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Cognitive–Behavioral Stress Management Intervention Decreases the Prevalence of Depression and Enhances Benefit Finding Among Women Under Treatment for Early-Stage Breast Cancer


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The authors tested effects of a 10-week group cognitive–behavioral stress management intervention among 100 women newly treated for Stage 0–II breast cancer. The intervention reduced prevalence of moderate depression (which remained relatively stable in the control condition) but did not affect other measures of emotional distress. The intervention also increased participants’ reports that having breast cancer had made positive contributions to their lives, and it increased generalized optimism. Both remained significantly elevated at a 3-month follow-up of the intervention. Further analysis revealed that the intervention had its greatest impact on these 2 variables among women who were lowest in optimism at baseline. Discussion centers on the importance of examining positive responses to traumatic events—growth, appreciation of life, shift in priorities, and positive affect—as well as negative responses.

Key words: stress management, benefit finding, depression, breast cancer

Approximately 175,000 women in the United States were diagnosed with breast cancer in 1999 (American Cancer Society, 1999). Breast cancer patients confront a variety of stressors, including the diagnosis itself (Andrykowski, Cordova, Studts, & Miller, 1998; Glanz & Lerman, 1992; Stanton & Snider, 1993); intrusive medical procedures and aversive side effects of treatment (Gottschalk & Hoigard, 1986; Han, Jacobsen, Martin, Azzarello, & Greenberg, 1998; Jacobsen, Bovbjerg, & Redd, 1993; Jacobsen et al., 1995; Kaplan, 1994; Longman, Braden, & Mishel, 1996); and a variety of personal, psychological, and physical losses (Carver et al., 1998; Deadman, Dewey, Owens, Leinster, & Slade, 1989; Schag et al., 1993; Spiegel, 1996).

The impact of this experience has changed over the years for many women, however. Improvement in medical procedures and changes in the psychological climate surrounding the disease have both helped to blunt the impact of cancer and its treatment. Research in the last 10 years has found that, in the absence of prior history of psychiatric disturbance, among early-stage breast cancer patients (i.e., Stage I or Stage II, which have good prognoses), severe psychiatric symptoms are relatively rare and far less common than among patients with more advanced cancers (Anderson, Anderson, & deProsse, 1989; Bloom et al., 1987; Carver et al., 1993; Ganz, Rowland, Desmond, Meyerowitz, & Wyatt, 1998; Gordon et al., 1980; Lanksy et al., 1985; Penman et al., 1987; for reviews see Glanz & Lerman, 1992; Irvine, Brown, Crooks, Roberts, & Browne, 1991; Moyer & Salovey, 1996). The experience of early-stage breast cancer is now widely seen as a crisis in the woman’s life that has many diverse ramifications (Spencer et al., 1999) but that is weathered successfully by the majority of patients during the period of about 1 year postsurgery (Andersen et al., 1989).

Positive Consequences

Although diagnosis of and treatment for cancer are distressing and disruptive, there is an increasing awareness in both research and clinical communities that the cancer experience often has sequelae that patients view as positive or beneficial. A substantial number of patients report experiences such as improvement in personal resources and skills, an enhanced sense of purpose, enhanced spirituality, closer relationships with significant others, and changes in life priorities (e.g., Andrykowski, Brady, & Hunt, 1993; Collins, Taylor, & Skokan, 1990; Curbow, Legrow, Baker, Wingo, & Somerfield, 1993; Dow, Ferrell, Leigh, Ly, & Guleasekaram, 1996; Ferrell, Dow, Leigh, Ly, & Guleasekaram, 1995; Ferrell, Grant, Funk, Ois-Green, & Garcia, 1997; Fromm, Andrykowski, & Hunt, 1996; Kahn & Streeves, 1993; Kurtz, Wyatt, & Kurtz, 1995; Snidgrass, 1998). As paradoxical as it seems, some cancer patients say that being diagnosed with cancer has been a
positive experience in their lives (Thornton, 1999, reviewed this literature in detail).

Such findings among cancer patients join a diffuse but growing literature in other areas suggesting that traumatic events can yield positive outcomes (e.g., Affleck & Tennen, 1996; Aldwin, Sutton, & Lachman, 1996; Davis, Nolen-Hoeksema, & Larson, 1998; Ebersole & Flores, 1989; Folkman, 1997; Ickovics & Park, 1998; Lehman et al., 1993; McMillen, Smith, & Fisher, 1997; McMillen, Zuravin, & Rideout, 1995; Mohr et al., 1999; O'Leary & Ickovics, 1995; Park, Cohen, & Murch, 1996; Schaefer & Moos, 1992; Tedeschi & Calhoun, 1995, 1996; Tedeschi, Park, & Calhoun, 1998; Thompson, 1985; Updegraff & Taylor, in press). The events studied have varied widely, including bereavement, infertility, childhood sexual abuse, tornadoes, mass killings, and plane crashes. The perception of benefit does not appear to stem primarily from the passage of time since the event occurred—it sometimes occurs quite early (Burt & Katz, 1987; Fromm et al., 1996; McMillen et al., 1997). Neither does it reflect simply an absence of distress (Fromm et al., 1996; Park et al., 1996; Ryff, 1989)—indeed, there is even some suggestion that event severity can relate positively to positive sequelae, as though severe events offer the most potential for growth (McMillen et al., 1997). On the other hand, there is some evidence that finding benefit in trauma may reduce later distress (McMillen et al., 1997). It seems to permit resolution of the experience, allowing the person to move onward with life (cf. Carver & Scheier, 1998; Folkman, 1997; Janoff-Bulman, 1992; Scheier & Carver, in press; Taylor, 1983).

Tedeschi and Calhoun (1995; Calhoun & Tedeschi, 1998, 1999), who have studied the experience of growth after trauma in some detail, suggest that clinical intervention can help foster such growth—that is, in their view, an intervention can take advantage of the trauma-induced disruption in the person's life to foster a new organization of the self that is better than the pre-existing one. This possibility is intriguing, but we are unaware of any research that has addressed it empirically. Doing so was one purpose of the study reported here.

Most current interventions with cancer patients (Andersen, 1992; Trijsburg, van Knippenberg, & Rijpma, 1992) use a combination of cognitive-behavioral stress management (CBSM) techniques. Of the studies reviewed by Trijsburg et al. (1992), almost all had reduction of stress and distress as the primary goal. Other goals included increasing effective coping strategies (11 of 22 studies); expression of concerns and feelings (10); preserving social support (9); debunking myths about the illness (8); promoting hope, positive self-image, and adequate sexual relations (5); and encouraging relaxation (5).

In the study reported here we examined the influence of a CBSM intervention with the goals just outlined, in a sample of early-stage breast cancer patients. The intervention was designed to teach behavioral and cognitive strategies in a supportive group setting and to give women the opportunity to role play the strategies. The intervention had not been designed specifically to enhance benefit finding; however, it appeared to us that it might well yield such an effect as well as ameliorate negative reactions. For that reason we included a measure of benefit finding in the study as well as measures of emotional upset. The women were recruited into the project shortly after surgery and were randomized to either the psychosocial intervention or to a more limited control experience. We followed patients throughout the first year after their cancer diagnosis and treatment.

We assessed the impact of the intervention on several outcomes: distress (mood disturbance, depressive symptoms, and thought intrusion and avoidance), perceptions of benefit from having breast cancer, and generalized optimism about the future. We also included a measure of emotional processing, to test whether enhanced emotional processing is a mechanism for the intervention's benefits. Finally, we examined a potential moderating role for dispositional optimism. We predicted that women initially lower in optimism, being in the greatest need, would benefit most from the intervention. We note, however, that an alternative hypothesis might be posed: that women high in optimism, being most open to the possibility of gain, would benefit most from the intervention.

Method

Participants

Participants were early-stage breast cancer patients recruited from several hospitals and medical practices in the Miami, Florida, area. In most cases, they responded to a letter from their physicians soliciting their participation. Others were recruited through flyers placed in offices and distributed by the American Cancer Society. In all cases the study was described as a project on the effects of stress management training on the experiences of women undergoing treatment for breast cancer. Interested women called the project's phone number and spoke with a (female) researcher who screened them for eligibility. Information regarding staging and date of surgery was obtained in this phone screen. Of the women contacted by letter, approximately 80% called for more information; of those who called, 98.6% of those who met inclusion criteria participated in the first assessment. Criteria for inclusion were (a) breast cancer diagnosed at Stage II or below and (b) surgery within the last 8 weeks. Potential participants were excluded if they reported a prior cancer (7), prior psychiatric treatment for serious disorder (hospitalization or formal diagnosis of psychosis, major depressive episode, panic attacks, suicidality, or substance dependence—5), major concurrent disease (4), or lack of fluency in English (1).

The effects of the intervention were studied over an extended period of time. The sample discussed here consists of the 100 women who completed initial assessments, postintervention assessments, a 3-month postintervention follow-up, and a 9-month postintervention follow-up. A total of 136 women completed the initial assessment. Attrition was as follows: Eleven dropped out by the postintervention assessment (8.1%); 9 more (6.6% of the starting sample) failed to complete the 3-month follow-up; and 16 more (11.8% of the starting sample) failed to complete the final 9-month follow-up. Attrition did not differ by any of these variables.

Comparisons between women who did and did not leave the study yielded no difference in regard to stage, number of positive nodes, surgical procedure, age, ethnicity, marital status, or presence versus absence of chemotherapy or radiation (all ps > .2, except ethnicity, which had ps > .08). Those who left before posttreatment did not differ from those who stayed on any initial variable (optimism, distress, depression, avoidance, intrusion, or positive contributions; all ps > .3). Those who left between posttreatment and 3-month follow-up did not differ on any posttreatment variable from those who stayed (all ps except one > .3: Center for Epidemiologic Studies—Depression scale [CES–D; Radloff, 1977] p = .09, tending to be higher among those who did not continue). Those who completed the 9-month follow-up did not differ from those who dropped out on any of the variables described above at baseline or on any index of distress or the measure of positive contributions at posttreatment or the 3-month follow-up (all ps > .5).

Diagnoses of the 100 women who completed all assessments were Stage 0 (n = 80), Stage I (n = 48), or Stage II (n = 41). Nodal involvement
ranged from 0 to 24 (M = 1.34, SD = 4.34). Forty-eight of the women had lumpectomies, 40 had mastectomies, 11 had bilateral mastectomies, and 1 had a bilateral lumpectomy; 42 of the women were subsequently treated with chemotherapy, 47 were treated with radiation (19 of these received both chemotherapy and radiation), and 47 received tamoxifen. The mean age was 50.23 years (SD = 9.15, range = 29–79). Participants included 74 non-Hispanic Whites, 16 Hispanics, 6 Blacks, and 4 self-identified as “other.” Seventy-five of the women were married or in an equivalent relationship, 13 were divorced or separated, 3 were widowed, and 9 were single. Forty-one responded affirmatively to the question “To the best of your knowledge, do you have a family history of breast cancer?” The average amount of education was 15.21 years (SD = 2.20). Eighty-two women were currently employed, and 18 were not currently working outside the home.

Procedure

Participants completed an initial assessment by mail 4–8 weeks after their surgery date. After this, participants were randomly assigned to the intervention or control condition. The intervention took place over a 10-week period following the initial assessment. Women assigned to the intervention (n = 47) participated in a CBBSM intervention (described below) beginning 6–8 weeks after surgery. The women were reassessed shortly after the conclusion of the intervention (which was 3 months after the initial assessment), again after a 3-month follow-up, and again after a 9-month follow-up (which was a total of 14 months after surgery). Women assigned to the control condition (n = 53) were invited to participate in a 1-day seminar approximately 16–18 weeks post-surgery, a time that was after completion of the second assessment (which, as in the case of the intervention group, was 3 months after the initial assessment). Similar to the intervention group, women in the control group were then assessed again after a 3-month follow-up, and again after a 9-month follow-up.

Participants in both conditions met in groups of up to 8 in a large room within the Psychological Services center at the University of Miami campus or in a similar room on the University of Miami medical campus. Each room was equipped with flat coaches used exclusively for progressive muscle relaxation (PMR) exercises. Both the intervention and the 1-day seminar were co-led by postdoctoral fellows and advanced graduate students in clinical psychology who had been trained in the intervention and seminar protocols. All were female, and each rotated between intervention and control cohorts.

Assessments were handled by graduate students who were not conducting the intervention with that cohort. Although the timing of the assessments was tied to the time of surgery rather than to other medical events, such as adjunct therapy, each assessment included measures of such medical events.

Intervention. The intervention was a closed, structured group intervention (Antoni, in press), which met weekly for ten 2-hour sessions (cf. Antoni et al., 1991; Lutgendorf et al., 1997) and used CBBSM techniques interwoven with didactics. It included in-session didactic material and experiential exercises and out-of-session assignments (practicing relaxation exercises and monitoring stress responses). The intervention focused on learning to cope better with daily stressors of cancer- and treatment-related problems and issues and optimizing one’s use of social resources. The intervention used group members and group leaders as role models (for positive social comparisons and social support); encouraged emotional expression; replaced doubt appraisals with a sense of confidence by means of cognitive restructuring (Beck & Emery, 1985); and honed skills in anxiety reduction (by PMR and relaxing imagery, Bernstein & Borkovec, 1973), interpersonal conflict resolution, and emotional expression (by means of assertive training; Fensterheim & Baer, 1975). The CBBSM package thus included both problem-focused (e.g., active coping and planning) and emotion-focused (e.g., relaxation training, use of emotional support) coping strategies.

Attendance at the 10 group meetings averaged 8.65 (SD = 1.44, Mdn = 9, range: 5–10). Reports were also collected on the incidence of relaxation practice outside group meetings (although this request received only partial compliance). Of the 39 women who reported on this variable for 6 or more weeks, the average rate of weekly practice reported was 6.03 (SD = 3.24).

Control-group seminar. Rather than using a no-treatment control group, we used a procedure in which participants received a condensed version of the information provided in the full-scale intervention. Women in this condition attended a day-long seminar (5–6 hr) during which they received information about the nature and effects of stress reactions; an outline of the cognitive appraisal process and how it relates to stress and emotional states; practice on various relaxation training exercises; and exercises for changing self-defeating cognitive appraisals, reducing tension, and acquiring adaptive coping strategies.

This session was designed to provide at least some information on all topics covered in the CBBSM condition. However, it lacked the therapeutic group environment and accompanying emotional support; the opportunity to hear about other group members’ weekly frustrations and triumphs in dealing with their situation; the opportunity to role play the techniques and receive group feedback; and the opportunity to observe other group members model new appraisals, relaxation techniques, and coping strategies. Obviously, the presentation of all materials was also much more condensed than in the intervention groups.

This type of control has at least two benefits compared to no-treatment control or wait-list control groups. Providing participants with information relevant to adjustment to the breast cancer experience diminishes differential attrition in the control condition—a major pitfall of no-treatment control designs. Second, the fact that participants in the 1-day seminar received information related to successful adjustment created a stronger test of the intervention’s impact in the follow-up period. The primary drawback of this control procedure is that it provided a dose of most of the ingredients of the full-scale intervention, thus working against our predictions in the follow-ups (i.e., after the 1-day seminar had been attended).

Of the 53 participants in the control condition, 40 attended the 1-day seminar; the remaining 13 did not attend the seminar. This permitted the possibility of at least a superficial examination of effects of the seminar compared to no treatment, through a comparison of the two subsets of the control group to one another.

Measures

The assessments completed at each time point contained a large number of psychosocial measures, not all of which are directly relevant to the portion of the project under discussion in this article. The pertinent measures are discussed next.

Mood disturbance. We measured general mood disturbance with the Profile of Mood States (POMS; McNair, Lorr, & Droppelman, 1981), which is designed to assess mood states on several dimensions. Items are self-descriptive adjectives; respondents indicate the extent to which they have felt the emotional quality the item portrays during the last week. Responses are made on a 5-point scale that ranges from never to always. The POMS is widely used in adjustment research and was used in the vast majority of studies of interventions in breast cancer patients reviewed by Trjšburg et al. (1992).

Because the full POMS is long, and researchers are concerned about participant response burden, several abbreviated versions of the POMS have been devised (e.g., Carver et al., 1993; Cella et al., 1987; Curran, Andrykowski, & Studts, 1995; Guadagnoli & Mor, 1989; Shacham, 1983). We used the item set from Carver et al. (1993). The scales examined in this study were Anxiety (tense, nervous, anxious), Depression (helpless, unhappy, worthless, hopeless), and Anger (angry, resentful, grouchy). Because these variables were strongly correlated in this sample, we used a composite distress score that averaged the Anxiety, Depression, and Anger
subscale scores (as did Carver et al., 1993). The average alpha (i.e., across the four assessments) for the 10 items of this combined scale was .86.

**Depression.** We also included a measure of depressive symptoms: the CES-D (Radloff, 1977), a 20-item scale developed for the Center for Epidemiologic Studies (for validity data see Myers & Weissman, 1980; Schulberg et al., 1985). The CES-D, which is widely used in research, measures a range of cognitive, affective, motivational, and somatic symptoms (framed as first-person sentences). Response options range from rarely (0) to most of the time (3). The mean alpha in this sample across administrations was .89. Although the CES-D is often used as a continuous measure, cutoffs have been established for clinically significant levels of symptoms. A score of 16 is viewed as a moderately severe level of depressive symptoms (Myers & Weissman, 1980; Radloff, 1977; Schulberg et al., 1985). Because presence versus absence of clinical levels of depressive symptoms (as well as absolute levels of symptoms) is an important outcome, a depression-symptom index (CES-D > 16 and above) was also examined in this sample.

**Thought intrusion and avoidance.** The Impact of Events Scale (IES; Horowitz, Wilner, & Alvarez, 1979) is a 15-item self-report measure that assesses experiences of thought intrusion and avoidance that are commonly associated with distress about life situations. A factor analysis of the IES yielded two scales: Avoidance and Intrusion. The Intrusion scale measures the extent to which one experiences unwanted thoughts and images related to a particular life stressor. An example item is "I had trouble falling asleep or staying awake because pictures or thoughts about it came into my mind." Alpha for this subscale in the present study averaged .85. The Avoidance subscale assesses the extent to which respondents consciously take action to distract themselves in order to avoid thinking about a situation. An example item is "I tried not to think about it; I stayed away from reminders of it." Alpha for the avoidance scale averaged .79. In this study the IES was key to the experience of diagnosis of and treatment for breast cancer.

Concurrent associations among the distress measures varied from moderate to relatively strong. The correlation between the POMS and the CES-D averaged (across four assessments) .66, that between the CES-D and IES-Avoidance averaged .45, that between the CES-D and IES-Intrusion averaged .56, that between the POMS and IES-Avoidance averaged .36, and that between the POMS and IES-Intrusion averaged .48.

**Optimism.** Optimism was assessed with the Life Orientation Test—Revised (LOT—R; Scheier, Carver, & Bridges, 1994). The LOT-R consists of six coded items plus fillers. Three of the coded items are phrased positively (e.g., "In uncertain times I expect the best"), and three are phrased negatively (e.g., "If something can go wrong for me, it will"). Each item was answered on a scale that ranged from 1 (I agree a lot) to 4 (I disagree a lot). An extensive body of research in diverse settings documents that the LOT is a sound and reliable predictor of behavioral and psychological outcomes (Scheier & Carver, 1992). We measured optimism at each assessment point. Internal reliability across the four measurements averaged .80. Test-retest reliability from the initial point to postseasonal treatment was .76, that from posttreatment to 3-month follow-up was .81, and that from 3-month to 9-month follow-up was .81. The correlation between the initial measurement and the 9-month follow-up measurement was .70.

Optimism as a variable was treated in two ways in this study, on the basis of two lines of reasoning. Given that optimism is conceptualized as a personality variable, the hypothesis that would most typically be posed is that the disposition to be optimistic versus pessimistic might have a moderating influence on who benefits most from the intervention. For example, perhaps individuals who are relatively low in initial optimism would benefit most from the intervention. Another possibility we examined is that the intervention might have an impact on participants' levels of optimism. This possibility treats optimism as a dependent variable.

Optimism in this sample was inversely related to the distress measures, as is typically the case. The correlation of LOT—R scores with concurrent POMS scores averaged --.48, with CES-D scores averaged --.54, with IES-Avoidance scores averaged --.27, and with IES-Intrusion scores averaged .34.

**Benefit finding.** Assessment in this study also included a measure of perceived benefits arising from the experience of diagnosis and treatment of breast cancer. This measure derives from several sources, including an item set by Behr, Murphy, and Summers (1992) to assess perceptions of benefit finding among parents of children with special needs. Several of those items were rephrased on breast cancer, and additional items were written. We administered the resulting items to a sample of early-stage breast cancer patients not involved in the present study (Boyers, Carver, & Antoni, 2000). Doing so permitted us to condense the item set by removing items endorsed infrequently and items that seemed redundant with others in the set.

The measure as used here has 17 items (see Appendix). The stem for each is "Having had breast cancer has ...", and the item expresses some potential benefit that might be derived from the experience. Responses were made on a scale with labels of "not at all" (1), "a little" (2), "moderately" (3), "quite a bit" (4), and "extremely" (5). As can be seen in the Appendix, the items assess benefits in a variety of domains, including acceptance of life's imperfections, becoming more cognizant of the role of other people in one's life, and developing a sense of purpose in one's life. A factor analysis of responses from the initial assessment suggests the measure is appropriately used as a unitary scale—that is, four factors had eigenvalues greater than 1, but the eigenvalue of the first factor was 7.73, whereas those of the second through fourth factors ranged from 1.00 to 1.56. Furthermore, all items loaded at or above .50 on the unrotated first factor, and only 1 item loaded more strongly on a factor other than that unrotated first factor. The internal reliability of the item set in this study averaged (across the four assessments) .95.

Evidence regarding convergent and discriminant validity for this measure includes the following: In Boyers et al.'s (2000) sample it related positively (although not overwhelmingly) to optimism (r = .23), and inversely (but again not overwhelmingly) to a POMS-derived index of distress (r = −.25) and to the CES-D (r = −.20). It was not related (rs from -.03 to .06) to the factors of the Profile of Concerns about Breast Cancer described by Spencer et al. (1999). In a later sample of 35 breast cancer patients, it correlated .37 with an index of positive emotions from the Affect Balance Scale (Derogatis, 1975). Perceptions of benefits were relatively stable overall across the study period. Scores at the first assessment correlated .75 with postintervention scores, which correlated .91 with 3-month follow-up scores. Scores at the 3-month follow-up correlated .87 with scores at the 9-month follow-up. Perceptions of benefits were almost completely unrelated to distress levels here. Concurrent correlations of benefit finding with the POMS composite averaged --.10, those with the CES-D averaged --.06, those with IES—Avoidance averaged --.01, and those with IES-Intrusion averaged --.01.

Neither was dispositional optimism strongly related to concurrent perceptions of benefits, although the relation strengthened over time. The correlation across the first two assessments averaged .10; in the final two assessments the correlations were .22 and .24 (ps < .02).

**Emotional processing.** Also included was an item set developed to assess the occurrence of emotional processing (Stanton, Kirk, Cameron, & Danoff-Burg, 2000). The items were used here in a situational format. Two sets of six items each were included, one on examination of emotions (e.g., "I've been taking time to figure out what I'm really feeling," "I've been exploring my emotions"); the other on expression of emotions (e.g., "I've been expressing the feelings I am having," "I've been taking time to express my emotions"). Responses were made on a scale with the labels "I haven't been doing this at all" (1), "I've been doing this a little bit" (2), "I've been doing this a medium amount" (3), and "I've been doing this a lot" (4). Stanton et al. (2000) found that these scales correlate in conceptually sensible ways with a variety of other measures of emotion-related thinking and behavior.
Table 1
Distress Levels: Mean Scores on the Distress CES-D, IES-Intrusion, and IES-Avoidance, at the Initial Assessment, Posttreatment, and 3- and 9-Month Follow-Ups Effects

<table>
<thead>
<tr>
<th>Measure</th>
<th>Initial M</th>
<th>Initial SD</th>
<th>Posttreatment M</th>
<th>Posttreatment SD</th>
<th>3 Months M</th>
<th>3 Months SD</th>
<th>9 Months M</th>
<th>9 Months SD</th>
<th>F(3, 294)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distress</td>
<td>1.86</td>
<td>0.54</td>
<td>1.76</td>
<td>0.57</td>
<td>1.72</td>
<td>0.61</td>
<td>1.77</td>
<td>0.64</td>
<td>2.33*</td>
</tr>
<tr>
<td>CES-D</td>
<td>11.83</td>
<td>9.01</td>
<td>10.02</td>
<td>9.25</td>
<td>9.31</td>
<td>8.81</td>
<td>8.51</td>
<td>8.96</td>
<td>6.76**</td>
</tr>
<tr>
<td>IES-Intrusion</td>
<td>15.99</td>
<td>5.09</td>
<td>14.14</td>
<td>5.03</td>
<td>13.45</td>
<td>4.96</td>
<td>13.16</td>
<td>5.12</td>
<td>23.17***</td>
</tr>
<tr>
<td>IES-Avoidance</td>
<td>15.56</td>
<td>4.95</td>
<td>14.17</td>
<td>4.88</td>
<td>13.81</td>
<td>4.84</td>
<td>14.03</td>
<td>5.10</td>
<td>6.35**</td>
</tr>
</tbody>
</table>

Note. N = 100. Within rows, means with a common subscript do not differ significantly from each other.

* CES-D = Center for Epidemiologic Studies-Depression Scale; IES = Impact of Events Scale.
1 p < .10 (marginally significant). * p < .01.

We included these scales here in hopes of gaining access to one aspect of the processes we expected to be induced by the intervention. They thus served as a check on an aspect of the process impact of the intervention. Although the items sets were conceptualized by Stanson et al. (2000) as distinct qualities, in our sample they were highly correlated (average r over four administrations = .72). For this reason, we standardized the two scale scores and averaged them to create an index of emotional processing.

Results
Control Variables and Preliminary Analyses

To assess the need to incorporate control variables into the main analyses, we conducted several preliminary analyses. We compared the intervention and control groups with each other on all available demographic and medical variables. The groups differed significantly on only one such variable: Women in the control condition were older (M = 52.09, SD = 8.97) than those in the intervention condition (M = 48.13, SD = 8.97), F(1, 98) = 4.87, p < .03, η² = .05. Thus, age was controlled for in all subsequent analyses that involved the intervention as a predictor variable (age was also verified as not interacting with predictors for any outcome).

Before turning to the main analyses, we also tested the intervention group for cohort differences on all dependent measures. Failing to find any significant difference among the groups, we proceeded to the main analyses.

Distress

The study had a 2 (intervention vs. control) × 4 (initial, posttreatment, 3-month follow-up, 9-month follow-up repeated measurement) split-plot design. Participants completed several measures of distress: the POMS, the CES-D, and the IES Avoidance and Intrusion scales. Participants in the two conditions did not differ initially on any of them. All but POMS distress declined significantly over the study (see Table 1). CES-D scores fell from the initial measure to posttreatment, F(1, 98) = 5.25, p < .03, η² = .05, but did not change significantly afterward. IES Avoidance and Intrusion both showed a similar pattern, falling from initial measure to posttreatment, F(1, 99) = 10.11, p < .01, η² = .09, and F(1, 99) = 24.33, p < .001, η² = .20, respectively, but not afterward. In contrast to the main effects, interactions between group and repeated measurement were nonsignificant. Neither did the covariate (age) account for significant variance in any of these analyses.

We also examined the CES-D categorically, to assess prevalence of clinically meaningful levels of depressive symptoms. The commonly used cutoff for moderate levels of such symptoms on the CES-D is a score of 16 (Myers & Weissman, 1980; Radloff, 1977; Schulberg et al., 1985). At the initial assessment, approximately one third of the sample had CES-D scores that met or exceeded that value (see Table 2), with the proportion not differing between conditions. In the intervention condition the proportion of women meeting this criterion did not change significantly overall, Cochran’s Q(3) = 2.67, p = .45 (neither did the drop from initial to posttreatment attain significance by itself, p = .21). In the intervention condition the proportion of the sample meeting this criterion fell significantly overall, Cochran’s Q(3) = 13.60, p < .004. Separate comparisons indicated that the proportion of women in the intervention condition with moderate depressive symptoms was lower at each follow-up than at baseline, Qs(1) = 7.14, 4.57, and 6.25, respectively (p < .04). Despite these patterns within groups, in a mixed-effect ordinal regression analysis (cf. Schwartz & Stone, 1998) conducted using the program MIXOR (Hedeker & Gibbons, 1996), condition did not interact significantly with time; the analysis yielded only main effects of condition and time (p < .04).

We then tested the hypothesis that participants who began with less optimism might be more affected by the intervention than those who began with greater optimism. We did this by dividing the sample at the median on initial optimism and reanalyzing the data as before, with the incorporation of this additional between-
Table 2
Number of Women Who Met the Criterion for Moderate Depressive Symptoms (CES-D Score of 16 or Higher) in Control and Intervention Conditions, at Initial, Posttreatment, and 3- and 9-Month Follow-Up Assessments

<table>
<thead>
<tr>
<th>Condition</th>
<th>Initial</th>
<th>Posttreatment</th>
<th>3 Months</th>
<th>9 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control(^a)</td>
<td>15</td>
<td>11</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Intervention(^b)</td>
<td>16</td>
<td>6</td>
<td>8</td>
<td>6</td>
</tr>
</tbody>
</table>

\(^a\) n = 53. \(^b\) n = 46.

subjects variable. With respect to the POMS, continuous CES-D, and IES, no evidence of moderation emerged.

With respect to categorical prevalence of moderate depressive symptoms, MIXOR analysis revealed significant effects of condition (Z = 2.83, p < .005), an Optimism × Condition interaction (Z = 2.11, p < .04), and a Condition × Time interaction (Z = 2.13, p < .04). This last effect (which had not reached significance in the analysis just described) confirmed that the experimental treatment reduced the prevalence of moderate depressive symptoms. The three-variable interaction did not reach significance (p > .15), but the tendency was for the intervention to influence outcomes primarily among the less optimistic women. This was largely because the less optimistic women were far more likely to be above the depression criterion at baseline (26 of 51) than were the more optimistic women (5 of 48), \(\chi^2(1, N = 99) = 18.92, p < .0001\); there thus was less chance of improving the situation among the more optimistic women.

Benefit Finding

Reports of benefits from having had breast cancer did not differ between groups at the first assessment, but the groups subsequently diverged (see Table 3). A repeated measurement main effect emerged, F(3, 294) = 7.72, p < .001, \(\eta^2 = .07\), along with a significant interaction between condition and repeated measurement, F(3, 294) = 5.53, p < .002, \(\eta^2 = .05\) (the covariate effect was not significant). We explored the form of this interaction by conducting repeated measures analyses within each condition, using the error term from the overall analysis. Reports of benefits in the intervention condition differed significantly across measurements, F(3, 138) = 12.36, p < .001, \(\eta^2 = .21\), whereas reports of benefits in the control condition did not (F < 1). In the intervention condition, reports of benefit increased between the initial and postintervention assessments, F(1, 46) = 31.79, p < .001, \(\eta^2 = .41\); they remained significantly higher than initial reports at the 3-month follow-up, F(1, 46) = 21.11, p < .001, \(\eta^2 = .31\), and at the 9-month follow-up, F(1, 46) = 18.26, p < .001, \(\eta^2 = .28\). Intervention participants had higher benefit scores than controls at the posttreatment assessment, F(1, 99) = 4.69, p < .04, \(\eta^2 = .05\), and marginally higher scores at the 3-month follow-up, F(1, 99) = 3.28, p = .07, \(\eta^2 = .03\), but the difference had faded by the 9-month follow-up (F = 1.58, ns).

These data were also examined for moderation by initial optimism, by dividing participants at the optimism median and repeating the analysis as a 2 × 2 × 4 design. This analysis yielded a repeat of the two effects described above: a main effect of repeated measures and an interaction between condition and repeated measures: F(3, 288) = 6.71, p < .01, \(\eta^2 = .07\), and F(3, 288) = 4.71, p < .01, \(\eta^2 = .05\), respectively. It also yielded an interaction among condition, repeated measures, and level of optimism, F(3, 288) = 3.87, p < .01, \(\eta^2 = .04\). This interaction, displayed in Figure 1, suggests that the less optimistic women responded especially strongly to the intervention (left panel). Their initial reports of benefit were lower than those of the more optimistic women (right panel), but their postintervention responses went up significantly, equaling those of the more optimistic women. Moreover, their reports at the 3-month follow-up and the 9-month follow-up remained as high as immediately posttreatment.

A follow-up analysis among only women who were low in optimism revealed significant effects of repeated measures and an interaction between repeated measures and condition, F(3, 147) = 6.81, p < .001, \(\eta^2 = .12\), and F(3, 147) = 5.24, p < .002, \(\eta^2 = .10\), respectively. A similar analysis of women who were higher in optimism also yielded a significant interaction between condition and repeated measurement, F(3, 141) = 3.15, p < .03, \(\eta^2 = .06\). As can be seen in the right panel of Figure 1, however, the form of this interaction differed from that among the less optimistic women. Women higher in optimism responded to the

Table 3
Scores on Benefit Finding, Optimism, and the Z-Score Index of Emotional Processing, at Initial Assessment, Posttreatment, and 3- and 9-Month Follow-Up, for the 47 Intervention Participants and 53 Control Participants

<table>
<thead>
<tr>
<th>Measure and group</th>
<th>Initial</th>
<th>Posttreatment</th>
<th>3 Months</th>
<th>9 Months</th>
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<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Benefit finding</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>0.82</td>
<td>3.59(_b)</td>
<td>0.83</td>
</tr>
<tr>
<td>Control</td>
<td>3.13(_b)</td>
<td>0.96</td>
<td>3.18(_b)</td>
<td>1.04</td>
</tr>
<tr>
<td>Optimism</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention</td>
<td>19.51(_a)</td>
<td>3.61</td>
<td>19.81(_b)</td>
<td>3.65</td>
</tr>
<tr>
<td>Control</td>
<td>20.53(_b)</td>
<td>3.11</td>
<td>19.72(_b)</td>
<td>3.89</td>
</tr>
<tr>
<td>Emotional processing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention</td>
<td>-0.08(_a)</td>
<td>0.89</td>
<td>0.22(_a)</td>
<td>0.85</td>
</tr>
<tr>
<td>Control</td>
<td>0.00(_b)</td>
<td>0.99</td>
<td>-0.11(_b)</td>
<td>1.02</td>
</tr>
</tbody>
</table>

Note. Within rows, means with a common subscript do not differ significantly from each other.
intervention with a significant increase in benefit finding, $F(1, 18) = 4.83, p < .05, \eta^2 = .21$, but the effect did not last over the subsequent follow-up period among these women.\footnote{Other measures in the data set might have provided information on processes by which the intervention had an influence, but they were not very informative. A measure of using friends for emotional support showed only a nonsignificant tendency toward an intervention effect. In the intervention subset of the data, neither rate of attendance at group sessions nor reports of frequency of practicing relaxation between sessions related to benefit finding at any time point.}

**Optimism as an Outcome Variable**

We also tested whether optimism levels might themselves be influenced by the intervention; that is, perhaps the intervention had the potency to make participants more optimistic about their future. To that end, optimism had been reassessed at each measurement point. The experimental conditions did not differ at the initial assessment. There was an overall shift upward across assessments, reflected in a main effect of repeated measurement, $F(3, 294) = 3.95, p < .01, \eta^2 = .04$. Participants in the two conditions also tended to shift somewhat in opposite directions over assessments, reflected in a significant interaction between condition and repeated measure, $F(3, 294) = 5.19, p < .002, \eta^2 = .05$ (see Table 3). The increase in the intervention condition across time was significant, $F(3, 138) = 6.96, p < .001$, and the elevations at both follow-ups differed significantly from baseline, $F(1, 46) = 8.64$ and 10.91, $p < .01$. Change in the control condition across time did not approach significance ($F < 2$). Given the ordering of starting values, the conditions did not differ significantly from each other at any assessment.

We also examined this variable with respect to the role of initial optimism. An analysis incorporating that variable (thus having a $2 \times 2 \times 4$ design) yielded main effects of initial optimism and repeated measurement; an interaction between condition and repeated measurement, $F(3, 288) = 3.70, p < .02, \eta^2 = .04$; and an interaction between optimism and repeated measurement, $F(3, 288) = 4.19, p < .01, \eta^2 = .04$. As shown in Figure 2, the latter three effects are attributable primarily to the impact of the intervention among the women who were less optimistic at the start of the study (left panel), although the three-way interaction failed to attain significance ($p < .2$). The intervention tended to raise optimism in both subgroups, but the interaction between repeated measures and condition was significant only among the less optimistic women, $F(3, 147) = 5.13, p < .01, \eta^2 = .09$ ($F < 1$ among the more optimistic women).

**Emotional Processing**

A final variable examined was participants’ reports of examining and expressing emotions. This measure serves as a check on one aspect of the intervention’s impact.\footnote{Scores on emotional processing were relatively high overall. Raw scores at posttreatment (expressed as an item mean response) were 2.19 in the intervention condition and 2.64 in the control condition (on a scale of 1–4), suggesting the possibility of a ceiling effect.} The experimental conditions did not differ in levels of emotional processing initially (see Table 3). Repeated measures analysis across the full design of the study yielded an interaction that approached but did not attain significance, $F(3, 294) = 2.07, p = .10, \eta^2 = .02$. Because the intervention’s impact on emotional processing would have been most noticeable immediately after the intervention, we also examined the data with an analysis limited to the first two measurement points. This analysis yielded a Condition $\times$ Repeated Measures interaction, $F(1, 98) = 6.40, p < .02, \eta^2 = .06$, such that processing in the intervention condition went up from initial assessment to posttreatment, whereas processing in the control condition went down.

Figure 1. Benefit finding among early-stage breast cancer patients in the intervention and control conditions, among participants who were relatively low in initial optimism (left panel) and relatively high in initial optimism (right panel). Benefit finding was reported at the initial, posttreatment (Post), 3-month (mo) follow-up, and 9-month follow-up assessments. Group Ns are in parentheses.

Figure 2. Optimism among early-stage breast cancer patients in the intervention and control conditions, among participants who were relatively low in initial optimism (left panel) and relatively high in initial optimism (right panel). Optimism was reported at the initial, posttreatment (Post), 3-month (mo) follow-up, and 9-month follow-up assessments. Group Ns are in parentheses.
tended to decrease. The possible role of initial optimism as a moderator was also examined, but no evidence of such a role emerged.

Did participants’ levels of emotional processing have any relation to their experience of benefit finding or optimism? There were significant concurrent associations overall between emotional processing and benefits: at the initial assessment, \( r(98) = .23, p < .03 \); at the posttreatment assessment, \( r(98) = .25, p < .02 \); at the 3-month follow-up, \( r(98) = .37, p < .001 \); and at the 9-month follow-up, \( r(98) = .32, p < .002 \). There was also an overall association between increases in emotional processing from baseline to 3 months and increase in benefits reported during that same period, \( r(98) = .22, p < .03 \). On the other hand, there was no evidence of an influence from one variable to the other—that is, we conducted regressions using emotional processing at one time point to predict benefit finding at the next point, controlling for earlier benefit finding. In these tests emotional processing did not prospectively predict benefits. Neither, in tests of the opposite causal flow, did benefits prospectively predict emotional processing. Thus, the strongest statement we can make about emotional processing is that elevations in this experience accompanied elevations in benefit finding during the period of the intervention.

In contrast to the links between emotional processing and benefit finding, relations between emotional processing and optimism (and between changes in these variables) were uniformly low and nonsignificant. This suggests that changes in benefit finding and changes in optimism had different “process” bases. Relations between emotional processing and distress (and between changes in those variables) were also uniformly low.

**Benefit Finding and Optimism**

It is of interest that optimism and reports of benefit finding were rather distinct from one another in this sample. As noted in the description of the instruments in the Method section, concurrent relations between these measures were not significant initially or at posttreatment, and the relations were modest (albeit significant) at the 3- and 9-month follow-ups, \( r(98) = .24 \) and \( .22, p < .03 \). On the other hand, changes in these two outcomes across time did track each other moderately well, especially after the first block of time; that is, changes in optimism and positive contributions from baseline to the posttreatment point correlated \(.22 (p < .04)\); but changes from baseline to 3-month follow-up correlated \(.36 (p < .001)\), and changes from baseline to 9-month follow-up correlated \(.39 (p < .001)\); a pattern that replicates data reported by Davis et al., 1998. This pattern was most pronounced in the intervention condition, in which changes from baseline of optimism and benefit finding correlated \(.46 at the 3-month follow-up and \(.58 at the 9-month follow-up (corresponding correlations in the control condition were \(.08 and \(.04; the difference was significant at 9 months, Z = 2.32, p < .05, but not at 3 months, Z = 1.69).**

**Possible Effects of the 1-Day Seminar**

As noted in the Method section, about one fourth of the control participants did not attend the 1-day seminar that had been made available to them. This permitted comparisons between women who experienced the 1-day seminar and those who received no treatment at all from the project. The first question is whether the subsets differed from each other at baseline, by self-selection. Analyses revealed no initial difference in optimism \( (p > .32) \) or benefit finding \( (p > .52) \). However, the subsets did differ initially on all indexes of distress: POMS, \( F(1, 51) = 5.30, p < .03 \); CES-D, \( F(1, 51) = 4.27, p < .05 \); IES-Avoidance, \( F(1, 51) = 4.24, p < .05 \); IES-Intrusion, \( F(1, 51) = 6.14, p < .02 \). Those who did not attend the session had higher initial distress than those who did attend. By the second assessment, however (which came before the 1-day seminar), all of these differences in distress had disappeared \( (p > .28) \).

The next question is whether the subsets had different trajectories over repeated measurements. Attendance versus nonattendance did not predict change in optimism \( (interaction p > .42) \) or benefit finding \( (interaction p > .84) \). Nor did interactions emerge for the POMS \( (p > .65) \) or CES-D \( (p > .67) \). However, significant interactions occurred on IES-Avoidance, \( F(3, 153) = 3.39, p < .03 \); and IES-Intrusion, \( F(3, 153) = 3.51, p < .02 \). The form of the interactions was that the initial elevations among women who did not attend the 1-day seminar fell off at posttreatment and 3-month follow-up assessments to levels that were indistinguishable from those of the other control women. However, intrusion and avoidance both rose at the final follow-up among the women who had not completed the 1-day seminar, to levels that were marginally higher than those of the other control women (both \( p < .07 \)). This suggests the possibility of a delayed adverse reaction among women who received neither treatment, although the effect must be interpreted with caution because of the small Ns involved.

**Discussion**

In this study we tested the impact of a CBSDS group intervention on the experiences of women who had recently been diagnosed with, and treated surgically for, early-stage breast cancer. The women were first assessed within 2 months of their surgery. The intervention took place over a 10-week period following the initial assessment. The women were reassessed shortly after the conclusion of the intervention (which was 3 months after the initial assessment), again after a 3-month follow-up, and again after a 9-month follow-up (which was a total of 14 months after surgery).

The study has limitations that should be noted. The sample was a group of women who were relatively educated, affluent, and motivated to participate. Ethnic minorities were not as well represented in the sample as one might wish (although 26% identified themselves as such). Particularly important is that the participants all had nonmetastatic cancers, and all were free of physical and mental health comorbidities at recruitment. Finally, the measure of benefit finding used here is new, and more information is needed regarding its validity. All these issues constrain the generalizability of the findings.

Despite these limitations, however, the findings of the study appear to make several points. Some of these points bear on the sample as a whole. One of them is that most of these breast cancer patients reported that their lives had changed in positive ways because of the diagnosis of cancer. The mean initial report of benefits from cancer, averaged over the 17 domains assessed among all participants, was above 3, a response that signifies a “moderate” level of the experience of benefit. This finding joins a
growing literature indicating that the consequences of adversity are varied, including sequela that are experienced as beneficial.

The data also yielded suggestive evidence that benefit finding was related to increased emotional processing; that is, women who reported higher levels of emotional processing were also those who reported more benefits. However, there was no evidence here that the experience of emotional processing had causal primacy.

It is also noteworthy that reports of benefits were not correlated with indexes of distress in this sample. This appears to indicate that reports of positive sequela do not simply represent an absence of distress; rather, they seem to have an affirmative meaning of their own. This relative independence of positive sequela and distress is similar to that noted between positive and negative emotions (Thayer, 1989; Watson & Tellegen, 1985). The meaning of this independence is something that certainly deserves further research attention.

Finally, it is noteworthy that the levels of distress reported in this sample were generally low. Radloff and Rac (1979) reported a mean CES-D score of 10.08 in a community sample of 1,485 women. This is comparable to means from our sample after the initial assessment. Finding low levels of self-reported distress is not unusual for research on early-stage breast cancer patients (see, e.g., Andersen et al., 1987; Bloom et al., 1987; Carver et al., 1993; Ganz et al., 1998; Gordon et al., 1980; Lamsky et al., 1985; Penman et al., 1987). However, this repeated finding does point to a methodological issue in research on emotional well-being in this population. Specifically, self-report indicators of emotional disruption generally do not register high levels in samples of patients of this sort once they are somewhat past the point of surgery.

**Effects of the Intervention**

The psychosocial intervention examined here used the breast cancer experience as an opportunity to teach participants broad-based strategies of stress management. It had several effects on those who completed it. First, although only one third of the sample met the CES-D criterion for moderate levels of depressive symptoms at the initial assessment, the intervention reduced the prevalence of symptoms at that clinically meaningful level. Thus, on this measure of emotional disturbance the intervention had a discernable impact. In contrast, the intervention did not have a significant impact on continuous measures of distress. Although we can only speculate about this failure, our belief is that it reflects the relatively low levels of distress reported in the sample as a whole; that is, with relatively little elevation in distress there was little room for the intervention to have a differential effect. By posttreatment, levels of distress in both conditions were already at or below the average for the sample.

Besides reducing the prevalence of an index of moderate depression, the intervention also influenced two measures of positive well-being. First, it increased reports of experiencing benefit from having had breast cancer. Indeed, it raised the mean report of benefit (across items) to a level that was midway between "moderate" and "quite a bit." The intervention also produced a change in the levels of general optimism about the future. Given that optimism versus pessimism is a relatively stable aspect of personality (the 12-month [initial vs. 9-month follow-up] test-retest correlation in this sample as a whole was .69), this latter change is rather remarkable.

Both of these effects of the intervention (relative to baselines) were maintained at the follow-up that took place 3 months after the conclusion of the intervention and at another follow-up 9 months after the conclusion of the intervention experience. Although one might argue that the intervention's immediate impact on reports of benefit finding simply represents socially desirable responding, such an argument is far less persuasive for follow-ups.

By the final follow-up the control group tended to report more benefit than at baseline, albeit nonsignificantly. This might be seen as a delayed influence from the treatment that was received in the control condition. Contradicting this interpretation is the fact that women in the control condition who attended the seminar did not increase in benefit finding or optimism more than those who missed the seminar. On the other hand, those who missed the seminar showed a marginally significant tendency toward more intrusion and avoidance at final follow-up than those who did attend. This may imply that the seminar has residual effects, although not on benefit finding per se.

It should be noted that the control experience in this study differed from the typical no-treatment or wait-list condition. It was, in effect, a wait-list condition through the assessment at posttreatment. At that point, however, most of the control participants received a small dose of many of the active ingredients of the full intervention. This means that the follow-up comparisons in this study were made under circumstances that were less than optimal for obtaining a difference between experimental and control conditions.

As we noted in the beginning of the article, our 10-week intervention was not designed explicitly with benefit finding in mind. An important question is what elements in the intervention were critical to its beneficial effects. Several components of the intervention might have enhanced benefit finding. These include cognitive restructuring; anger management and assertion training, leading to better communication with significant others; and the positive experience of sharing difficulties and victories with other patients in a mutually supportive group environment. An important goal of future research will be to determine what component or components might be the key to beneficial outcomes.

**Differential Effects**

There was evidence that the intervention implemented here had its greatest impact on the women who were in greatest need of it—that is, those who were least optimistic about their future at the time of the first assessment were the ones whose reports of benefits increased most over the period of the study and whose levels of optimism increased most dramatically. This pattern suggests that the intervention is on the right track.

As we noted in the beginning of the article, Tedeschi and Calhoun (1995), who have written extensively about the experience of growth after trauma, have suggested that clinical intervention can help foster such growth (Calhoun & Tedeschi, 1999); that is, intervention may be able to take advantage of the trauma-induced disruption in the person's life, to induce a new organization with benefits compared to the person's pretrauma organization. Our data appear to support this contention. To the best of our knowledge, this is the first randomized trial to show such an effect.

There are hints in the literature supporting the idea that experiencing benefits and growth may have beneficial physical manifes-
tations as well as psychological ones (Bower, Kemeny, Taylor, & Fahey, 1998). Indeed, data from a small subset of the women in our sample (Cnuss et al., 2000) suggest that this intervention can influence a physical parameter—serum cortisol)—by way of the enhancement in benefit finding. Just how far the effects of such positive experiences may extend (e.g., immune responses, disease-free survival) is a question that we hope to examine in future research.

Positive Contributions and Meaning Making

The results of this study contribute to the growing literature on positive sequelae of traumatic events, a literature that in some ways remains unfocused conceptually. Many different terms are used in this literature, including growth, benefit finding, positive contribution, meaning making, and more. These terms have somewhat different implications. It is not clear to what extent the concepts overlap, neither is it clear whether there exists some core element that transcends the various concepts and is at the heart of the phenomena to which they apply.

Some suggest that the core element may be finding meaning in the event (e.g., Fife, 1994; Folkman, 1997; Janoff-Bulman, 1992; Park & Folkman, 1997; Silver, Boon, & Stones, 1983; Taylor, 1983; Thompson, 1985). Others, however, have noted that definitions of meaning are sometimes so broad that they obscure the process to which they refer (Davis et al., 1998). Often meaning making and benefit finding are simply used interchangeably (Thornton, 1999). However, Davis et al. (1998) reported that the term meaning making has two distinct construals: making sense of the event in an explanatory sense, and finding benefit in the event. Moreover, reports of acquiring these two different kinds of meaning are not correlated with one another. Interestingly enough, both sorts of meaning making seem to play a role in adjustment, with finding benefit the more important in the longer term (Davis et al., 1998).

Our findings obviously provide no resolution to the many questions that remain in this literature. However, they add more grist to the consideration of those questions, by pointing to the fact that at least certain changes in meaning (those constituting perceptions of benefit from the traumatic event) can be induced by a group intervention.

Implications

An obvious implication of the findings reported here is the importance of collecting information on positive experiences as well as negative experiences when studying people who are dealing with adversity (cf. Andrykowski et al., 1993; Folkman, 1997). If we had collected measures of emotional distress but no measures of benefit finding we would have missed the consistent impact of the intervention on positive experiences. It seems likely that a comparable situation exists in many other research settings—that is, when people confront adversity they typically experience emotional upheaval, but they may also be having growth experiences at more or less the same time. Indeed, interventions among such people may be fostering growth as well as reducing distress. Unless the researcher tries to measure such positive experiences, however, their occurrence will be missed. This, in turn, means that an important part of the change process will also be missed and that our understanding of the phenomena will be incomplete.

Indeed, it is also worth emphasizing this issue with regard to designing the intervention itself. Although Calhoum and Tedeschi (1999) were careful to point out that they were arguing for a perspective on treatment, rather than for a new treatment per se, part of the experience of responding to adversity is the opportunity to experience growth and positive changes. An intervention that focuses solely on reducing negative reactions runs the risk of failing to foster such positive change experiences. We suggest that it is important to keep this issue in mind when planning interventions and to incorporate explicitly elements intended to foster the finding of benefit in adversity.

References


(Appendix follows)
Appendix

Items Assessing Benefit Finding in Regard to Having Had Breast Cancer

Having had breast cancer...
1. has led me to be more accepting of things.
2. has taught me how to adjust to things I cannot change.
3. has helped me take things as they come.
4. has brought my family closer together.
5. has made me more sensitive to family issues.
6. has taught me that everyone has a purpose in life.
7. has shown me that all people need to be loved.
8. has made me realize the importance of planning for my family's future.
9. has made me more aware and concerned for the future of all human beings.
10. has taught me to be patient.
11. has led me to deal better with stress and problems.
12. has led me to meet people who have become some of my best friends.
13. has contributed to my overall emotional and spiritual growth.
14. has helped me become more aware of the love and support available from other people.
15. has helped me realize who my real friends are.
16. has helped me become more focused on priorities, with a deeper sense of purpose in life.
17. has helped me become a stronger person, more able to cope effectively with future life challenges.