

Emotionally Expressive Coping Predicts Psychological and Physical Adjustment to Breast Cancer

Annette L. Stanton, Sharon Danoff-Burg,
Christine L. Cameron, Michelle Bishop,
Charlotte A. Collins, Sarah B. Kirk, and
Lisa A. Sworowski
University of Kansas

Robert Twillman
University of Kansas Medical Center

This study tested the hypothesis that coping through emotional approach, which involves actively processing and expressing emotions, enhances adjustment and health status for breast cancer patients. Patients ($n = 92$) completed measures within 20 weeks following medical treatment and 3 months later. Women who, at study entry, coped through expressing emotions surrounding cancer had fewer medical appointments for cancer-related morbidities, enhanced physical health and vigor, and decreased distress during the next 3 months compared with those low in emotional expression, with age, other coping strategy scores, and initial levels on dependent variables (except medical visits) controlled statistically. Expressive coping also was related to improved quality of life for those who perceived their social contexts as highly receptive. Coping through emotional processing was related to one index of greater distress over time. Analyses including dispositional hope suggested that expressive coping may serve as a successful vehicle for goal pursuit.

Clinicians have long touted the benefits of working through emotions attendant on stressful or traumatic experiences (e.g., Horowitz, 1976; Kübler-Ross, 1969). Spiegel (1993), for example, in addressing adaptive resolution for individuals confronting life-threatening illness, suggested that “the best way for you, your family, and your friends to cope with illness is to do the hard emotional work of recognizing and feeling what those losses might mean” (p. 203). Such recommendations stand in contrast to conclusions from the empirical literature on coping with stressful encounters, which often indicate that emotion-focused coping is maladaptive (e.g., Kohn, 1996; Moos & Schaefer, 1993). However, conceptual and methodological problems in that literature may call such conclusions into question. In a longitudinal design, we used recently developed coping measures to test the utility of coping through actively processing and expressing emotion in psychological and physical adjustment to breast cancer. Further, we investigated the relations of emotional approach coping, dispositional hope, and perceived social context receptivity in predicting adjustment.

Three lines of evidence suggest that coping through emotional approach (i.e., coping through actively processing and expressing

emotion; Stanton, Danoff-Burg, Cameron, & Ellis, 1994; Stanton, Kirk, Cameron, & Danoff-Burg, 2000) may enhance adjustment in cancer patients. First, randomized, controlled studies of psychological interventions, in which one intervention component is the facilitation of emotional expression, provide evidence that these interventions can enhance psychological adjustment (Fawzy, Cousins, et al., 1990; Spiegel, Bloom, & Yalom, 1981), improve immune function (Fawzy, Kemeny, et al., 1990), and perhaps promote longer survival (Fawzy et al., 1993; Spiegel, Bloom, Kraemer, & Gottheil, 1989) in groups with cancers such as metastatic breast cancer and malignant melanoma. Because these were multicomponent interventions, however, we cannot conclude that emotional expression was the effective ingredient.

Second, studies of adjustment to cancer indicate that coping through cognitive and behavioral avoidance is detrimental to adjustment (e.g., Carver et al., 1993; Friedman, Nelson, Baer, Lane, & Smith, 1990; Stanton & Snider, 1993) and perhaps to health status (Epping-Jordan, Compas, & Howell, 1994; Jensen, 1987). Given these findings, one would expect that the opposing strategy of actively approaching the stressor through processing and expressing emotion would be beneficial. However, studies with breast cancer patients have not used adequate measures of emotional approach coping.

Although not yet extended to cancer patients, experimental investigations provide the most convincing evidence to date that emotional processing and expression are related causally to positive outcomes. A series of studies by Pennebaker and colleagues, as well as investigations conducted in other labs (for reviews, see Pennebaker, Mayne, & Francis, 1997; Smyth, 1998), have revealed that experimentally inducing individuals to write or talk about stressful experiences over several sessions can enhance physical and psychological health as well as important behavioral outcomes. Smyth's meta-analysis of 13 investigations of written emo-

Annette L. Stanton, Sharon Danoff-Burg, Christine L. Cameron, Michelle Bishop, Charlotte A. Collins, Sarah B. Kirk, and Lisa A. Sworowski, Department of Psychology, University of Kansas; Robert Twillman, University of Kansas Medical Center.

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Correspondence concerning this article should be addressed to Annette L. Stanton, Department of Psychology, 426 Fraser Hall, University of Kansas, Lawrence, Kansas 66045-2160. Electronic mail may be sent to astanton@ukans.edu.

tional disclosure yielded an overall effect size of $d = .47$, indicating an improvement of 23% in experimental groups compared with controls, who typically are instructed to write about mundane topics. This effect size is similar to that produced by other psychological interventions.

An exception to findings suggesting the benefits of emotional processing and expression lies in the empirical literature on coping with stressful experiences. Reviewers of this literature conclude that emotion-focused coping (i.e., strategies directed toward managing emotions surrounding stressors) is a risk factor for negative adaptation (e.g., Kohn, 1996; Moos & Schaefer, 1993). However, examination of the empirical literature on which this conclusion is based reveals a number of problems (Stanton et al., 1994). First, emotion-focused coping strategies comprise several distinct mechanisms, including strategies aimed at avoiding (e.g., denial) and approaching (e.g., emotional expression) the stressor. Indeed, some emotion-focused mechanisms are correlated inversely (Scheier, Weintraub, & Carver, 1986). When such items are aggregated into single scales, any obtained association of emotion-focused coping with adjustment is interpretationally ambiguous. Second, Stanton et al. (1994) demonstrated in two studies that several published scales designed to assess coping through emotional expression contain items that are contaminated with distress-laden and self-deprecatory content. It is not surprising that emotion-focused coping items such as "I become very tense" or "I feel anxious about not being able to cope" (Endler & Parker, 1990) are associated with maladjustment. Third, most published measures do not include scales to assess emotional processing and expression that are unconfounded with distress. For example, the frequently used Ways of Coping Questionnaire (Lazarus & Folkman, 1984) contains only two items that tap emotional expression.

To address these conceptual and methodological difficulties, Stanton et al. (2000) attempted to create uncontaminated scales designed to assess coping through processing and expressing emotion. They demonstrated two distinct factors representing coping through emotional processing and through emotional expression (Studies 1 and 3). Administered with dispositional (Study 1) or with situational (Study 3) instructions, the two scales demonstrated high internal consistency and test-retest reliability as well as convergent and discriminant validity, and they were uncorrelated with social desirability. Study 2 established the interjudge reliability of the scales through requesting that young adults and their parents estimate each other's coping strategies. Longitudinal (Study 3) and experimental (Study 4) research supported the predictive validity of the emotional approach coping scales with regard to adjustment to stressful experiences in young adult samples.

In light of the evidence discussed previously that emotional processing and expression may be useful to those confronting profound health-related adversity, we sought to extend our findings regarding the utility of emotional approach coping to women recently diagnosed with cancer. We hypothesized that greater use of self-reported emotional approach coping by breast cancer patients would predict enhanced psychological adjustment and health status over time, when initial levels on the dependent variables were controlled statistically. We also expected emotional approach coping strategies to emerge as unique predictors of adjustment over and above the contribution of other coping strategies.

Certainly, processing and expressing emotions is not uniformly effective for everyone under all conditions. Thus, we were also interested in how and for whom emotional approach coping is useful. Functionalist theories of emotion (e.g., Campos, Mumme, Kermoian, & Campos, 1994; Frijda, 1994; Thompson, 1991) purport the fundamentally adaptive nature of emotions and their expression, postulating that emotions can call one's attention to relevant goals and concerns, prompt goal-directed action, and serve communicative aims. Consistent with this reasoning, Stanton et al. (2000, Study 1, Study 3) found that for women, the emotional approach coping scales were correlated positively with hope (Snyder et al., 1991), a construct reflecting a sense of goal-directed determination, and ability to generate plans to achieve goals. Thus, women may use emotional processing and expression as a vehicle for clarifying and pursuing goals. In the current study, we investigated emotional approach coping as a mediator of the relation between hope and adaptive outcomes. It also is possible that emotional approach coping may be more effective for individuals who have a greater sense of agency and pathways to pursue goals (i.e., high hope) than for those low in hope. Accordingly, we also examined the interaction of emotional approach coping and hope in influencing adjustment to breast cancer. Finally, because emotional approach may be more beneficial when it occurs in a receptive social context (e.g., Lepore, Silver, Wortman, & Wayment, 1996), we examined the interaction of emotional approach coping and social receptivity in predicting adaptive outcomes.

Method

Participants

Participants were 92 women diagnosed with Stage I or II breast cancer, with a mean age of 51.56 years ($SD = 10.33$; range = 28–76) and educational level of 15.09 years ($SD = 3.00$). Of the participants, 87% were White, 7% African American, 3% Latina, 1% Asian American, 1% Native American; 69% were employed outside the home, and 78% were married. Average number of weeks since diagnosis was 28.47 ($SD = 13.38$; range = 8–53). Mastectomy was received by 39%, breast conservation by 48%, and both surgical procedures by 13%. Sixty percent of the sample had received chemotherapy, 58% had received radiotherapy, 16% had undergone reconstructive surgery, and 45% were taking tamoxifen at the time of the study. Additionally, 29% had attended a support group, and 28% had consulted a mental health professional regarding breast cancer at least once at the point of study entry.

Of the 122 women introduced to the study, 101 consented to participate, 16 declined, and 5 consented but did not complete the initial questionnaire packet, representing an 83% participation rate. Analyses were conducted only on the data of participants who completed both assessments ($N = 92$; 9% attrition).

Procedure

Women treated at five participating oncology clinics were introduced to the study by research staff or medical personnel during a regularly scheduled appointment for medical treatment. Research staff monitored the patient by phone until treatment was completed, and all participants entered the study within 20 weeks after completion of primary treatment (i.e., surgery, chemotherapy, radiation) for breast cancer. The point shortly after completion of treatment was chosen for recruitment in order to minimize the influence of current involvement in diverse medical treatments and because this point has been suggested as a period of increased distress (Beisecker et al., 1997; Tross & Holland, 1989; Ward, Viergutz, Torney,

deMuth, & Paulen, 1992). After providing informed consent, patients completed measures of coping strategies and psychological adjustment relevant to the present report, which they received and returned by mail at study entry (Time 1) and again 3 months later (Time 2). A 3-month follow-up was selected to allow adequate time for variation in adjustment (Stanton et al., 1998) and because we wanted to study medical care utilization for cancer-related morbidities occurring in the period shortly after treatment termination. Participants were compensated \$40 for their time.

Measures

Coping processes. At study entry, coping processes were assessed with the COPE (Carver, Scheier, & Weintraub, 1989), a 60-item inventory tapping 15 coping strategies. Participants completed the COPE with reference to their experience with breast cancer. Participants rated items on a response scale of 1 (*I don't do this at all*) to 4 (*I do this a lot*). The COPE has demonstrated adequate psychometric properties (Carver et al., 1989) and predictive validity (e.g., Carver et al., 1993). In this study, six scales were used that evidenced adequate internal consistency (coefficient $\alpha \geq .70$) and predicted adjustment to breast cancer in previous research (Carver et al., 1993; Stanton, Estes, Estes, & Irving, 1993): Acceptance (e.g., "I accept the reality of the fact that it happened"), Spiritual Coping (e.g., "I put my trust in God or my spiritual beliefs"), Problem-Focused Coping (composite of Active Coping and Planning subscales; e.g., "I make a plan of action"), Seeking Social Support (composite of Seeking Social Support for Instrumental Reasons and Seeking Social Support for Emotional Reasons subscales; e.g., "I get emotional support from others"), Positive Reappraisal (e.g., "I learn something from the experience"), and Avoidance (composite of Mental Disengagement, Behavioral Disengagement, and Denial subscales; e.g., "I say to myself 'this isn't real'").

Embedded in the COPE were the Emotional Approach Coping scales (Stanton et al., 2000).¹ These two 4-item scales—Emotional Processing (e.g., "I take time to figure out what I'm really feeling," "I delve into my feelings to get a thorough understanding of them") and Emotional Expression (e.g., "I take time to express my emotions," "I feel free to express my emotions")—demonstrate sound internal consistency and predictive validity (Stanton et al., 2000). In samples of young women (Stanton et al., 2000, Study 1, Study 3), the emotional approach scales were associated positively with hope and instrumentality, and emotional processing was related negatively to neuroticism, trait anxiety, and depressive symptoms. In the present study, the correlation between emotional processing and expression was $.75, p < .0001$, a stronger relation than found in other studies (Stanton et al., 2000). In addition, both were related at $r > .40$ to other approach-oriented coping strategies of problem-focused coping, seeking social support, and positive reappraisal.

Hope. Completed at study entry, the Hope Scale (Snyder et al., 1991) assesses a sense of successful goal-directed determination (i.e., agency) and ability to generate plans to achieve goals (i.e., pathways). The scale contains eight items (e.g., "I meet the goals I set for myself") and four fillers rated on 4-point scales. Snyder et al. documented the scale's high reliability, as well as its convergent, discriminant, and predictive validities.

Social receptivity. We designed a three-item scale to assess perceived receptivity of the social network to participants' cancer-related expression. Items (i.e., "I have people to talk to about my worries concerning cancer," "I feel free to express all my feelings about cancer to those close to me," "There are people I can count on whenever I want to talk about my experience with cancer") were rated on 5-point scales (1 = *strongly disagree*; 5 = *strongly agree*) and averaged for a total score. Coefficient α was $.75$ at study entry and $.84$ at 3 months, and the 3-month test-retest reliability was $.59, p < .0001$.

Psychological adjustment. Three indices of psychological adjustment were administered at study entry and 3 months later. The first was the Functional Assessment of Cancer Therapy (FACT; Cella, 1994), a measure of health-related quality of life. This measure, which assesses perceived

life quality in physical, social, relationship with doctors, emotional, and functional domains, possesses adequate psychometric properties. The items are rated on a 5-point scale (0 = *not at all*; 4 = *very much*). A total score on the 28 items was used to indicate health-related quality of life.

The Profile of Mood States (POMS; McNair, Lorr, & Droppleman, 1971) is a measure of negative and positive affect frequently used in studies of cancer patients. Participants completed the measure with regard to their feelings in the past week. As we have done in other studies (Stanton & Snider, 1993; Stanton et al., 1998), we constructed a distress index by summing items on the Anger, Depression, Tension, Fatigue, and Confusion subscales. The Vigor subscale was used to indicate positive emotions. Distress and Vigor yielded a correlation of $-.60, p < .0001$, and they were correlated with the FACT at $-.84$ and $.67, p < .0001$, respectively.

Health status. Two indicators of health status were examined. At study entry and 3 months later, participants completed a one-item index of perceived health (1 = *excellent*; 5 = *poor*), which has been demonstrated to be associated with all-cause morbidity and mortality (Gatz, Harris, & Turk-Charles, 1995; Stewart, Hays, & Ware, 1988).

Patients prospectively recorded medical visits during the period from study entry through the subsequent 3 months. They also recorded the medical provider and reason for each visit (e.g., check-up with medical oncologist). A subset of these reports was confirmed through medical records, with patients' consent. Rate of agreement of patients' reports and medical records was 88%, lending confidence to the accuracy of patients' reports. Medical appointments were coded into cancer-related scheduled medical check-ups, medical appointments for cancer-related problems (e.g., edema, breast symptoms, possible recurrence), other scheduled medical check-ups, and medical appointments for other problems (e.g., flu symptoms). Scheduled appointments for breast reconstruction follow-up were coded separately and not included in analyses. We were interested in medical appointments for cancer-related problems (excluding scheduled check-ups) as an indicator of morbidity associated with breast cancer and its treatment. Self-reported poor health and medical appointments for cancer-related morbidities yielded a correlation of $.36, p < .0005$. Correlations of the health status indicators with the psychological adjustment measures ranged in absolute magnitude from $.18$ to $.58$, such that poorer health status was related to poorer psychological adjustment.

Results

Preliminary analyses were conducted to select demographic (i.e., age, education, ethnicity, employment status, marital status) and cancer-related (i.e., diagnosis duration, types of treatment, attendance at psychological support services) covariates for use in primary analyses. Relations of these variables with all dependent variables yielded only one significant association: Younger women reported more distress on the POMS than older women, $r = -.22, p < .05$. Further, demographic and cancer-related variables did not interact significantly with primary predictor variables. Age was controlled in all analyses. Sample size varied somewhat in each analysis, owing to missing data on particular scales for some participants.

Descriptive Statistics on Study Variables

Table 1 displays internal consistency estimates of reliability and descriptive statistics for dependent and predictor variables. Scores on the dependent variables were relatively stable over the 3-month period, and none evidenced significant change. FACT scores were

¹ The scale items are available in Stanton et al. (2000), and an expanded item set is available from Annette L. Stanton.

Table 1
Descriptive Statistics for Dependent and Predictor Variables

Variable	Study entry				3 months			
	<i>n</i>	<i>M</i>	<i>SD</i>	α	<i>n</i>	<i>M</i>	<i>SD</i>	α
Perceived poor health	90	2.39	0.92		91	2.53	0.95	
Cancer-related medical visits					85	1.01	1.64	
POMS Distress	84	34.57	29.08	.86	80	34.96	32.56	.92
POMS Vigor	87	15.87	6.21	.88	87	17.17	7.50	.92
FACT Quality of Life	92	86.67	14.95	.91	92	87.61	16.55	.93
Hope	91	24.89	3.35	.74				
Social receptivity	92	4.15	0.98	.75				
Emotional processing	92	3.00	0.72	.80				
Emotional expression	92	2.95	0.84	.93				
Seeking social support	92	2.79	0.72	.88				
Avoidance	92	1.61	0.42	.77				
Spiritual coping	92	3.14	0.96	.95				
Acceptance	92	3.53	0.55	.79				
Problem-focused coping	92	3.06	0.72	.89				
Positive reappraisal	92	3.36	0.62	.77				

Note. POMS = Profile of Mood States; FACT = Functional Assessment of Cancer Therapy.

somewhat higher than those obtained by Cella (1994) on 466 patients with various cancers ($M = 82.06$, $SD = 15.86$). POMS Distress scores were almost identical to, and Vigor scores somewhat higher than, those reported by Stanton and Snider (1993) for Stage I and II breast cancer patients during the 3 weeks after surgery. On average, women reported their health to be "good" to "very good."

The mean on the Hope Scale was slightly lower than those reported for undergraduate samples ($M = 25.08$ – 25.64 ; Snyder et al., 1991, Table 1) and higher than those reported for individuals in psychological treatment ($M = 22.60$ – 23.11 ; Snyder et al., 1991, Table 1). On average, participants perceived their social contexts as receptive. Means on coping scores all exceeded the scale midpoint of 2.5, with the exception of avoidance-oriented coping.

Correlations of the emotional approach coping scales with other variables are displayed in Table 2. Emotional approach coping was not related significantly to participants' age. Participants used emotional approach coping more frequently when they perceived their social contexts as receptive and when they scored high in hope. In general, greater use of emotional approach was associated with more positive psychological and physical adjustment, although the relations were somewhat stronger for coping through emotional expression than emotional processing.

Psychological Adjustment and Health Status Regressed on Coping Scales

Multiple regression analyses were performed on the five dependent variables, with age and initial values on the dependent variables as the covariates (with the exception of medical visits, for which no initial value was relevant) and the eight coping scales as predictors. Table 3 displays partial correlations and results of the regression analyses with simultaneous predictor entry. Participants' greater use of coping through emotional expression was associated uniquely with better self-perceived health status and vigor, lower psychological distress, and fewer medical appointments for cancer-related morbidities over the subsequent 3 months,

when initial values on the dependent variables, age, and other coping strategies were controlled statistically.² Only FACT quality of life was not predicted significantly by emotional expression. To illustrate, when we controlled for age and compared the highest and lowest quartiles of scorers on emotional expression, expressive copers had an average of .35 ($SE = .31$) medical visits for cancer-related morbidities in the 3-month window, whereas women low on emotionally expressive coping had 1.67 ($SE = .34$) medical appointments, $F(1, 41) = 8.26$, $p < .01$.

Contrary to hypothesis, women who coped through emotional processing at study entry had higher POMS Distress scores over time, and emotional processing was associated significantly with no other dependent variable. Emotional processing significantly predicted increased POMS distress only when coping through emotional expression was controlled, as revealed by a post hoc multiple regression analysis removing emotionally expressive coping as a predictor of POMS distress.

Other coping strategies that demonstrated unique associations with the dependent variables were avoidance-oriented coping, spiritual coping, and acceptance. Avoidant copers became more distressed and evidenced less positive emotion across time. Participants high on acceptance reported enhanced quality of life over time. Those who used spiritual coping became less distressed over time. However, they also had a greater number of medical visits for cancer-related problems, as did those who coped through acceptance.

Analyses Assessing Relations of Hope, Emotionally Expressive Coping, and Outcomes

Analyses also were conducted to assess emotionally expressive coping as a mediator of the relations between hope and the depen-

² As expected, emotional expression did not predict scheduled check-ups for cancer treatment or medical appointments not related to cancer.

Table 2
Correlations of Emotional Approach Coping Scales With Other Variables

Variable	Time	Emotional processing	Emotional expression
Perceived poor health	1	-.06	-.16
	2	-.14	-.30**
Cancer-related medical visits	2	-.03	-.19
	1	-.14	-.24*
POMS Distress	2	-.13	-.26*
	1	.18	.20
POMS Vigor	2	.33**	.40**
	1	.22*	.32**
FACT Quality of Life	2	.24*	.33**
	1	.03	.05
Age	1	.03	.05
Hope	1	.30**	.41**
Social receptivity	1	.34**	.36**

Note. $n = 80-92$. Time 1 = Study entry. Time 2 = 3 months. POMS = Profile of Mood States; FACT = Functional Assessment of Cancer Therapy.

* $p < .05$. ** $p < .005$.

dent variables, as well as to examine Coping \times Hope interactions.³ Age and initial values on the dependent variables were controlled where relevant. FACT quality of life was the only dependent variable for which no evidence for mediation or moderation emerged. Significant mediation was found on two dependent variables: perceived health and POMS vigor. As required for establishing mediation (Baron & Kenny, 1986), hope significantly predicted emotionally expressive coping, $F(1, 88) = 18.13, p < .0001$; perceived health, $F(1, 85) = 6.31, p < .05$; and POMS vigor, $F(1, 79) = 4.77, p < .05$. In addition, equations were significant for perceived health, $F(4, 84) = 21.53, p < .0001$, and POMS vigor, $F(4, 78) = 17.40, p < .0001$, regressed on hope and emotionally expressive coping, with age and initial values on dependent variables controlled. Compared with the equations in which hope alone was used to predict outcomes, equations including emotionally expressive coping revealed that the standardized beta for hope was nonsignificant and fell from $-.21$ to $-.14$ for perceived health and from $.19$ to $.09$ for POMS vigor. Thus, emotionally expressive coping partially mediated the relations of hope with these two outcomes.

Multiple regression analyses also were performed to assess the interaction of hope and emotionally expressive coping in predicting the dependent variables. The interaction was significant for the two other dependent variables: POMS distress, $F(1, 69) = 7.03, p < .01$, and cancer-related medical appointments, $F(1, 79) = 4.60, p < .05$. Following the method recommended by Aiken and West (1991), analyses of these interactions indicated that emotionally expressive coping was related to POMS distress, $F(1, 69) = 6.80, p < .05$, and to cancer-related medical appointments, $F(1, 79) = 7.96, p < .01$, only for those scoring high in hope (estimated at 1 *SD* above the mean). For those who scored high in hope, predicted scores on POMS distress were 25.47 for highly expressive copers and 64.08 for those low on emotional expression. For those scoring high in hope, the predicted number of medical appointments was 0 for highly expressive copers and 3.44 for women low on emotional expression. Thus, for those with high hope, emotionally expressive coping was beneficial with regard to distress and medical appointments for cancer-related morbidities. Coping through emotional expression was not related significantly to those outcomes for women with lower hope scores.

Analyses Assessing Relations of Social Receptivity, Emotional Approach Coping, and Outcomes

Because we anticipated that emotional approach coping might be more beneficial if it occurred in a receptive social context, we also performed multiple regressions including age, initial values on dependent variables, emotional approach coping scales, social receptivity, and Coping \times Social Receptivity interactions as predictors of dependent variables. For FACT quality of life, the interactions of social receptivity with emotional expression, $F(1, 84) = 5.61, p < .05$, and processing, $F(1, 84) = 8.12, p < .01$, were significant. For women low in social receptivity, emotional expression was unrelated to changes in quality of life. For women in highly receptive social contexts (estimated at 1 *SD* above the mean), high emotional expression was related to improved quality of life, $F(1, 84) = 7.52, p < .01$. Although the interaction was significant, emotional processing did not predict quality of life in follow-up analyses. In predicting other dependent variables, emotional approach coping did not interact significantly with social receptivity, and the previously obtained relations of emotional approach coping with dependent variables remained when social receptivity was controlled.

Discussion

Consistent with hypothesis, findings reveal that women's use of coping through emotional expression following primary treatment for breast cancer is associated with decreased distress, increased vigor, improved self-perceived health status, and fewer medical appointments for morbidities related to cancer and its treatment over the course of 3 months, controlling for age and initial status on the dependent variables. As hypothesized, coping through emotional expression was a unique predictor of the dependent variables, over and above the contribution of other coping strategies. Expressive coping also predicted improved quality of life, but only

³ Ancillary analyses yielded no significant mediated or moderated relations between hope and emotional processing, and emotional expression did not interact significantly with emotional processing to predict outcomes.

Table 3
Multiple Regression Analyses and Partial Correlations Predicting 3-Month Psychological and Physical Health Outcomes From Coping Processes at Study Entry

Predictor	Perceived poor health	Medical visits	POMS Distress	POMS Vigor	FACT Quality of Life
DV at study entry	.62***	—	.50***	.53***	.78***
Age	-.07	-.29*	.05	.09	.11
Emotional processing	.14	-.04	.31*	-.13	-.22
Emotional expression	-.24*	-.25*	-.27*	.26*	.16
Seeking social support	-.03	.00	.01	-.09	.09
Avoidance	.15	.18	.25*	-.32*	-.14
Spiritual coping	.15	.29*	-.30*	.17	.15
Acceptance	-.07	.27*	.04	-.16	.26*
Problem-focused coping	.00	.19	-.09	.19	.02
Positive reappraisal	-.11	-.14	.12	.07	.00
<i>dfs</i>	10, 78	9, 75	10, 65	10, 73	10, 81
<i>F</i>	8.79***	2.77**	8.78***	9.16***	28.22***
<i>R</i> ²	.53	.25	.57	.56	.78

Note. Medical visits are appointments for cancer-related morbidities. The *r* displayed is the partial *r*, representing the relation of the predictor and the dependent variable, controlling for all other predictors in the set. POMS = Profile of Mood States; FACT = Functional Assessment of Cancer Therapy; DV = dependent variable.

* $p < .05$. ** $p < .01$. *** $p < .0001$.

for women who perceived their social contexts as highly receptive to their cancer-related expression. Although it makes conceptual sense that approaching one's feelings and thoughts about a stressor would be more beneficial when the social environment supports such approach than when it is constraining (e.g., Lepore et al., 1996), the findings that the Coping \times Social Receptivity interaction emerged for only one dependent variable and that expressive coping retained unique predictive utility for other dependent variables suggest that adaptive emotional expression may take forms that are not dependent on receptivity of the social context.

Although coping through emotional expression in recently diagnosed women appears to facilitate psychological adjustment and reduce medical care utilization for cancer-related morbidity over time, women who coped through emotional processing became more distressed over time, and processing was related to no other dependent variable in multiple regression analyses. These findings contrast somewhat with zero-order correlations indicating that emotional processing was associated with slightly better adjustment (although relations with most dependent variables were not significant) and the finding of a strong correlation between processing and expression. Further, coping through emotional processing was associated significantly with increased distress only when emotional expression was controlled statistically. This finding is consistent with the interpretation that psychological distress is diminished to the extent that processing contributes to emotional expression. The variance that is unique to emotional processing in this case may represent a ruminative component. Recall that women entered the study following completion of medical treatment. Perhaps active engagement in the attempt to understand one's emotions that continues from the time of diagnosis through treatment termination reflects a cognitive rumination process, which has been demonstrated to exacerbate distress (Morrow & Nolen-Hoeksema, 1990). Thus, there may be a point at which prolonged coping through emotional processing becomes counterproductive. This hypothesis requires longitudinal test from the

point of cancer diagnosis, during which emotional processing may be more useful. That emotional processing is beneficial in some contexts also is supported by the work of Pennebaker et al. (1997), who concluded from their analysis of six written emotional disclosure experiments that participants' use of words associated with insightful and causal thinking was related to improved health. The adaptive consequences of emotional processing may be different for those who report using coping through emotional processing in the naturalistic context versus those who are encouraged in an experimental context to process their emotions. The nature and consequences of coping through attempting to acknowledge and understand one's emotions require further study.

How might emotionally expressive coping confer benefit? The finding that expressive coping mediated the relations of hope and two outcomes suggests one likely mechanism. Consistent with functionalist theories of emotion (e.g., Thompson, 1991), expressive coping may direct one's attention toward central concerns (Frijda, 1994), serving as an effective vehicle for clarifying and pursuing goals. The positive relation of expressive coping and problem-focused coping is consistent with this interpretation. Through expressing a sense of loss of control, for example, one may begin to distinguish what one can and cannot control, to channel energy toward attainable goals, and to generate alternate pathways for bolstering control. Admittedly, expressive coping represents only one step in the process of goal clarification and pursuit and certainly may not be a necessary, but rather a facilitative, component of the process. It is also possible that in some realms emotional expression may drive effective goal pursuit only for those who have a strong sense of agency and avenues for attaining goals, as supported by the obtained interactions between dispositional hope and expressive coping. In contrast to less hopeful women, women with strong expectancies for positive outcomes and who pursue them actively may develop greater expressive skills and have more success in coming to adaptive resolution of complex emotions. Investigating the related construct of optimism

(Scheier & Carver, 1985), a generalized expectancy for positive outcomes, Cameron and Nicholls (1998) demonstrated that participating in a written emotional disclosure task was effective in reducing health center visits for optimists but not for pessimists, for whom the task was successful only if accompanied by explicit instruction in self-regulation. Perhaps hopeful or optimistic individuals have learned to incorporate emotional expression into a coherent progression toward goal pursuit.

Another mechanism for the effectiveness of emotionally expressive coping is habituation (e.g., Foa & Kozak, 1986). Repeated expression may decrease the attendant negative emotion and physiological arousal. In turn, one may come to the conclusion that negative emotion does indeed diminish, that the situation is not as dire as originally conceived, and that some benefit can be extracted from adversity (e.g., Affleck & Tennen, 1996; Foa, Steketee, & Rothbaum, 1989). The positive relation of coping through positive reappraisal and expressive coping is consistent with this possibility.

Finally, coping through emotional expression may gain its effectiveness through engendering positive social response. Indeed, one might suggest that coping through emotional expression is merely a proxy for obtaining social support. However, emotionally expressive coping was a unique predictor of outcomes over and above the contribution of perceived receptivity of the social context and coping through seeking social support (see also Stanton et al., 1994; 2000). The interpersonal realm represents one of many outlets for emotional expression. Certainly, it may be one vehicle through which expression is useful, given a tolerant context, as evidenced by the Social Receptivity \times Expressive Coping interaction on quality of life. However, social receptivity may diminish as a stressor persists (e.g., Maher, 1982), and finding additional outlets for expression may prove adaptive. Certainly, the mechanisms by which coping through emotional expression produces psychological and health benefits require further empirical scrutiny.

Limitations of the research should be noted. First, assessments of coping and adjustment primarily relied on participants' self-report. The self-report measures administered do represent psychometrically sound and empirically validated instruments, and a subset of self-reported medical appointments were checked against medical records to ensure their accuracy. Nonetheless, future research is needed that evaluates behavioral and other indexes of emotionally expressive coping and that examines expression of specific emotions in specific contexts. A related concern regarding assessment involves the meaning of the medical appointments for cancer-related morbidities (e.g., edema, pain, concern regarding recurrence) and of the obtained relation of this dependent variable and expressive coping. One might suggest that such appointments represent a proactive attempt to address medical concerns and hence are an indicator of positive adjustment. Although this interpretation is plausible, the frequency of these appointments was correlated with perceived poor health, higher distress, and lower vigor, assessed both at study entry and 3 months later. Thus it appears that these medical appointments were an indicator of poorer adjustment. We return to the issue of mechanism for the obtained effects. It is possible that emotionally expressive copers efficiently used scheduled medical check-ups during the 3-month period to address their concerns so that they did not require extra appointments or that nonexpressive women attributed their distress

to physical ailments and sought medical care for them. We also should note the curious results that two coping strategies (i.e., spiritual coping, acceptance) predicted positive psychological adjustment but more frequent medical visits. Findings regarding medical care utilization for cancer-related morbidities require further illumination through extended longitudinal assessment and examination of mechanisms for effects. An additional limitation regards generalizability of the findings. Because few investigations have included this measure of emotional approach coping, we must limit generalizability to women with early stage breast cancers and to the period after termination of primary medical treatments. Applicability of the findings to men, people with other cancers, women with metastatic disease, and cancer patients at other points in the treatment trajectory will require further study, as will extension of the findings to longer term psychological adjustment and cancer morbidity and mortality.

Notwithstanding these limitations, the present findings suggest that an effective ingredient of positive adjustment and health maintenance following a breast cancer diagnosis is the ability to express emotions surrounding one's experience. The benefits of coping through emotional expression regarding one's experience with cancer are apparent even several months following diagnosis. Although it is important to acknowledge that very different effects may result from naturally elected versus imposed coping strategies and that effectiveness may vary as a function of dispositional and contextual factors, these findings imply that training in coping skills designed to facilitate emotional expression may bolster adjustment and health status for women confronting breast cancer. For example, women may be aided to select receptive social contexts for expression, to develop other avenues for expression (e.g., writing), and to engage in emotional processing and expression as a vehicle directed toward clarifying and pursuing goals. If effective, not only may benefits accrue for the woman with breast cancer herself, but such psychosocial interventions may also promote more efficient medical care utilization by breast cancer patients.

References

- Affleck, G., & Tennen, H. (1996). Construing benefits from adversity: Adaptational significance and dispositional underpinnings. *Journal of Personality, 64*, 899-922.
- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.
- Beisecker, A. E., Cook, M. R., Ashworth, J., Hayes, J., Brecheisen, M., Helmig, L., Hyland, S., & Selenke, D. (1997). Side effects of adjuvant chemotherapy: Perceptions of node-negative breast cancer patients. *Psycho-Oncology, 6*, 85-93.
- Cameron, L. D., & Nicholls, G. (1998). Expression of stressful experiences through writing: Effects of a self-regulation manipulation for pessimists and optimists. *Health Psychology, 17*, 84-92.
- Campos, J. J., Mumme, D. L., Kermoian, R., & Campos, R. G. (1994). A functionalist perspective on the nature of emotion. *Monographs of the Society for Research in Child Development, 59*, 284-303.
- Carver, C. S., Pozo, C., Harris, S. D., Noriega, V., Scheier, M. F., Robinson, D. S., Ketcham, A. S., Moffat, F. L., & Clark, K. C. (1993). How coping mediates the effect of optimism on distress: A study of

- women with early stage breast cancer. *Journal of Personality and Social Psychology*, 65, 375–390.
- Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, 56, 267–283.
- Cella, D. F. (1994). *F.A.C.T. manual: Functional Assessment of Cancer Therapy (FACT) scales*. Chicago: Rush-Presbyterian–St. Luke's Medical Center.
- Endler, N. S., & Parker, J. D. A. (1990). *CISS: Coping Inventory for Stressful Situations manual*. Toronto, Ontario, Canada: Multi-Health Systems.
- Epping-Jordan, J. E., Compas, B. E., & Howell, D. C. (1994). Predictors of cancer progression in young adult men and women: Avoidance, intrusive thoughts, and psychological symptoms. *Health Psychology*, 13, 539–547.
- Fawzy, F. I., Cousins, N., Fawzy, N. W., Kemeny, M. E., Elashoff, R., & Morton, D. (1990). A structured psychiatric intervention for cancer patients, I. Changes over time in methods of coping and affective disturbance. *Archives of General Psychiatry*, 47, 720–725.
- Fawzy, F. I., Fawzy, N. W., Hyun, C. S., Elashoff, R., Guthrie, D., Fahey, J. L., & Morton, D. L. (1993). Malignant melanoma: Effects of an early structured psychiatric intervention, coping, and affective state on recurrence and survival 6 years later. *Archives of General Psychiatry*, 50, 681–689.
- Fawzy, F. I., Kemeny, M. E., Fawzy, N. W., Elashoff, R., Morton, D., Cousins, N., & Fahey, J. L. (1990). A structured psychiatric intervention for cancer patients, II. Changes over time in immunological measures. *Archives of General Psychiatry*, 47, 729–735.
- Foa, E. B., & Kozak, M. J. (1986). Emotional processing of fear: Exposure to corrective information. *Psychological Bulletin*, 99, 20–35.
- Foa, E. B., Steketee, G., & Rothbaum, B. O. (1989). Behavioral/cognitive conceptualizations of post-traumatic stress disorder. *Behavior Therapy*, 20, 155–176.
- Friedman, L. C., Nelson, D. V., Baer, P. E., Lane, M., & Smith, F. E. (1990). Adjustment to breast cancer: A replication. *Journal of Psychosocial Oncology*, 8(4), 27–40.
- Frijda, N. H. (1994). Emotions are functional, most of the time. In P. Ekman & R. J. Davidson (Eds.), *The nature of emotion: Fundamental questions* (pp. 112–122). New York: Oxford University Press.
- Gatz, M., Harris, J. R., & Turk-Charles, S. (1995). The meaning of health for older women. In A. L. Stanton & S. Gallant (Eds.), *The psychology of women's health: Progress and challenges in research and application* (pp. 491–529). Washington, DC: American Psychological Association.
- Horowitz, M. J. (1976). *Stress response syndromes*. New York: Jason Aronson.
- Jensen, M. R. (1987). Psychobiological factors predicting the course of breast cancer. *Journal of Personality*, 55, 317–342.
- Kohn, P. M. (1996). On coping adaptively with daily hassles. In M. Zeidner & N. S. Endler (Eds.), *Handbook of coping: Theory, research, applications* (pp. 181–201). New York: Wiley.
- Kübler-Ross, E. (1969). *On death and dying*. New York: Macmillan.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- Lepore, S. J., Silver, R. C., Wortman, C. B., & Wayment, H. A. (1996). Social constraints, intrusive thoughts, and depressive symptoms among bereaved mothers. *Journal of Personality and Social Psychology*, 70, 271–282.
- Maher, E. L. (1982). Anomic aspects of recovery from cancer. *Social Science and Medicine*, 16, 907–912.
- McNair, D. M., Lorr, M., & Droppleman, L. F. (1971). *EITS manual for the Profile of Mood States*. San Diego, CA: Educational and Industrial Testing Service.
- Moos, R. H., & Schaefer, J. A. (1993). Coping resources and processes: Current concepts and measures. In L. Goldberger & S. Breznitz (Eds.), *Handbook of stress: Theoretical and clinical aspects* (2nd ed., pp. 234–257). New York: Free Press.
- Morrow, J., & Nolen-Hoeksema, S. (1990). Effects of responses to depression on the remediation of depressive affect. *Journal of Personality and Social Psychology*, 58, 519–527.
- Pennebaker, J. W., Mayne, T. J., & Francis, M. E. (1997). Linguistic predictors of adaptive bereavement. *Journal of Personality and Social Psychology*, 72, 864–871.
- Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. *Health Psychology*, 4, 219–247.
- Scheier, M. F., Weintraub, J. K., & Carver, C. S. (1986). Coping with stress: Divergent strategies of optimists and pessimists. *Journal of Personality and Social Psychology*, 51, 1257–1264.
- Smyth, J. M. (1998). Written emotional expression: Effect sizes, outcome types, and moderating variables. *Journal of Consulting and Clinical Psychology*, 66, 174–184.
- Snyder, C. R., Harris, C., Anderson, J. R., Holleran, S. A., Irving, L. M., Sigmon, S. T., Yoshinobu, L., Gibb, J., Langelle, C., & Harney, P. (1991). The will and the ways: Development and validation of an individual-differences measure of hope. *Journal of Personality and Social Psychology*, 60, 570–585.
- Spiegel, D. (1993). *Living beyond limits: New hope and help for facing life-threatening illness*. New York: Random House.
- Spiegel, D., Bloom, J. R., Kraemer, H. C., & Gottheil, E. (1989). Effect of psychosocial treatment on survival of patients with metastatic breast cancer. *Lancet*, 2, 888–890.
- Spiegel, D., Bloom, J. R., & Yalom, I. (1981). Group support for patients with metastatic cancer: A randomized outcome study. *Archives of General Psychiatry*, 38, 527–533.
- Stanton, A. L., Danoff-Burg, S., Cameron, C. L., & Ellis, A. P. (1994). Coping through emotional approach: Problems of conceptualization and confounding. *Journal of Personality and Social Psychology*, 66, 350–362.
- Stanton, A. L., Estes, M. A., Estes, N. C., Cameron, C. L., Danoff-Burg, S., & Irving, L. M. (1998). Treatment decision making and adjustment to breast cancer: A longitudinal study. *Journal of Consulting and Clinical Psychology*, 66, 313–322.
- Stanton, A. L., Estes, N. C., Estes, M. A., & Irving, L. M. (1993, August). *Decisional and coping processes in adjustment to breast cancer*. Paper presented at the 101st Annual Convention of the American Psychological Association, Toronto, Ontario, Canada.
- Stanton, A. L., Kirk, S. B., Cameron, C. L., & Danoff-Burg, S. (2000). Coping through emotional approach: Scale construction and validation. *Journal of Personality and Social Psychology*, 78, 1150–1169.
- Stanton, A. L., & Snider, P. (1993). Coping with a breast cancer diagnosis: A prospective study. *Health Psychology*, 12, 16–23.
- Stewart, A. L., Hays, R. D., & Ware, J. E. (1988). The MOS Short-Form General Health Survey: Reliability and validity in a patient population. *Medical Care*, 26, 724–735.
- Thompson, R. A. (1991). Emotional regulation and emotional development. *Educational Psychology Review*, 3, 269–307.
- Tross, S., & Holland, J. C. (1989). Psychological sequelae in cancer survivors. In J. C. Holland & J. H. Rowland (Eds.), *Handbook of psychooncology: Psychological care for the patient with cancer* (pp. 101–116). New York: Oxford University Press.
- Ward, S. E., Viergutz, G., Tormey, D., deMuth, J., & Paulen, A. (1992). Patients' reactions to completion of adjuvant breast cancer therapy. *Nursing Research*, 41, 362–366.

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