, Suls, & Blanchard, 1994; Wortman & Dunkel-Schetter, 1979). Supporters who become overinvolved in the patient's recovery may undermine recovery by attempting to exert inappropriate control over the process (for a discussion of relevant research, see Coyne, Wortman, & Lehman, 1988). Also, patients who

cede control of their condition to their supporters may fail to engage in the kinds of behaviors that foster physical recovery.

Direct evidence of the effect of enacted support on the practical difficulties associated with a stressor is limited. However, a recent longitudinal study suggests that enacted support may be effective (Collins, Dunkel-Schetter, Lobel, & Scrimshaw, 1993). In their study of low-income pregnant women, Collins et al. (1993) found that women who received higher levels of prenatal support had better labor progress and babies with better Apgar scores. Because childbirth is an anticipated, moderately stressful, normative event where the expected outcome is positive, however, it is unclear whether the results of this study generalize to breast cancer—an unanticipated health crisis of uncertain outcome.

We now turn to the question of whether enacted support is effective in reducing distress. The studies of patient populations discussed above and of depressed people provide indirect evidence that enacted support may be ineffective in doing so. In the case of physically ill people, enacted support may decrease morale if the patient perceives the support as reinforcing his or her incapacity (Coyne et al., 1988). Among people who have recovered from clinical depression, support that is characterized by overinvolvement and accompanied by criticism predicts relapse (Hooley, Orley, & Teasdale, 1986). Also, because depressed people tend to perceive positive feedback as insincere (Coyne, 1976b) and invalidating (Swann, Wenzlaff, Krull, & Pelham, 1992), attempts to be supportive may be miscarried.

Direct, cross-sectional investigations of the association between enacted support and distress have yielded mixed results, as we already discussed in the section on support mobilization (Barrera, 1986). Whereas some studies found that people who receive more support are less distressed (e.g., Wethington & Kessler, 1986), other studies support the opposite conclusion (e.g., Barrera, 1981). Two recent longitudinal studies of enacted support suggest that support may be ineffective in reducing or preventing distress. In their study of pregnant women, Collins et al. (1993) found that amount of support enacted prenatally did not predict postnatal depression. Kaniasty and Norris (1992) found that crime victims' levels of anger, anxiety, or depression were not affected by the amount of support they received.

To recapitulate, the positive account of close relationships during a life crisis maintains that support given in times of crisis will reduce the affected person's practical difficulties and distress. The negative account proposes that enacted support will be ineffective or even harmful. There is some evidence in favor of the positive account for practical consequences and the negative account for distress. In the case of distress, studies that adopt a family systems approach to coping with illness suggest that well-intentioned support attempts may be ineffective or even harmful. Again, however, these results must be interpreted cautiously because most studies have used weak designs and have not focused specifically on life crises.

Rationale for the Present Study

The stressor examined in this study, breast cancer, is a severe, potentially life-threatening event. Treatment for the disease almost invariably involves surgical removal of the tumor and surrounding tissue—a procedure that leaves the patient disfigured. Postoperative chemotherapy and radiation therapy can be grueling and prolonged, and patients must live with the possibility of disease recurrence. Not surprisingly, patients with this disease typically show high levels of psychological distress (Meyerowitz, 1980) and strain in their close relationships (Lichtman, Taylor, & Wood, 1987; Wellisch, Gritz, Schain, Wang, & Siau, 1991, 1992; Wellisch, Jamison, & Pasnau, 1978).

The present study contains several features that allow an in-depth investigation of support processes in close relationships during a life crisis. First, it is still rare to find studies of the effectiveness of enacted support. The vast majority of existing studies have examined the effectiveness of perceived support (the perception that support is available if needed; Coyne & Bolger, 1990; Gottlieb, 1988; Hobfoll & Vaux, 1993; House, Umberson, & Landis, 1988). However, a more convincing demonstration of the importance of close relationships for adjustment to life crises would involve showing that support attempts by significant others, measured during a crisis, are effective. In the present study we obtained such measures of enacted support, enabling us to assess the way in which concrete supportive acts at a specific time relate to subsequent physical and mental health outcomes.

Second, it has been typical in the literature to obtain the stressed person's account of support (whether perceived availability or enacted) and to use this to predict stress outcomes (Dunkel-Schetter & Bennett, 1990; Eckenrode & Wethington, 1990). Recipient accounts of support receipt and recipient accounts of support outcomes may correlate, in part, because they are both prone to common self-report biases such as response styles (see Nunnally & Bernstein, 1994). In the present study, instead of relying on the crisis victim's report of enacted support, we obtained significant-other reports of enacted support, thereby avoiding the problem of self-report contamination of the independent and dependent variables.

Third, as was noted earlier, studies of support processes have been mostly cross-sectional (Bolger & Eckenrode, 1991). With cross-sectional designs, it is not possible to distinguish erosion, where distress and stressor severity reduce enacted support, from effectiveness, where enacted support reduces distress and stressor severity. Both processes imply a negative relationship between enacted support and outcomes. The longitudinal design used in the present study makes it possible to distinguish the two processes.

Fourth, it is important in studying support processes during a life crisis to obtain an accurate measure of crisis severity and to control for this when examining support processes (Kessler et al., 1985). Unmeasured differences in crisis severity can affect support provision and support outcomes, leading to spurious associations between the two. It is also important to distinguish the effects of stressor severity from the effects of emotional distress. To do so, severity must be measured accurately. In the present study we had access to reliable and objective measures of crisis severity (e.g., disease progression, extent of surgery, and therapeutic regime) that could be controlled in the investigation of support processes.

To summarize, this study of close relationships and adjustment to breast cancer examined two contrasting accounts of

relationship functioning. Is relationship functioning during a life crisis characterized by support mobilization and support effectiveness, or is it characterized by support erosion and ineffectiveness?

Method

Design and Sample

Participants in this study were newly diagnosed breast cancer patients, aged 40 and older, identified between February and June of 1985 through the Metropolitan Detroit Cancer Surveillance System (see Vinokur, Threatt, Vinokur-Kaplan, & Satariano, 1990, for additional details on sample recruitment). About 3 to 4 months after diagnosis, patients received a letter asking them to participate in a study on women's health, stress, and well-being. Patients who agreed to participate were contacted by an interviewer from the Michigan Cancer Foundation to set up a face-to-face interview. Shortly before the Time 1 interview, the patient and her spouse, or (if she was not married) her significant other, completed separate questionnaires on their current adjustment to the crisis. (As we detail below, among nonmarried patients, the person most commonly chosen as significant other was the patient's daughter.) Completed questionnaires were sealed in separate envelopes and given to the interviewer at the end of the Time 1 interview. Concurrent patient medical records were obtained from relevant hospitals and clinics.

All interviews were conducted at patients' homes. Time 1 interviews were conducted an average of 4 months after diagnosis. About 4–6 months after the Time 1 interview, patients were recontacted and a second interview was scheduled. Self-administered questionnaires were again mailed to the patient and significant other, and these were completed before the Time 2 interviews. Time 2 interviews were conducted approximately 6 months after the Time 1 interviews, that is, approximately 10 months after diagnosis.

Of the 356 eligible patients aged 40 and older, 274 or 77% participated in the study. The 82 patients who did not participate included 12 who refused, 29 who could not participate due to the severity of the illness, 4 who died in the interim, 11 whose physicians did not approve their participation, 21 who were not available for miscellaneous reasons such as moving, and 5 who were not proficient in English. Of the 274 who participated, 172 had significant others who participated. However, not all patients and significant others provided complete data at Time 1 and 2, and the current article is based on a subsample of 102 pairs for whom patient and significant other data were available at both time points.

Given this large decrease in sample size, it is important to test whether there are any systematic differences between the smaller and larger samples. We examined this question in two ways. First, of the 274 patients who participated in the study, we compared the 172 for whom significant-other data were available with the 102 for whom significant-other data were not available. We were able to compare these two groups on basic demographic variables: patient's age, marital status, educational level, employment status at Time 1, race, and number of children. Compared to patients for whom data from a significant other were not available, patients with such data were more likely to be married (68% vs. 50%, $\chi^2[1, N = 274] = 9.00, p < .01$), to be White as opposed to Black (89% vs. 75%, $\chi^2[1, N = 274] = 9.99, p < .01$), and to have children (2.6 vs. 1.6, $t[272] = 4.3, p < .001$, two-tailed test.

The second way we examined this question was to compare the 102 patients with significant others for whom Time 1 and Time 2 data were available with the 70 for whom only Time 1 data were available. We were able to compare these groups on the basic demographic measures mentioned above and on the Time 1 substantive measures described below. The two groups did not differ significantly on any of these measures.

The average age in the final sample of 102 patients was 58 years ($SD = 10$). Most patients had completed high school (59%), and almost a third (32%) had some college education. Seventy-three percent of patients were currently married; 8% of patients were divorced; 14% were widowed; and 5% were never married. The vast majority of patients were White: 91% versus 9% Black (no other racial groups were represented).

Seventy-two percent of significant others were husbands. The remaining relationship categories, in order of diminishing size, were daughters (17%), friends (7%), siblings (2%), and a residual category (2%). The average age of significant others was 53 years ($SD = 11$).

Focal Measures

Physical impairment. Physical impairment was assessed with a 10-item measure of functional health used in the Framingham Disability Study (Jette & Branch, 1981). Patients reported how difficult it was for them to engage in certain physical activities in the past month, such as (a) pushing or pulling large objects, like a living room chair; (b) lifting or carrying items under 10 lb, like a bag of potatoes; (c) lifting or carrying items over 10 lb, like a heavy bag of groceries; and (d) reaching or extending arms above or below shoulder level. Responses were assigned the following scale values: 1 for no difficulty; 2 for a little difficulty; 3 for some difficulty; 4 for a lot of difficulty or if the patient had been told by her doctor not to engage in such activity. Coefficient alpha was .75 at Time 1 and .76 at Time 2.

Enacted support from significant other. This measure was designed to tap House's (House, Umberson, & Landis, 1988) four social support functions: emotional, appraisal, informational, and instrumental support (see Vinokur, Schul, & Caplan, 1987, for validity details). It consisted of eight items in which the significant other was asked to rate, on a scale of 1 (*not at all*) to 5 (*a great deal*), how much (currently) does he or she: (a) "provide [the cancer patient] encouragement and reassurance when she needs it?" (b) "show that you care about her as a person?" (c) "help her understand and sort things out when she is troubled by something?" (d) "listen to her when she needs to talk about things that are important to her?" (e) "understand the way she thinks and feels about things?" (f) "say things that raise her self-confidence?" (g) "give her useful information or advice when she needs it?" and (h) "provide her with direct help, that is, how much do you do things for her or give her things she needs?" Coefficient alpha for the scale was .87 at Time 1 and .89 at Time 2.

Distress. Anxiety and depression were assessed using items from the Hopkins Symptom Checklist (Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974). Each item required the patient to rate, on a scale of 1 (*not at all*) to 5 (*extremely*), how much she experienced the particular symptom in the last 2 weeks. Anxiety was defined as the sum of five items in which the patient rated how much she was: (a) feeling fearful, (b) worrying or stewing about things, (c) feeling nervousness or shakiness inside, (d) feeling tense or keyed up, and (e) emotionally upset. Coefficient alpha was .81 at Time 1 and .82 at Time 2. Depression was defined as the sum of five items in which the patient rated how much she was: (a) feeling blue, (b) feeling depressed, (c) feeling lonely, (d) feeling no interest in things, and (e) feeling hopeless about the future. Coefficient alpha was .88 at Time 1 and .86 at Time 2. Anger was assessed using four items from the Anger and Irritation Index (Caplan et al., 1984). Using the same 5-point scale as before, the patient rated how much she was: (a) furiously angry, (b) mad at someone, (c) angry to a point of feeling like hitting someone, and (d) irritated or annoyed. Coefficient alpha was .60 at Time 1 and .78 at Time 2. Coefficient alpha for total distress (anxiety, depression, and anger) was .89 at Time 1 and .90 at Time 2.

Control Measures

Breast cancer stage. Six categories of tumor spreading were distinguished: (1) *in situ,* 1% of patients; (2) localized to breast, 60%; (3)

regional lymph nodes affected, 2%; (4) regional spreading but nodes unaffected, 23%; (5) regional spreading with nodes affected, 11%; and (6) distant spreading, 3%.

Extent of surgery. Five categories were distinguished: (1) no surgery (or unknown), 2% of patients; (2) partial mastectomy, 6%; (3) partial mastectomy with dissection of nodes, 33%; (4) total mastectomy with dissection of nodes, 58%; (5) total mastectomy with dissection of nodes and pectorals, 1%.

Adjuvant therapy. At each interview, patients reported whether they were at present undergoing chemotherapy or radiation therapy. At Time 1, 30% of patients were undergoing chemotherapy, and 40% were undergoing radiation therapy. By Time 2, 31% of patients were undergoing chemotherapy, and 13% were undergoing radiation therapy.

Statistical Model

Because our data come from a two-wave panel design, this allows us to carry out longitudinal tests of the hypotheses specified earlier. Our analysis approach is to use initial between-subject differences in the independent variables of interest (patient's physical impairment, significant other's support, and patient's psychological distress) to predict between-subject differences in subsequent change in these variables. We implemented this approach in a linear structural equation model. The model comprised the following three structural equations, one for each dependent variable, (1) change in patient's physical impairment, (2) change in significant other's enacted support, and (3) change in patient's psychological distress:

$$\Delta P_i = b_{10} + b_{11}(P_i - P.) + b_{12}(S_i - S.) + b_{13}(D_i - D.) + u_i \quad (1)$$

$$\Delta S_i = b_{11} + b_{21}(P_i - P.) + b_{22}(S_i - S.) + b_{23}(D_i - D.) + v_i \quad (2)$$

$$\Delta D_i = b_{30} + b_{31}(P_i - P.) + b_{32}(S_i - S.) + b_{33}(D_i - D.) + w_i \quad (3)$$

ΔP_i, ΔS_i, and ΔD_i refer to changes in patient's physical impairment, significant other's support, and patient's distress from Time 1 (4 months after diagnosis) to Time 2 (10 months after diagnosis). $(P_i - P.)$, $(S_i - S.)$, and $(D_i - D.)$ refer to Time 1 values of the same variables, expressed as deviations from their respective sample means.

Expressing the Time 1 variables in mean-deviation form does not affect the coefficients (slopes) for these variables. The advantage of using mean deviations is that the intercepts b_{10}, b_{20}, and b_{30} can then be interpreted as the value of the dependent variable for the average person, that is, how much the average person changed between Time 1 and 2 (Neter, Wasserman, & Kutner, 1985). For all predictors other than the lagged dependent variable, the unstandardized slopes obtained in this analysis are identical to those obtained in an analysis of Time 2 dependent variable scores controlling for Time 1 dependent variable scores (Kessler & Greenberg, 1981). Thus, the model captures information on (a) average change (intercepts) and (b) between-person differences in change as a function of between-person differences in initial levels of the independent variables (slopes).

The slopes from this model allow us to test the accuracy of the two alternative accounts of how close relationships function during a life crisis. According to the positive account, patients' physical impairment and distress will independently mobilize support; therefore, slopes b_{21} and b_{23} in Equation 2 should be positive in sign. The positive account also holds that enacted support will be effective in promoting improvement in physical functioning and psychological distress over time. Therefore, slope b_{12} in Equation 1 and slope b_{32} in Equation 3 should be negative in sign. According to the negative account of how close relationships function during a life crisis, physical impairment and distress will independently erode support (i.e., slopes b_{21} and b_{23} should be negative), and enacted support will either be ineffective in promoting recovery or may even impede recovery (i.e., slopes b_{12} and b_{32} should be either zero or positive in sign).

We assume that the error components u_i, v_i, and w_i are (1) normally distributed, (2) homoskedastic, (3) uncorrelated within each equation, (4) uncorrelated between equations, and (5) uncorrelated with the three predictor variables, Time 1 physical impairment, enacted support, and distress (see Belsley, Kuh, & Welsh, 1980, and Bollen, 1989, for details on these assumptions). In preliminary analyses, we assessed the adequacy of assumptions (1–4) using tests available in the PROC REG and PROC UNIVARIATE programs of SAS software (SAS Institute, 1990). We found no evidence that these assumptions were violated. Assumption 5 requires that no third variables exist that simultaneously affect the independent and dependent variables in the system. Although the existence of such variables cannot be ruled out definitively, we show later that several major candidates do not appear to operate in this way. Based on assumptions 1–5, parameter estimates for the system of equations can be obtained by carrying out three Ordinary Least Squares regressions, one for each dependent variable (Bollen, 1989).

Results

Preliminary Analyses

As noted above, we evaluated the main hypotheses within a system of structural equations relating physical impairment, enacted support, and distress over time. Before presenting detailed results, we should report that in preliminary analyses we found that (a) none of the relationships between the independent and dependent variables showed evidence of nonlinearity, (b) the results did not change when direct biomedical measures of disease severity and therapeutic regime (cancer stage, extent of surgery, receipt of chemotherapy at Time 1, and receipt of radiation therapy at Time 1) were controlled, and (c) the results did not vary by gender of significant other, cancer stage, extent of surgery, or degree of physical impairment at Time 1.

Structural Equation Model Estimates

Table 1 presents the relevant Ordinary Least Squares parameter estimates in unstandardized form (symbolized as bs in Equations 1–3).[1] Figure 1 presents the same estimates in standardized form (βs). An alpha level of .05, two-tailed, was used for all statistical tests. Note that tests of significance for standardized and unstandardized coefficients are identical (J. Co-

[1] Given that it is now conventional to fit structural equation models using specialized programs such as LISREL that use Maximum Likelihood estimation, it is important to justify why we used an Ordinary Least Squares regression approach. First of all, the use of Ordinary Least Squares regressions to estimate a structural equation model is justified when the postulated model is recursive and involves no latent variables (see Bollen, 1989, p. 115)—conditions that our model meets. Second, Maximum Likelihood estimation requires large sample sizes, and some would consider our N of 102 to be borderline. Because Ordinary Least Squares estimation has less stringent sample size requirements, it is therefore more suitable for our dataset. To assess the robustness of our results, however, we also calculated Maximum Likelihood estimates for the model using LISREL 7 (Jöreskog & Sörbom, 1988). These were essentially identical to the Ordinary Least Squares estimates. The LISREL analysis also indicated that the model fits the data reasonably well, $\chi^2(3) = 6.69$, $p = .09$, Goodness of Fit Index = .98.

Table 1
Parameter Estimates (Unstandardized) for Structural Equation Model of Change in Patient's Physical Impairment, Significant Other's Enacted Support, and Patient's Distress From 4 Months to 10 Months After Diagnosis (N = 102)

Time 1 independent variables	Dependent variables		
	Change in patient's impairment	Change in significant other's support	Change in patient's distress
Intercept; average change	−1.36*	−.59*	.45
	(.41)	(.28)	(.58)
Patient's impairment	−.40*	.13*	.24*
	(.08)	(.05)	(.11)
Significant other's support	−.04	−.29*	.05
	(.12)	(.08)	(.16)
Patient's distress	−.01	−.11*	−.46*
	(.06)	(.04)	(.08)
R^2	.23	.16	.25

Note. Standard errors are given in parentheses. All Time 1 independent variables are expressed as deviations from their respective sample means. Expressing the independent variables in mean-deviation form affects intercepts only, allowing them to be interpreted as change in the dependent variable for the average person. Time 1 means for impairment, support, and distress are 16.6, 25.4, and 22.8 units, respectively.
* $p < .05$, two-tailed test.

hen & Cohen, 1983). To reduce clutter in Figure 1, standardized effects with an absolute value of .03 or less are omitted. All the omitted effects are nonsignificant.

Changes in physical impairment, enacted support, and distress. The hypotheses posed earlier refer to between-person differences in change over time. To provide a context for examining these between-person differences, it is useful to first examine how physical impairment, enacted support, and distress changed on average. Average changes are estimated by the intercepts in the structural equations. These intercepts are shown in the first row of data in Table 1. (Figure 1 does not show these effects because intercept information is lost through standardization.) As indicated by the first intercept, physical impairment declined over time in the sample as a whole by 1.36 units, $t(98) = -3.25, p < .01$. The decline is appreciable, corresponding to an effect size (Cohen's d; J. Cohen, 1988) of −.25 between-person standard deviation units (we calculated the between-person standard deviation as the average of the Time 1 and Time 2 values). Levels of enacted support provided by the significant other also declined in the sample as a whole. The raw-unit change was −.59, which corresponds to an effect size of −.15 units, $t(98) = -2.07, p < .05$. Finally, patients' distress shows no appreciable change over time (estimate = .45, effect size = .06), $t(98) = 0.79$, *ns*.

Is enacted support mobilized or eroded? Structural equation model results (presented in Table 1 and Figure 1) revealed that enacted support was mobilized by the patient's physical impairment. With the effects of Time 1 enacted support and Time 1 distress held constant, we found that Time 1 physical impairment was associated with a relative increase in enacted support between Time 1 and 2 ($b = .13, \beta = .24, t[98] = 2.41$, $p < .05$).[2] However, enacted support was eroded by the patient's distress. With the effects of Time 1 physical impairment and Time 1 enacted support held constant, we found that Time 1 distress was associated with a relative decrease in enacted support between Time 1 and 2 ($b = -.11, \beta = -.26, t[98] = -2.64$, $p < .01$).[3]

Is enacted support effective or ineffective? The results show that there is no evidence that the significant other's enacted support reduces distress or promotes physical recovery in breast cancer patients. Controlling for initial distress and physical impairment, the support-to-distress effect was small and nonsignificant ($b = .05, \beta = .03, t[98] = 0.29$, *ns*), as was the support-to-impairment effect ($b = -.04, \beta = -.03, t[98] = -0.33$, *ns*).[4]

Discussion

The purpose of this study was to examine how close relationships functioned over a 6-month period of a health crisis. We sought to evaluate the accuracy of two contrasting accounts: Was relationship functioning characterized by support mobilization and support effectiveness, or was it characterized by support erosion and ineffectiveness? Results largely confirmed the negative account of relationship functioning. Although patients' physical impairment mobilized the significant others' support, patients' distress eroded the support. Furthermore, enacted support was ineffective in reducing distress or promoting physical recovery.

Physical Impairment Mobilized Support

Crisis severity, indexed by the cancer patient's physical impairment, mobilized the significant other's enacted support. Thus significant others appear to be at least partially responsive to patients' needs, in that they show a relative increase in enacted support for those patients with the most physical difficulties. These results are consistent with those of other in-

[2] These are increases relative to those less impaired; they do not necessarily indicate that support was increasing in an absolute sense. As noted earlier, significant other's support *declined* by .59 units for the sample as a whole. However, high levels of physical impairment are associated with absolute increases in support. For example, the model predicts that for patients with average Time 1 support and distress scores, a Time 1 impairment score of 1 *SD* above the mean is associated with an absolute increase in support of .14 units; a score 2 *SD* above the mean is associated with an increase of .87 units.

[3] We tested whether measures of the specific emotions of anxiety, depression, and anger had independent effects on change in enacted support. To do so, we reran the erosion analysis including the three emotions as simultaneous predictors. None of the three had a significant independent effect on change in support.

[4] We examined whether the results varied by type of enacted support. We distinguished two broad types, emotional/appraisal and instrumental/informational. We reran the analyses twice, substituting emotional/appraisal support and instrumental/informational support for overall enacted support. The same patterns emerged for these subscales as for the overall support measure. Neither type of support was effective in reducing physical impairment or distress. Both types of support showed mobilization as a function of physical impairment and erosion as a function of distress. Thus we found no important differences in effects by type of enacted support.

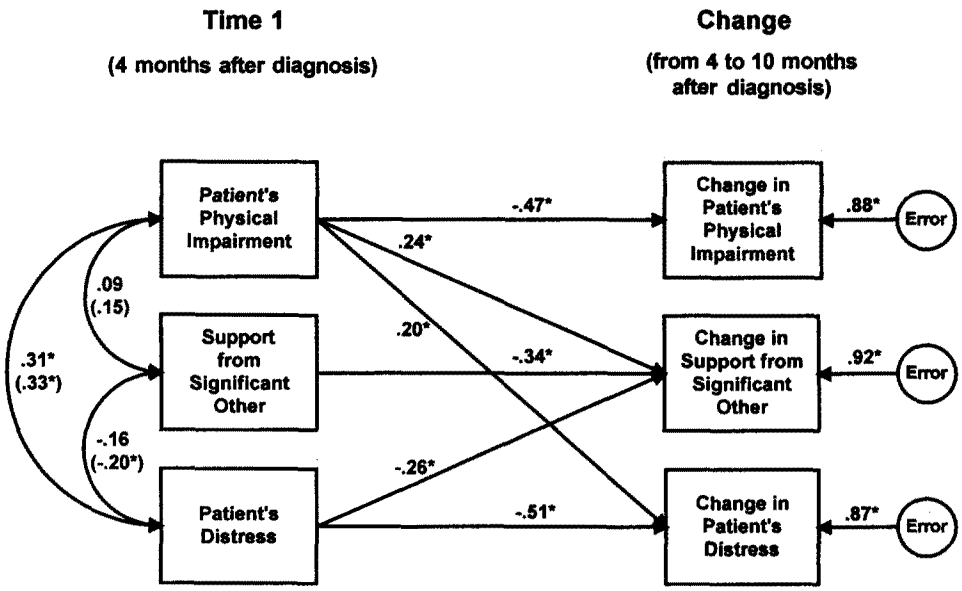

Figure 1. Standardized parameter estimates (βs) for structural equation model of change in patient's physical impairment, significant other's enacted support, and patient's distress from 4 months to 10 months after diagnosis ($N = 102$). Numbers in parentheses are partial correlations controlling for the other Time 1 variable. Standardized effects with an absolute value of .03 or less are omitted. All omitted effects are nonsignificant. *$p < .05$, two-tailed test.

vestigators who have shown a positive cross-sectional relationship between levels of stress and support provision (see Barrera, 1986; Dunkel-Schetter & Skokan, 1990; and Hobfoll & Vaux, 1993, for reviews). The effect was linear, indicating that no threshold exists beyond which the burden of the patient's impairment begins to reduce the significant other's enacted support.

In interpreting these results, it is important to bear in mind that we estimated the effect of patient's impairment on significant other's support with patient's distress held constant. We did so in order to distinguish the effects of life crisis severity on support from the effects of the victim's distress on support. The distinction proved to be important. If we had not held distress constant in the analysis, the standardized effect of impairment on enacted support would have been .15 rather than .24. This pattern of results is known as suppression (J. Cohen & Cohen, 1983, pp. 94–96). One interpretation of the pattern is that the patient's distress intervenes between impairment and support such that it reduces the mobilizing effect of impairment. By this reasoning, physical impairment affects enacted support through two routes: (a) It has a support-eroding effect through its tendency to increase distress, which, in turn, decreases enacted support, and (b) it has a support-mobilizing direct effect. Without three waves of data, however, it is not possible to test this mediational model rigorously.[5]

Distress Eroded Support

Whereas support mobilization was found for the patient's physical impairment, support erosion was found for the patient's distress. These results may be seen as further evidence of the negative effects of distress on social relationships and social support. Although the original evidence of these effects came from work on depressed persons (i.e., Coyne, 1976a), it is becoming increasingly clear that distress among crisis victims may undermine support processes (Dunkel-Schetter & Skokan, 1990; Herbert & Dunkel-Schetter, 1992).

Two caveats need to be borne in mind regarding these results. First, it is important to note that this study examines enacted support processes in the interval from 4 to 10 months after diagnosis. As noted earlier, these processes might have been quite different at an earlier phase of the crisis. For example, it is plausible that, earlier in the crisis, distress served to mobilize rather than erode support (Dunkel-Schetter & Skokan, 1990; see also Rook, Pietromonaco, & Lewis, 1994). Evidence for this notion comes from Neuling and Winefield's (1988) study of breast cancer patients. This study showed that distress was positively

[5] In response to a reviewer's query, we looked to see if a similar suppression pattern could be found in another dataset. We analyzed data from a sample of 157 survivors of breast cancer and their significant others (see Vinokur & Vinokur-Kaplan, 1990, for details on the study). Although the dataset is cross-sectional, it contains identical measures of physical impairment, enacted support, and distress. Results showed evidence of the same suppression pattern. First, impairment showed a weak positive correlation with enacted support ($r = .07$, *ns*). Second, distress showed a somewhat stronger and negative correlation with enacted support ($r = -.19$, $p < .05$). Third, impairment and distress showed a modest positive correlation ($r = .24$, $p < .05$). Finally, when distress was controlled, the impairment–support relationship increased from an r of .07 to a β of .12 (with impairment controlled, the distress–support relationship increases from −.19 to −.22).

associated with enacted support immediately after surgery and at 1 month after surgery but was unrelated to distress at 3 months after surgery.

Second, these results raise an important interpretive problem concerning the measurement of enacted support. Ideally, enacted support should be measured by behavioral observation. Because we relied on the self-reports of significant others, however, we cannot rule out the possibility that the apparent withdrawal of support by the significant other in response to patient distress results from the significant other feeling less efficacious in the face of the distress. Thus significant others of distressed patients may not reduce their actual support provision but may merely feel that their support has lessened because it is ineffective in reducing the patient's distress. Although we cannot rule out this possibility, it is inconsistent with the finding that the significant other's reports of enacted support *increase* in response to the patient's physical impairment. Given that enacted support promotes neither emotional nor physical recovery, why should significant others feel less supportive when the patient is highly distressed yet more supportive when the patient is highly physically impaired?

If we assume that the erosion effect represents a real reduction in enacted support, then it must be admitted that this study does not shed much light on how this comes about. For example, do significant others actively reject patients who show high levels of distress? Do they avoid social contact with such patients? Do they show greater emotional distance from such patients? Wortman and Dunkel-Schetter's (1979) previous work suggests that active rejection of patients is unlikely because there are strong norms against rejection in response to serious illness. Dakof and Taylor's (1990) data on cancer patients suggest that avoidance of social contact is also unlikely, as this behavior was never mentioned by patients as an unhelpful action by the spouse and other family members. However, Dakof and Taylor's data do show that increased emotional distance of spouse and family members (i.e., expressing little concern, empathy, and affection) was mentioned as a problem by approximately 10% of all patients. Thus it is plausible that this form of distancing is at least a partial mediator of the erosion effect.

We noted the striking difference between the effects of impairment and distress on enacted support. How can this be explained? One explanation is that significant others view the patient's physical impairment as beyond her control whereas they view the patient's distress as under her control. Thus, by making an external attribution regarding the causes of the patient's impairment they may view it as meriting support, whereas by making an internal attribution regarding the patient's distress they may view it as less worthy of support (Vinokur & Vinokur-Kaplan, 1990). A related explanation is that significant others may consciously or unconsciously be swayed by myths regarding the speed with which patients are expected to recover emotionally from the event (Wortman & Silver, 1989). Given that patients show no emotional improvement over time, perhaps significant others see the patient's distress as increasingly unjustifiable and therefore reduce their support provision.

Enacted Support Was Ineffective

According to the positive account of how close relationships function during a health crisis, mobilized support from significant others will reduce the patients' distress and will promote physical recovery. The results are not consistent with this account. Although significant others differed substantially in the degree to which they provided support to the patient, these differences were unrelated to changes in the patient's physical impairment over time. Similarly, we found no effect of enacted support on changes in the patient's distress. Thus, within the time frame of this study, supportive acts by significant others do not predict improvements in stress outcomes.

It is important to note that this overall effect does not mask significant subgroup differences. For example, support did not interact with cancer stage, extent of surgery, or physical impairment to predict outcomes. Some previous studies have found such effects. For example, there is some evidence that enacted support effectiveness varies by disease prognosis; patients with good prognoses show a beneficial effect of support, whereas those with poor prognoses show no effect of enacted support (Dunkel-Schetter, 1984). There is also some evidence that enacted support effectiveness depends on degree of physical impairment, with enacted support being psychologically detrimental to the most impaired patients (Revenson, Wollman, & Felton, 1983; Shinn, Lehmann, & Wong, 1984). In the current study, however, we find no evidence of these effects.[6]

It is possible that the reason enacted support appears to be ineffective is that the 6-month time interval of the study is too long. If the true causal lag is less than 6 months, as seems likely, then effects will be underestimated using the current study design. Thus enacted support may be effective in reducing distress and promoting physical recovery, but its effects may occur rapidly and may not be detectable after a 6-month lag. Although possible, we think this explanation is unlikely for two reasons. First, we note that mobilization and erosion effects *are* evident over a 6-month time interval and that there are no firm grounds for supposing that these processes occur more rapidly than effectiveness processes. Second, we note that support effectiveness estimates are almost precisely zero for both impairment and distress. Although an overly long causal lag will cause estimates to appear smaller than they really are, it is unlikely that they would reduce them to zero.[7] Thus, although we cannot

[6] In the case of impairment, the absence of support effectiveness can be explained if we consider that the impairment measure indexes the ability to carry out everyday tasks independently. Thus, it is possible that significant others provide direct help with everyday tasks such as lifting heavy objects, but patients still report that they cannot carry out these tasks independently. Of course, significant others can indirectly affect patients' ability to carry out everyday tasks (by providing encouragement to engage in these tasks, by promoting exercise, good nutrition, sufficient sleep), and the above explanation cannot account for the absence of these indirect effects. We thank an anonymous reviewer for suggesting this explanation.

[7] A concrete example may help illustrate this point. Let us assume that the true effectiveness of support in reducing distress is .35 standardized (i.e., beta) units and that this effect takes 1 month to fully materialize. Let us also assume that reductions in distress, once they occur, are relatively stable over time. (Data from the current study indicate that this assumption is reasonable; the 6-month stability of distress, holding initial impairment and support constant, is .55 beta units.) What effectiveness estimate would be obtained if a 6-month interval between measurements were used instead of the correct 1-month interval? If we assume that the stability of distress over 5 months is .60 (a reasonable

rule out the possibility that enacted support is effective, we think this explanation is implausible given the broader pattern of results we obtained.

Although we believe that enacted support is, on average, ineffective in this sample, we do not think that all support attempts leave patients no better off than if support had not been attempted. A considerable literature now exists showing that significant others provide various types of support in times of stress, some of which are helpful and some of which are detrimental (Coyne et al., 1988; DiMatteo & Hays, 1981; Eckenrode & Gore, 1981; Dunkel-Schetter, 1984; Rook & Pietromonaco, 1987; Suls, 1982; Thompson & Pitts, 1992; Wortman & Dunkel-Schetter, 1979). Some studies of patient samples (e.g., Dakof & Taylor, 1990; Martin et al., 1994) find that patients report receiving a greater frequency of helpful than unhelpful supportive acts—results that, on the face of it, are inconsistent with ours. However, the excess of helpful over unhelpful acts reported by patients is not sufficiently great as to ensure that a summary measure of enacted support would be effective. Given that our null findings can be interpreted as the result of some support attempts being effective and others being detrimental, we do not see them as inconsistent with the literature on patient perceptions of support.

Finally, these results highlight the potential pitfalls of using cross-sectional designs to test the effectiveness of enacted support. As noted in the introduction, almost all published studies have used these designs. In our study, we found that enacted support and distress showed a significant and negative cross-sectional relationship (see Figure 1), but this relationship appeared to be due more to the erosive effect of distress than to the beneficial effect of support. Although these results may be specific to severe life crises only, they nevertheless suggest caution in making causal interpretations of cross-sectional associations between enacted support and distress.

Limitations and Future Directions

Inferences from this study are limited in several important ways. First, by studying breast cancer patients, we have limited ourselves to studying female life crisis victims. It is not clear, therefore, whether our findings generalize to male life crisis victims. Furthermore, we have evidence that our sample does not faithfully represent the population from which it is drawn. We note, in particular, the underrepresentation of minorities.

Second, as noted earlier, our inability to obtain initial measures of support processes until 4 months after diagnosis may have led us to miss important effects. Perhaps in the days and weeks following diagnosis, distress serves to mobilize rather than erode support, and mobilized support is effective. Although there are significant practical difficulties in studying life crisis victims during the period immediately after crisis onset, such work is clearly needed. In the absence of such work, an inadequate picture of support processes may be obtained.

Finally, the use of a 6-month time lag may also have prevented us from detecting important effects. Although we argued earlier against such an interpretation, it seems important in future studies to obtain more frequent measurement of key process variables in order to be confident that important effects are not being missed. Intensive repeated-measures designs have been successfully used to study the role of social relationships in adjustment to major and minor stressors (e.g., Bolger & Eckenrode, 1991; Harlow & Cantor, 1995). These designs have the potential for much more fine-grained analyses of support processes that could be attempted in this study.

Implications

This study raises serious issues concerning the capacity of close relationships to promote adjustment to a severe life crisis such as breast cancer. The first issue concerns the lack of improvement in the mental health of patients over the 6 months of the study.[8] Given the substantial improvement in the patient's physical health over the same period, one would have expected the patient's mental health to improve also. The patient's chronically high level of distress suggests that, despite the supportive efforts of significant others, her therapeutic regime, her fears about recurrence, and her general problems coping with the disease continue to take their toll.

The second issue concerns the erosive effect of the patient's distress on the significant other's support. This effect highlights what Silver, Wortman, and Crofton (1990) note is a key dilemma facing victims of life crises: If they exhibit high levels of distress, they risk driving away significant others, yet if they do not display distress, they may not receive the support they need. This issue, however, should not be framed solely as a self-presentational problem for the crisis victim. One must also consider factors that affect the significant other's willingness to provide support in the face of the patient's chronic distress. Thus, solutions to this problem are unlikely to solely entail that the patient should moderate expressions of distress or that the significant other should become more tolerant of distress. Rather, both parties need to develop an awareness of the difficulties faced by the other (Coyne et al., 1988).

assumption given that the 6-month stability is .55), then, other things being equal, the observed effectiveness over a 6-month time interval would be the 1-month effectiveness, .35, multiplied by the stability of distress over the remaining 5 months, .60, which equals .21 units. Thus, under these assumptions, an overly long time lag would cause the observed effectiveness of support on distress to be attenuated, but it would not cause it to be reduced to zero.

[8] The lack of decline in distress could be seen as indicating that patients had already recovered emotionally from the event. However, patients' Time 1 levels of anxiety and depression are substantially greater (.50 *SD* units) than those found in a study of long-term survivors of breast cancer (those surviving more than 5 years; see Vinokur, Threatt, Caplan, & Zimmerman, 1989; ($t[227] = 3.71$, $p < .001$). This difference corresponds to a medium effect size in Cohen's terminology (see J. Cohen, 1988; Maxwell & Delaney, 1990). Note also that Vinokur et al. (1989) found that anxiety and depression in the long-term survivor group did not differ significantly from the anxiety and depression of an asymptomatic control group. Finally, mean levels of anxiety and depression for an intermediate-term survivor group from the Vinokur et al. study (less than 5 years) are almost identical to those of the current sample (Cohen's $d = .05$ *SD* units). These data, therefore, suggest that patients in the current sample have not recovered emotionally from the event.

Perhaps the most serious issue raised by this study concerns the lack of effectiveness of the significant other's support for improving the patient's physical or mental health. It is generally assumed that spouses, close family members, and close friends are the most important sources of support for persons undergoing a life crisis. Yet this study failed to find evidence that, overall, significant others provided effective help during a 6-month period of the breast cancer crisis. Perhaps the relative ineffectiveness of close relationships in the face of this event explains, in part, why people under severe stress seek additional help outside their close relationships. Researchers have documented that people suffering from a variety of medical and social crises turn to support groups for help (see Taylor, Falke, Mazel, & Hilsberg, 1988; Taylor, Falke, Shoptaw, & Lichtman, 1986). By documenting processes of support erosion and ineffectiveness in close relationships, the present study sheds light on possible reasons why crisis victims turn to these groups.

In conclusion, this study has provided new data on how close relationships are involved in women's adjustment to a major life crisis, breast cancer. These data indicate that close relationships, known to be key resources in dealing with many of life's stresses, may have limited effectiveness in helping people cope with severe crises such as breast cancer.

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