

## JOURNAL CLUB

# Post-Traumatic Growth and Psychosocial Adjustment of Daughters of Breast Cancer Survivors

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This article has been chosen as being particularly suitable for reading and discussion in a Journal Club format. The following questions are posed to stimulate thoughtful critique and exchange of opinions, possibly leading to changes on your unit. Formulate your answers as you read the article. Photocopying of this article for group discussion purposes is permitted.

1. This article addresses a concept that is new to the oncology nursing literature—post-traumatic growth. What do we learn from the literature review about this concept?
2. Considering our patient population, in what ways have we or might we recognize this concept in our patients or in their family members?
3. Which components of post-traumatic growth were assessed in the research subjects?
4. Which elements were correlated with post-traumatic growth in this study?
5. In what ways might content learned from reading this article be applied to everyday practice?
6. What is the level of evidence provided by this research?

At the end of the session, take time to recap the discussion and make plans to follow through with suggested strategies.

**Purpose/Objectives:** To examine post-traumatic growth, or positive life changes, and its correlates among adult daughters of breast cancer survivors and to compare their psychosocial adjustment to women with healthy parents.

**Design:** Descriptive, cross-sectional survey.

**Setting:** Outpatient oncology units in two urban hospitals and two breast cancer organizations.

**Sample:** 30 adult daughters of breast cancer survivors ( $\bar{X}$  age = 38.1 years) and 16 women with healthy parents.

**Methods:** Participants were recruited by hospital or research staff or responded to an announcement in a newsletter. Respondents completed the Post-Traumatic Growth Inventory and standardized assessments of psychosocial adjustment.

**Main Research Variables:** Post-traumatic growth and demographic, stressor, and psychosocial variables.

**Findings:** Women who cared for their mothers following breast cancer diagnosis and perceived their mothers' illness to be stressful reported greater post-traumatic growth. Life satisfaction, social support, emotional processing strategies, and problem-focused coping strategies also were positively associated with growth. Women with maternal histories of breast cancer and those with healthy parents did not differ in psychosocial well-being, including affect, life satisfaction, and social support.

**Conclusions:** Findings suggest that some daughters of breast cancer survivors experience positive life changes following their mothers' illness.

**Implications for Nursing:** For nurses seeking to adopt a holistic approach to practice, the personal growth of women following life-threatening familial illness warrants attention.

### Key Points . . .

- ▶ The extent of post-traumatic growth or positive life changes among the sample of women in this study who had maternal histories of breast cancer parallels previous reports of growth among breast cancer survivors.
- ▶ Actively managing one's emotions and the stressors associated with maternal breast cancer in a supportive social context can be positively related to post-traumatic growth.
- ▶ The co-occurrence of positive affect and depressive symptoms supports a multidimensional model of adjustment to maternal breast cancer.

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Cancer and other adverse life events increasingly have been conceptualized as potential catalysts for positive personal transformation. Echoing this idea, Tedeschi and Calhoun (1995) coined the term post-traumatic growth to describe positive changes following illness and other stressful experiences. Although the positive psychosocial concomitants of cancer-related experiences have been explored among patients (Andrykowski et al., 1996; Antoni et al., 2001; Cordova, Cunningham, Carlson, & Andrykowski, 2001; Cruess et al., 2000; Sears, Stanton, & Danoff-Burg, 2003), little information is available regarding potential psychosocial gains among patients' first-degree relatives.

## Cancer-Related Distress

Research has documented primarily the negative psychosocial sequelae surrounding breast cancer diagnosis and treatment, with patients as well as their first-degree relatives exhibiting tremendous variability in psychological distress (Moyer & Salovey, 1996; Thewes, Meiser, Tucker, & Schnieden, 2003). Daughters of patients with breast cancer may experience elevated levels of psychological distress because of numerous cancer-related stressors, including a two- to threefold risk of developing breast cancer themselves (Offit & Brown, 1994). Kash, Holland, Halper, and Miller (1992) found that levels of distress, determined using the Brief Symptom Inventory (Derogatis & Spencer, 1982), among women with family histories of breast cancer exceeded normal ranges by almost one standard deviation, reaching levels found among survivors of Hodgkin disease and leukemia (Kornblith et al., 1990). Conversely, levels of distress that would be expected for a community sample have been found among women at high risk for breast and ovarian cancer (Coyne, Benazon, Gaba, Calzone, & Weber, 2000) as well as among long-term survivors of breast cancer (Massie & Holland, 1990).

## Cancer-Related Post-Traumatic Growth

Mixed findings regarding distress support the view of cancer as a psychosocial transition (Andrykowski, Brady, & Hunt, 1993; Andrykowski et al., 1996; Parkes, 1971) that potentially can result in adjustment difficulties as well as fortitude and personal growth. The phrase *psychosocial transition* refers to major life experiences that require individuals "to restructure [their] ways of looking at the world and [their] plans for living in it" (Parkes, p. 102). Indeed, cancer survivors often attribute positive life changes to their struggles with the disease (Andrykowski et al., 1993, 1996; Antoni et al., 2001; Bellizzi, 2004; Carpenter, Brockopp, & Andrykowski, 1999; Cordova et al., 2001; Cruess et al., 2000; Curbow, Somerfield, Baker, Wingard, & Legro, 1993; Katz, Flasher, Cacciapaglia, & Nelson, 2001; Sears et al., 2003; Taylor, Lichtman, & Wood, 1984; Widows, Jacobsen, Booth-Jones, & Fields, 2005). For example, qualitative studies indicate that some breast cancer survivors experience spiritual growth as they restore a sense of connection with others or a higher power and find renewed purpose in life (Bauer-Wu & Farran, 2005; Coward & Kahn, 2004; Gall & Cornblat, 2002). Indeed, a recent quantitative study of long-term breast cancer survivors found that perceptions of positive meaning in the cancer experience were associated with

positive affect in cross-sectional and longitudinal analyses (Bower et al., 2005).

Preliminary evidence suggests that cancer-related experiences may precipitate personal growth for patients' spouses and children as well. Weiss (2002) found that the majority of husbands of breast cancer survivors reported small to moderate positive changes following their wives' diagnoses. In the only study to date that assessed benefits derived from experiences with parental cancer, 93% of adult daughters indicated that cancer had caused at least one positive change in their lives (Leedham & Meyerowitz, 1999).

Predictors of lasting benefits or post-traumatic growth following cancer have been assessed among cancer survivors and their partners but have not been studied among daughters of cancer survivors. Among women with breast cancer, greater post-traumatic growth has been associated with younger age, higher income, contact with a person reporting benefits from the cancer experience, and greater emotional expression and perceived cancer stress (Cordova et al., 2001; Manne et al., 2004; Sears et al., 2003; Weiss, 2004b). Partners' post-traumatic growth has been associated with younger age, more intrusive thoughts and appraisals of the illness as traumatic, and greater use of positive reappraisal coping and emotional processing (Manne et al.; Weiss, 2004a). Tedeschi and Calhoun's (1995) theoretical model predicted that optimists, or people who expect positive outcomes (Scheier & Carver, 1985), would use coping strategies that foster post-traumatic growth. In addition, time to process the implications of a cancer diagnosis in an emotionally supportive social context is a hypothesized contributor to growth. However, neither optimism nor social support has been found to be associated with growth in studies of patients with breast cancer (Cordova et al.; Sears et al.).

## Goals of the Study

Goals of the present study were to (a) compare levels of depressive symptoms, positive and negative affect, life satisfaction, optimism, and social support between the adult daughters of breast cancer survivors and a control group of women with healthy parents; and (b) examine the extent to which demographic variables, stressor characteristics (e.g., time since diagnosis, comorbidity, medical treatment variables, caregiving), and psychosocial variables (e.g., cognitive appraisals, affect, coping) were related to post-traumatic growth among participants with maternal histories of breast cancer. Based on prior theory (Calhoun & Tedeschi, 1998; Creamer, Burgess, & Pattison, 1992; Horowitz, 1976; Janoff-Bulman, 1989, 1992) and research (Cordova et al., 2001; Coyne et al., 2000; Leedham & Meyerowitz, 1999; Manne et al., 2004; Sears et al., 2003; Wellisch, Gritz, Schain, Wang, & Siau, 1991), the following results were hypothesized.

1. No differences in psychosocial adjustment would be found between women with and without maternal histories of breast cancer.
2. Daughters of breast cancer survivors would report levels of post-traumatic growth comparable to those found in previous studies of breast cancer survivors.
3. Income, perceived stressfulness of the mother's breast cancer, optimism, social support, and approach-oriented coping strategies (e.g., planning, emotional processing)

would be positively associated with growth, whereas age and avoidant coping (i.e., denial) would be negatively correlated with growth.

## Methods

### Participants

To be eligible for the current study, participants had to be 18 years of age or older and have mothers who had been diagnosed with breast cancer. Participants were recruited from two hospital cancer centers in Ohio and two breast cancer organizations in upstate New York. Of 110 questionnaires that were distributed either directly to participants or to those who knew of potential participants, 35 were returned to the investigators (32% response rate). Two participants whose mothers had died of breast cancer were excluded from all analyses to reduce variance associated with normative grief reactions. In addition, three male participants were excluded from all analyses to eliminate gender variance. Thus, the final sample consisted of 30 adult daughters of breast cancer survivors.

Participants were asked to recruit their friends to serve as a comparison sample. Eligibility criteria for comparison participants were age older than 18 years, female gender, similar age to the friend, and two healthy parents (i.e., no severe or chronic physical illness). Of 110 questionnaires for the comparison sample (included in participants' packets), 21 were mailed to the investigators (19% response rate). Three of the 21 comparison participants were excluded from all analyses because they were male or friends of participants whose mothers had died of breast cancer. In addition, two comparison participants were excluded from all analyses because their age differed by more than 10 years from participants with maternal histories of breast cancer. Thus, the final comparison sample consisted of 16 women with healthy parents.

### Procedure

A hospital staff member or researcher approached potential participants or their friends and relatives. Interested individuals took questionnaire packets after receiving an overview of the study. Other interested individuals obtained questionnaires after responding to an announcement of the study in a breast cancer newsletter. To maintain anonymity, the informed consent forms did not require signatures and questionnaires were mailed to the researchers in postage-paid envelopes. Protocols were reviewed, approved, and conducted in accordance with hospital and university institutional review boards.

### Measures

Common measures were completed by both participant groups. Cancer-specific measures were completed only by participants with maternal histories of breast cancer.

**Demographic variables:** Participants reported their gender, age, race, and income as well as their educational, occupational, health, and marital status.

**Depressive symptoms:** Participants completed the **Center for Epidemiologic Studies–Depression Scale (CES-D)** (Radloff, 1977), a 20-item, well-validated self-report measure of depressive symptoms. Participants rate the degree to which they had experienced each symptom (e.g., “I had

crying spells”) during the past week on a scale of 0 (rarely or none of the time) to 3 (most or all of the time). A score higher than 16 identifies individuals with clinically significant depressive symptoms (Husaini, Neff, Harrington, Hughe, & Stone, 1980; Weissman, Sholomskas, Pottenger, Prusoff, & Locke, 1977). Coefficient alpha was 0.95 for participants with maternal histories of breast cancer and 0.90 for participants with healthy parents.

**Mood:** Participants completed the **Positive and Negative Affect Schedule** (Watson, Clark, & Tellegen, 1988), a well-validated self-report measure of 10 positive (e.g., proud) and 10 negative (e.g., nervous) affective states. Respondents rate the degree to which they had experienced each emotion during the past week on a scale of 1 (very slightly or not at all) to 5 (extremely). For participants with and without maternal histories of breast cancer, coefficient alphas for positive affect (0.92 and 0.79, respectively) and negative affect (0.91 and 0.83, respectively) were adequate.

**Life satisfaction:** The **Satisfaction With Life Scale** (Diener, Emmons, Larsen, & Griffin, 1985) has five items that are evaluated on a scale of 1 (strongly disagree) to 7 (strongly agree). A sample item is, “In most ways my life is close to my ideal.” The measure possesses adequate psychometric properties (Diener et al.), and coefficient alpha was 0.90 for participants with maternal histories of breast cancer and 0.91 for participants with healthy parents.

**Optimism:** The **Life Orientation Test–Revised (LOT-R)** (Scheier, Carver, & Bridges, 1994) is a brief (six coded items) measure used to assess differences between people in regard to optimism and pessimism. Respondents rate the extent of their agreement with each item on a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The LOT-R possesses adequate internal consistency and is relatively stable over time (Scheier et al.). Coefficient alpha was 0.90 for participants with maternal histories of breast cancer and 0.87 for participants with healthy parents.

**Social support:** The **Social Provisions Scale (SPS)** (Cutrona & Russell, 1987), a 24-item measure based on Weiss's (1974) theory of social relationships, was used to assess social functions or provisions that could be obtained in relationships. Participants rate the degree to which each statement describes their current relationships on a scale of 1 (strongly disagree) to 4 (strongly agree). In this study, four of the measure's six four-item scales that evidenced adequate internal consistency in both groups (Cronbach's alpha  $\geq$  0.70) were used: (a) attachment, or a sense of emotional security or closeness; (b) social integration, or a sense of belonging to a group of people who share common interests and activities; (c) reassurance of worth, or recognition of one's competence and skill by others; and (d) guidance, or gaining advice or information from others. The SPS possesses sound psychometric properties, and factor analysis has confirmed a six-factor structure that corresponds to the six social provisions (Cutrona & Russell). Coefficient alphas for the subscales in the present study ranged from 0.80–0.85 for participants with maternal histories of breast cancer and 0.70–0.96 for participants with healthy parents.

**Stressor characteristics:** Daughters of breast cancer survivors reported maternal medical history, including time since the mother's breast cancer diagnosis, the stage of cancer, comorbid physical conditions, and medical treatments received (i.e., surgery, radiation, chemotherapy). Participants

also reported whether they had cared for their mothers in some capacity following breast cancer diagnosis.

**Cognitive appraisals:** Scales developed by Compas, Worsham, Ey, and Howell (1996) were modified to assess appraisals of the severity and stressfulness of “mother’s breast cancer” rather than “parent’s illness.” Perceptions of the severity of the mother’s breast cancer were evaluated on a scale ranging from 1 (not at all bad) to 4 (extremely bad) in response to the question, “How bad do you think your mother’s breast cancer is?” Perceived stressfulness of the experience with maternal breast cancer was assessed on a scale ranging from 1 (not at all upsetting) to 4 (extremely upsetting) in response to the question, “How upsetting to you is your mother’s breast cancer?” Perceived severity and stressfulness of parental cancer have been associated with indices of emotional distress (Compas et al.).

**Coping:** Participants completed subscales of the COPE (Carver, Scheier, & Weintraub, 1989), a 60-item inventory of coping strategies, with reference to their experiences with maternal 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 been shown to possess adequate psychometric properties (Carver et al., 1989) and predictive validity (Carver et al., 1993). In the current study, six four-item scales that evidenced adequate internal consistency (Cronbach’s alpha  $\geq$  0.75) were used: Spiritual Coping, Active Coping, Planning, Seeking Social Support for Instrumental Reasons, Seeking Social Support for Emotional Reasons, and Denial.

Embedded in the COPE were two four-item Emotional Approach Coping scales that have adequate internal consistency and predictive validity (Stanton, Kirk, Cameron, & Danoff-Burg, 2000). The scales were substituted for the Focus on and Venting of Emotions scale of the COPE, which has been shown to contain items confounded with distress (Stanton, Danoff-Burg, Cameron, & Ellis, 1994). Coefficient alphas for the Emotional Processing and Emotional Expression subscales in the present research were 0.82 and 0.94, respectively.

**Post-traumatic growth:** Developed by Tedeschi and Calhoun (1996) to assess positive changes following trauma, the 21-item **Post-Traumatic Growth Inventory (PTGI)** yields a total score and five subscale scores: New Possibilities, Relating to Others, Personal Strength, Spiritual Change, and Appreciation of Life. Participants rated items using maternal breast cancer as the life crisis. Items were rated on a scale of 0 (I did not experience this change as a result of my crisis) to 5 (I experienced this change to a very great degree as a result of my crisis). The scale possesses adequate reliability and concurrent and discriminant validity (Tedeschi & Calhoun, 1996). Coefficient alpha for the PTGI total score was 0.97.

## Results

### Demographics and Maternal Medical Characteristics

The 30 women with maternal histories of breast cancer had a mean age of 38.1 years (SD = 9.0, range = 19–60 years) and a mean of 6.5 years (SD = 5.8, range = 0.58–22.8 years) since the mother’s breast cancer diagnosis. More participants were recruited from the local breast cancer organizations (n = 18, 60%) than the hospital cancer centers (n = 12, 40%). Approximately 43% of participants did not know the disease stage at the time of the mother’s diagnosis. Reported disease stages at diagnosis were stage I (n = 6, 20%), stage II (n =

6, 20%), stage III (n = 1, 3%), and stage IV (n = 4, 13%). Reported surgical procedures included mastectomy (n = 13, 43%), lumpectomy (n = 6, 20%), and both procedures (n = 4, 13%). Reported adjuvant treatments included chemotherapy (n = 8, 27%), radiation (n = 6, 20%), and both treatments (n = 10, 33%). More than half of participants (63%) reported performing caregiving duties for their mothers following breast cancer diagnosis.

The 16 participants with healthy parents had a mean age of 31.4 years (SD = 9.1, range = 19–48 years). Friends of those recruited from hospitals (n = 8) and community organizations (n = 8) were equally represented in the sample. Sociodemographic characteristics for both participant groups appear in Table 1. Participants with healthy parents were significantly younger than participants with maternal histories of breast cancer (F[1, 43] = 5.80, p < 0.05). Chi square comparisons between participant groups revealed no significant differences with respect to marital status, employment status, education, or income, and no participants in either group reported a personal history of cancer.

### Self-Report Measures

Means and standard deviations for self-report measures are shown in Table 2. Both groups reported levels of positive and negative affect (Watson et al., 1988), life satisfaction (Diener et al., 1985), and social support (Cutrona & Russell, 1987) in the normal range and reported above-average levels of optimism (Scheier et al., 1994). However, approximately half of both groups demonstrated clinically significant levels of depressive symptoms on the CES-D, compared to about one-third of a sample of patients with breast cancer (Antoni et al., 2001) and 21% of general population samples (Radloff, 1977).

**Table 1. Demographic Information for Participant Groups**

Characteristic	Daughters of Breast Cancer Survivors (N = 30)	Daughters of Healthy Parents (N = 16)	$\chi^2$	p
	%	%		
<b>Married</b>	67	56	0.49	0.49
<b>Employed<sup>a</sup></b>	67	56	0.49	0.49
<b>Education</b>			5.14	0.08
High school degree or less	3	25		
Some college or college degree	77	56		
Graduate work or degree	20	19		
<b>Race</b>			1.92	0.17
Caucasian	100	94		
Other	–	6		
<b>Annual household income (\$)</b>			5.38	0.37
10,000–19,999	13	–		
20,000–29,999	7	6		
30,000–49,999	10	25		
50,000–69,999	20	31		
70,000–99,999	17	13		
$\geq$ 100,000	27	6		
Missing data	6	19		

<sup>a</sup> Full- and part-time employment

**Table 2. Group Means and Standard Deviations for Psychosocial Measures**

Measure	Daughters of Breast Cancer Survivors (N = 30)		Daughters of Healthy Parents (N = 16)	
	$\bar{X}$	SD	$\bar{X}$	SD
Depressive symptoms	17.2	13.60	16.9	10.6
Negative affect	25.2	9.80	22.8	7.7
Positive affect	29.5	9.20	26.1	5.7
Life satisfaction	20.0	7.70	23.8	7.1
Optimism	19.3	6.10	19.9	6.2
Social support total score	82.3	10.90	83.9	10.9
Attachment	13.8	2.30	13.9	3.1
Social integration	13.4	2.30	13.9	2.3
Reassurance of worth	13.1	2.60	12.4	2.5
Guidance	14.3	2.10	14.6	2.9
Perceived severity of cancer <sup>a</sup>	2.5	0.91	–	–
Perceived stressfulness of cancer <sup>b</sup>	3.1	1.00	–	–
Spiritual coping	10.2	4.30	–	–
Active coping	9.4	2.60	–	–
Planning	9.7	3.10	–	–
Seeking social support for instrumental reasons	9.6	3.50	–	–
Seeking social support for emotional reasons	10.2	3.40	–	–
Denial	5.1	2.00	–	–
Emotional processing	10.5	3.00	–	–
Emotional expression	10.3	3.60	–	–
Post-traumatic growth total score	65.5	26.90	–	–

<sup>a</sup> Rated on a scale of 1 (not at all bad) to 4 (extremely bad)

<sup>b</sup> Rated on a scale of 1 (not at all upsetting) to 4 (extremely upsetting)

Women tended to characterize their mothers' breast cancer as moderately serious and moderately to extremely upsetting. These women reported moderate use of all of the coping strategies except denial, which rarely was used. Total PTGI scores for the present sample of daughters of breast cancer survivors ( $\bar{X} = 65.5$ ,  $SD = 26.9$ ) were comparable to those of patients with breast cancer ( $\bar{X} = 64.1$ ,  $SD = 24.8$  [Cordova et al., 2001];  $\bar{X} = 58.4$ ,  $SD = 25.8$  [Sears et al., 2003]) and lower than those of 54 undergraduates ( $\bar{X} = 76.5$ ,  $SD = 22.0$ ) who had experienced various traumas (Calhoun, Cann, Tedeschi, & McMillan, 2000).

### Group Comparisons

Multivariate analysis of variance was conducted to test for differences between groups in positive and negative emotion, depressive symptoms, life satisfaction, optimism, and social support. As hypothesized, no significant differences were found for any of the measures. For example, similar levels of depressive symptoms were found on the CES-D, with 47% of daughters of breast cancer survivors ( $n = 14$ ) and 50% ( $n = 8$ ) of daughters of healthy parents with scores higher than or equal to 16.

### Correlates of Post-Traumatic Growth

Relationships among post-traumatic growth and demographic variables, stressor characteristics, and psychosocial measures were examined (see Table 3). The researchers hypothesized that income, perceived stressfulness of the

mother's breast cancer, optimism, approach-oriented coping strategies, and social support would be positively correlated with growth. In addition, the researchers hypothesized that age and denial would be negatively correlated with growth. Correlations were computed among the PTGI total score, the hypothesized predictors, and other demographic (i.e., education, marital status), medical (i.e., time since diagnosis, perceived disease severity, receipt of chemotherapy or mastectomy, comorbidity, caregiving), and psychosocial (i.e., depressive symptoms, affect, life satisfaction) variables.

As hypothesized, PTGI total score was positively associated with the perceived stressfulness of the mother's breast cancer and social support, including SPS total scores and the Attachment and Guidance subscales. Other correlates of growth included caring for one's mother following her breast cancer diagnosis and reporting higher overall life satisfaction. As predicted, greater post-traumatic growth also was associated with greater use of several approach-oriented coping strategies (e.g., active coping, planning, emotional processing, seeking social support for instrumental and emotional reasons, spiritual coping). Contrary to hypotheses, post-traumatic growth was unrelated to age, income, or optimism. None of the other demographic, medical (i.e., time since diagnosis, perceived disease severity, receipt of chemotherapy or mastectomy, comorbidity), or psychosocial (i.e., depressive symptoms, affect, appraisals of cancer severity, denial, emotional expression) variables were significantly correlated with growth. A post-hoc power analysis

**Table 3. Correlations of Demographic Variables, Stressor Characteristics, and Psychosocial Measures With Post-Traumatic Growth**

Predictor Variable	Post-Traumatic Growth	Correlation With Post-Traumatic Growth
Age	-0.01	0.96
Income	-0.27	0.17
Education	0.24	0.21
Marital status	0.22	0.26
Time since diagnosis	-0.06	0.77
Physical comorbidity	0.22	0.26
Mastectomy	0.19	0.33
Chemotherapy	0.27	0.17
Caring for mother following diagnosis	0.40	0.05
Perceived severity of disease	0.24	0.22
Perceived stressfulness of disease	0.57	–
Depressive symptoms	0.14	0.47
Negative affect	0.19	0.34
Positive affect	0.17	0.38
Life satisfaction	0.46	0.01
Optimism	0.13	0.50
Spiritual coping	0.39	0.04
Active coping	0.43	0.02
Planning	0.46	0.01
Seeking social support for instrumental reasons	0.59	–
Seeking social support for emotional reasons	0.37	0.05
Denial	0.13	0.52
Emotional processing	0.49	0.01
Emotional expression	0.09	0.63
Social support	0.40	0.03

using GPower (Faul & Erdfelder, 1992) revealed low power for detecting a moderate effect size ( $r = 0.30$ , power = 0.38,  $t[28] = 2.05$ ,  $p < 0.05$ ).

## Discussion

### Correlates of Post-Traumatic Growth

The present study is the first to assess post-traumatic growth and its correlates among first-degree female relatives of women with cancer. The study also is the first to examine the potential contribution of various coping strategies and caregiving to cancer-related post-traumatic growth. Of note, the degree of post-traumatic growth following maternal breast cancer diagnosis parallels reports of growth among breast cancer survivors (Cordova et al., 2001; Sears et al., 2003). Results partially support Calhoun and Tedeschi's (1998) model of post-traumatic growth. Although personal characteristics (i.e., age, income, education, marital status, optimism) did not correlate with post-traumatic growth, greater perceived cancer stress and social support were related to greater post-traumatic growth. Findings are consistent with Calhoun and Tedeschi's (1998) prediction that intensive engagement with the stressor (as indicated in this study by stress appraisals and emotional processing) in a supportive social context facilitates post-traumatic growth.

Also consistent with Calhoun and Tedeschi's (1998) model is the finding that actively managing one's emotions and the stressors associated with maternal breast cancer was related to post-traumatic growth. Specifically, those experiencing greater post-traumatic growth were more likely to engage in the approach-oriented coping strategies of planning, active coping, seeking social support, and processing emotions. Coping through denial, which researchers expected to be inversely related to growth, was used infrequently by participants in this study and was not correlated with growth. Although emotional processing was positively associated with growth, emotional expression was not, suggesting that ventilating emotions without attempting to understand them is an insufficient facilitator of growth. Spiritual coping, which may function as an active coping strategy for some women dealing with cancer (Stanton, Danoff-Burg, & Huggins, 2002), was positively associated with post-traumatic growth. This finding mirrors previous positive relations among measures of religiosity (i.e., religious participation and openness to religious change) and post-traumatic growth (Calhoun et al., 2000; Pargament, 1997; Tedeschi & Calhoun, 1995).

Caregivers draw on diverse resources when confronting the stressors associated with illness, and a tendency toward action may contribute to post-traumatic growth (Calhoun & Tedeschi, 1998). In the current study, daughters who served as caregivers were more likely to experience greater post-traumatic growth. Although most research has focused on the negative aspects of providing care, studies have increasingly evaluated perceived beneficial effects (Folkman, Chesney, & Christopher-Richards, 1994; Kramer, 1997; Nijboer, Triemstra, Tempelaar, Sanderman, & van den Bos, 1999). For example, the recently developed Caregiver Reaction Assessment (Nijboer et al.) evaluates negative and positive reactions to giving care to patients with cancer.

Medical variables, including time since diagnosis and the perceived severity of the mother's breast cancer, were unrelated to growth. Inconsistent associations between

time since diagnosis and post-traumatic growth have been found among breast cancer survivors (Cordova et al., 2001; Sears et al., 2003; Weiss, 2004b). Participants in previous studies were, on average, closer in proximity to the time of diagnosis than the daughters of survivors in the present study. Perhaps differences in growth as a function of time are observed only during the first few years following diagnosis and treatment.

Post-traumatic growth in the present sample appeared to be independent of emotional states and positively correlated with overall life satisfaction. To date, evidence relating psychological well-being and distress to post-traumatic growth has been limited and inconsistent (Cordova et al., 2001; Edmonds & Hooker, 1992; Joseph, Williams, & Yule, 1993; McMillen, Zuravin, & Rideout, 1995; Park, 1998; Sears et al., 2003). In a multidimensional model of adjustment, positive and negative aspects of functioning are multifaceted and distinct constructs (Antonovsky, 1979; Diener & Emmons, 1984; Ryff, 1989).

### Group Comparisons on Psychosocial Outcome Measures

As hypothesized, participant groups showed similar levels of positive and negative psychosocial functioning. The finding mirrors the only previously published comparison study of women with and without maternal histories of breast cancer, which found no differences between groups in psychological adjustment (Wellisch et al., 1991). For both groups, average levels of positive and negative affect (Watson et al., 1988), life satisfaction (Diener et al., 1985), and social support (Cutrona & Russell, 1987) were within the range that would be expected for general population samples, and the reported degree of optimism was above average relative to normative samples (Scheier et al., 1994). However, the relatively high levels of depressive symptoms in both groups differed from those found in other studies of healthy women (Carpenter et al., 1998) and women with breast cancer (Antoni et al., 2001). The co-occurrence of positive affect and depressive symptoms in the present sample reflects a previous study that documented both positive and negative psychological states among caregiving partners of men with AIDS (Folkman, 1997).

### Areas for Future Research

Future studies with larger samples are needed to replicate these preliminary findings and to test more complex models of post-traumatic growth and psychosocial adjustment to maternal breast cancer. Studies should explore the relationships among stressor characteristics, appraisals of stressor severity, and post-traumatic growth. Another area for further inquiry is the magnitude of life disruption required for growth. Although people who have survived major trauma appear to experience more growth than those who report no trauma (Tedeschi & Calhoun, 1996), the relationship between perceived trauma severity and degree of positive change is not yet clear. Finally, further investigation of the empirical and theoretical overlap between growth and measures of psychological health is warranted.

### Limitations

Findings should be interpreted in light of a number of methodologic limitations. The cross-sectional design

precludes conclusions regarding temporal and causal relationships among variables. The preliminary evidence of post-traumatic growth and its correlates among daughters of breast cancer survivors sets the stage for prospective studies. Also, given the relatively small, all-volunteer sample with above-average levels of depressive symptoms, the findings may not be generalizable to the larger population of women with maternal histories of breast cancer. In addition, the small sample size yielded low power for detecting a moderate effect size. An inability to access the medical records of participants' mothers precluded a thorough analysis of the extent to which medical variables were associated with post-traumatic growth. The receipt of hormonal therapy, in particular, was not assessed in the present study. Finally, whether the present findings from primarily Caucasian women with maternal histories of breast cancer would generalize to other groups (e.g., men, racial and ethnic minority groups, relatives of other medical populations) requires further investigation. Additionally, the wide age range of the present sample precluded an in-depth analysis of the challenges faced by specific age groups.

Nonetheless, this study contributes to a growing body of theory and research (Affleck & Tennen, 1996; Carver et al., 1993; Folkman & Greer, 2000; Tedeschi & Calhoun, 1995), suggesting that health-related adversity may result in fortitude and positive life changes. The findings of this research point to factors that may promote the personal growth of women living with a familial risk of cancer.

## Nursing Implications

With regard to clinical applications, evidence suggests that the experience of growth promotes postevent adjustment and

reduced distress (Davis, Nolen-Hoeksema, & Larson, 1998; Frazier, Conlon, & Glaser, 2001). According to Calhoun and Tedeschi (1999), nurses and other healthcare professionals cannot facilitate post-traumatic growth in patients and their family members; however, they can recognize and reinforce it. Nurses can monitor the psychological adjustment of daughters who accompany their mothers to medical appointments and direct them to supportive services if necessary. For example, daughters and their mothers may benefit from family-based programs of cancer care that emphasize optimism, coping effectiveness, and symptom management (Northouse et al., 2002).

In addition, the results suggest that some daughters are unaware of their mothers' disease stage at diagnosis. Nurses can facilitate familial communication and can meet the informational needs of patients' daughters. Indeed, one study found that the vast majority of adult daughters of women with early-stage breast cancer sought information from sources other than their mothers, including healthcare professionals. Given evidence that genetic counseling results in higher rates of mammography, clinical breast examination, and breast self-examination in women with family histories of breast cancer (Watson et al., 2005), nurses may direct daughters to such services. Nurses with a holistic approach to practice may explore the psychosocial factors that allow women to thrive even in the midst of life-threatening familial illness.

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