

Contextual Variables, Emotional State, and Current and Expected Quality of Life in Breast Cancer Survivors

Theresa A. Kessler, PhD, RN, CS

Purpose/Objectives: To determine the relationship between contextual variables, emotional state, and quality of life (QOL) now and expectations for the future in survivors of breast cancer.

Design: Descriptive and nonexperimental.

Setting and Sample: 148 volunteers and women with breast cancer involved in a program by the American Cancer Society. Most subjects were middle-aged ($\bar{X} = 52.4$, $SD = 11.56$), were married (72%), and had graduated high school (38%). Time since diagnosis was 0.3–19 years ($\bar{X} = 3.54$, $SD = 3.61$); 74% were diagnosed more than five years ago, 54% were not receiving any treatment, and 66% had localized breast cancer.

Methods: At home, participants completed a self-report survey for personal and contextual variables, Positive and Negative Affect Scale, QOL Measurement, and Global Life Satisfaction Scale.

Main Research Variables: Time since diagnosis, extent of cancer, emotional state, QOL, and global life satisfaction.

Findings: Women had high positive affect ($\bar{X} = 37.96$) and low negative affect ($\bar{X} = 17.13$). QOL and life satisfaction were high. Time since diagnosis and extent of disease were related weakly to negative affect and QOL ($p < 0.001$). Positive and negative affect were related moderately to QOL and life satisfaction ($p < 0.001$). Current personal life satisfaction was significantly greater than breast cancer survivors' estimates for "most people," and survivors expected life satisfaction to increase significantly in five years ($p < 0.001$). Significant differences in QOL were found between those who were diagnosed recently and those who were diagnosed 10 or more years previously.

Conclusions: Despite breast cancer, women have positive affect, good QOL, and life satisfaction. Contextual variables were related weakly to outcomes; emotions were related more strongly to outcomes. Survivors were more satisfied with life than they estimated others to be and expected satisfaction to increase in the future.

Implications for Nursing: Nurses may use these findings to encourage patients who are newly diagnosed with breast cancer. Women with breast cancer adapt well despite potential negative outcomes, and survivors even report better QOL than they estimate for most people.

Key Points . . .

- ▶ Despite the negative impact of treatment on day-to-day life, women with breast cancer can have a positive outlook for their futures and adapt to treatment with a good quality of life.
- ▶ Time since initial diagnosis of breast cancer and extent of disease at diagnosis both are related to quality of life.
- ▶ Survivors of breast cancer estimate their personal life satisfaction as significantly greater than most people and expect their life satisfaction to increase significantly in five years.

United States. A woman in the United States has a 12.5% chance (one in eight) of developing breast cancer in her lifetime (ACS, 2001). Because of advances in early detection and treatment, more and more women survive breast cancer. The five-year survival rate for women after initial diagnosis of localized breast cancer is about 96% (ACS, 2001). If breast cancer spreads regionally, the survival rate after five years is almost 77%. Thus, understanding how women adapt and live with breast cancer is key to helping them cope beyond initial diagnosis and treatment. The purpose of this study was to determine the relationship between contextual variables (i.e., time since diagnosis, extent of disease, and type of treatment), emotional state, and quality of life (QOL) in survivors of breast cancer.

Literature Review

Discovering a lump in the breast and the diagnosis of breast cancer inevitably create the potential for extreme concern and stress (Lierman, 1988) that may disrupt QOL. Definitions of QOL are numerous and have been inconsistent in the literature (Farquhar, 1995; King et al., 1997). Experts generally agree that QOL represents a subjective phenomenon that is multidimensional and involves physical, psychological, emotional, social, and spiritual well-being (King et al.). Many measures of QOL assess overall daily functioning

Theresa A. Kessler, PhD, RN, CS, is an associate professor in the College of Nursing at Valparaiso University in Indiana. (Submitted April 2000. Accepted for publication August 23, 2001.)

Digital Object Identifier: 10.1188/02.ONF.1109-1116

By the end of 2002, an estimated 203,500 new cases of invasive breast cancer and almost 54,300 additional cases of in situ breast cancer will be diagnosed (American Cancer Society [ACS], 2002). Breast cancer is the most common cancer among women, excluding cancers of the skin, and it accounts for one of every three cancers diagnosed in the

and psychosocial adaptation, which are key components of surviving breast cancer. In addition, specific side effects of treatment for breast cancer can affect overall psychosocial functioning and QOL (Ferrell, Grant, Dean, Funk, & Ly, 1996; Nail & Jones, 1995; Wells, 1990).

Contextual Variables

Studies examining the impact of breast cancer on emotional state and QOL had varied findings. Contextual variables, such as type of treatment, extent of disease, and time since diagnosis, have been examined in women with breast cancer.

Type of treatment: Women who received more conservative surgical treatment for breast cancer had fewer overall psychosocial adjustment problems (Wolberg, Romsaas, Tanner, & Malec, 1989) and better sexual adjustment over time (Schain et al., 1983; Wolberg et al.). In a cross-sectional, correlational study, McCarthy (1994) assessed 86 Irish women who were newly diagnosed with breast cancer and were receiving first-time chemotherapy. Based on the theoretical framework of Lazarus and Folkman (1984), the study variables included appraisal, coping methods, social support, and psychosocial adjustment. Thirty-eight percent of the variance in psychosocial adjustment was explained by emotion-focused coping strategies of control (3%), escape or avoidance (22%), social support (9%), and time since diagnosis (4%). In another cross-sectional study, Graydon (1994) examined factors influencing QOL in 53 women who received lumpectomy or breast-conserving surgery followed by radiation. The women were interviewed a mean of seven weeks after radiation therapy. They reported few changes in their usual activities, were not emotionally distressed, and had few symptoms. Woo, Dibble, Piper, Keating, and Weiss (1998) studied the effects of various cancer therapies (i.e., radiation, hormonal, chemotherapy, and combinations) on cognition, mood, and fatigue in a cross-sectional survey mailed to 322 women with breast cancer. Significant differences were found by treatment method in cognition/mood and total fatigue scores. Those who received combination therapies had greater alterations in mood and overall fatigue. Similarly, Ferrell, Grant, Funk, Otis-Green, and Garcia (1998) found that the greatest area of psychosocial concern in a random sample of 298 survivors of breast cancer was distress from initial diagnosis and treatment, specifically surgery and chemotherapy.

Extent of disease: Two studies found that the extent of disease involvement, defined as confinement to one breast versus metastatic disease, was related to overall adjustment (Derogatis, Abeloff, & Melisaratos, 1979; Friedman, Baer, Lewy, Lane, & Smith, 1988). Women who had localized disease had overall better adjustment than women with metastatic disease.

Time since diagnosis: Length of time since diagnosis or initial treatment for breast cancer also has been examined as a contextual variable influencing overall adjustment to the disease. Hurny et al. (1996) studied 1,475 premenopausal women and 1,212 postmenopausal women at frequent intervals during adjuvant chemotherapy and cancer recurrence. They found that overall adjustment and QOL improved over time. Women who had survived longer had better overall adjustment. Derogatis et al. (1979) also found that length of survival was related to varying levels of psychological adjust-

ment in 35 women with metastatic breast cancer. But in that study, survivors who had a longer length of time since diagnosis showed significantly poorer adjustment to the diagnosis than survivors with a shorter length of time since diagnosis. This result supported the interpretation that women who coped by expressing their negative emotions and distress appeared to survive longer. In two other studies, time since diagnosis was not related to adjustment to breast cancer. Friedman et al. (1988) found that time since diagnosis was not related to psychosocial adjustment, which included daily functioning and marital relations. Berglund, Bolund, Fornander, Rutqvist, and Sjoden (1991) found similar results. They studied the late effects of treatment, chemotherapy, or radiation on QOL in women who were free of recurrence of breast cancer for 2–10 years after treatment. Time since diagnosis was not related to QOL after treatment.

Generally, women with breast cancer have some adjustment problems as measured by disturbances in mood states, and these disturbances tend to decrease over time since diagnosis and treatment (Graydon, 1994; Schag et al., 1993; Schain et al., 1983; Wolberg et al., 1989). Hurny et al. (1996) compared the self-rated, emotional well-being states of the 1,475 premenopausal women and 1,212 postmenopausal women with breast cancer identified previously in this literature review. As both groups continued treatment, they reported improved emotional responses. The researchers concluded that adaptation and emotional responses to the disease and treatment over time affected the women's assessments of their QOL. In contrast to these findings, Derogatis et al. (1979) reported that long-term survivors of metastatic breast cancer were more symptomatic overall. They tended to have more negative moods and poorer QOL than short-term survivors. Thus, these research findings raise questions about the association between contextual variables, emotional state, and adaptational outcomes. QOL and emotional state following the diagnosis of breast cancer may be influenced more by extent of disease, such as localized cancer versus metastatic cancer, and treatment rather than by length of time since initial diagnosis and type of treatment.

Other Variables

An area of research that has received little attention in the literature is the comparison of women with breast cancer with other women. Ganz, Rowland, Desmond, Meyerowitz, and Wyatt (1998) studied a cross-sectional sample of 864 survivors of breast cancer. The women had more physical and menopausal symptoms than healthy women. These same women reported overall better health-related QOL and sexual functioning despite their physical symptoms as compared to other healthy, age-matched women. In other studies, perceived QOL among women with breast cancer essentially has been similar to that among healthy, age-matched control subjects (Dorval, Maunsell, Deschenes, Brisson, & Masse, 1998; Ganz et al.). These few studies did not make clear how QOL in women with breast cancer compares to that of other, healthy women.

Another area of research that has received little attention in the literature is how women with breast cancer perceive their expected future QOL and life satisfaction. What women with breast cancer believe about their future health and survival may be related to current QOL and ways of coping. Ferrell,

Grant, Funk, Otis-Green, and Garcia (1997) studied 21 survivors of breast cancer across three age strata (i.e., younger than 40, 40–60, and older than 60) through interviews and quantitative surveys. A specific assessment of expected future QOL was not included, but concerns described by the women included fears of cancer spreading, recurrence, impact on self-concept, and fear of future tests. Concern about what may happen in the future also has been measured by the concept of uncertainty. Uncertainty is one of the major experiences that survivors of breast cancer must face (Brandt, 1996; Kiebert, de Haes, & van de Velde, 1991; Wonghongkul, Moore, Musil, Schneider, & Deimling, 2000). Uncertainty has been measured most widely as uncertainty in illness (Mishel, 1981). It is the amount of ambiguity, complexity, lack of information, and unpredictability perceived during illness. When illness uncertainty was measured in women with breast cancer, long-term survivors (5–9.9 years) had low levels (Wonghongkul et al.), whereas women who were newly diagnosed (Hughes, 1993) and women who had more invasive surgery (Wong & Bramwell, 1992) had higher levels. These methods of measuring future concerns did not measure future QOL. Because a specific measure of future QOL or life satisfaction has not been reported in the literature, researchers do not know how survivors of breast cancer perceive their future QOL and life satisfaction.

The study of contextual variables related to psychological adjustment and QOL of women with breast cancer has received considerable attention in the literature. However, how the type of treatment, extent of disease, and time since diagnosis affect adjustment to breast cancer is not clear because few consistent findings have been reported. Findings have differed because of the inconsistent ways QOL and psychosocial adjustment were defined and measured and because of variations in methodologic approaches. What was found is that some women adjusted very well to the diagnosis of breast cancer, whereas others had a great deal of difficulty adjusting to breast cancer and maintaining an overall positive QOL. Thus, researchers must examine further what variables are associated with improved QOL and future adjustment in survivors of breast cancer.

Conceptual Framework

The theoretical framework for this study was the transactional model of stress and coping (Lazarus & Folkman, 1984). The model proposes cognitive appraisal and coping strategies as mediators of a potentially stressful event (i.e., breast cancer) and adaptational outcomes. As an individual experiences a potentially stressful event, whether initial or ongoing, a cognitive appraisal is formed by the mental operations of thinking and reasoning. During appraisal, unique personal and contextual characteristics related to the event create the potential for stress. In the case of breast cancer, contextual characteristics may include extent of breast cancer, type of treatment, and time since diagnosis. As an appraisal occurs, an individual experiences affective responses to a stressor, including positive and negative emotions. An individual's ability to regulate emotional responses reflects the degree of emotional distress or discomfort with the event (Johnson & Lauer, 1989). Personal and contextual characteristics, along with emotional responses, influence overall response and adaptation to a potentially stressful event.

Purpose

The purpose of this study was to examine the relationships among the contextual variables (i.e., time since diagnosis, extent of disease, and type of treatment), emotional state, and QOL for women surviving breast cancer, both now and what was expected in five years. Specific research questions included

- What are the relationships between the contextual variables, emotional state, and QOL?
- What is the relationship between emotional state and a woman's perceived satisfaction with life now and what she expects after five years of survival?
- How do women who have survived breast cancer compare their life satisfaction to their estimates of life satisfaction for "most people"?

Methods

Design

A cross-sectional design was used to obtain a sample of women at various points in time after the initial diagnosis of breast cancer. The sample represented different groups of survivors in regard to age, extent of disease, and type of treatment. Women completed self-report instruments to assess personal characteristics, contextual characteristics, emotional state, current QOL, and QOL expected in five years.

Sample and Setting

The convenience sample consisted of 148 women diagnosed with breast cancer. The women were recruited through ACS's Reach to Recovery Program in a large north-central city. Women who agreed to participate either were volunteers making visits for the program or women who had been seen during the past three years by the volunteers. The sample was selected because the women represented a population not reported in the literature and an initial contact by a Reach to Recovery volunteer was standard practice in the area.

Instruments

Four instruments were used to collect data. First, a **self-report questionnaire** developed by the researcher recorded both personal and contextual characteristics. Personal characteristics included age, marital status, ethnicity, and educational level, whereas contextual characteristics included extent of breast cancer, type of treatment, and time since diagnosis. Each variable has been correlated with cancer survival and represents a key factor that may influence adaptation.

Three instruments operationalized the main constructs of emotional state and QOL. The **Positive and Negative Affect Scale (PANAS)** (Watson, Clark, & Tellegen, 1988) measured positive and negative emotions. PANAS is a 20-item tool that contains two 10-item scales, one measuring positive affect and the other negative affect. Positive affect items reflect the extent to which an individual feels enthusiastic, active, and alert. Negative affect items reflect subjective feelings of distress, including anger, contempt, guilt, fear, and nervousness. It asks subjects to respond to items on a five-point Likert scale and indicate their moods for a specific time frame, such as the past few days, weeks, or months. For this study, subjects were asked to indicate their current emotional states. Scores for both scales range from 10–50; higher scores represent greater

positive or negative affect. In previous research, Cronbach's alpha on PANAS ranged from 0.84–0.90. In this sample, Cronbach's alpha was 0.88 for the positive affect scale and 0.92 for the negative affect scale.

The **QOL Measurement (QOLM)** (Selby, Chapman, Etazadi-Amoli, Dalley, & Boyd, 1984) was used to assess physical, psychological, and social aspects of adaptation to breast cancer. The tool consists of 28 items placed on 10 cm linear analog scales to measure the perceived degree of disruption related to specific side effects and outcomes of breast cancer treatment. The items assess outcomes related to emotion regulation, problem regulation, and general QOL. These outcomes fit theoretically with the transactional model of stress and coping. The righthand side of each item describes the normality or absence of the specific outcome being measured. Higher scores indicate better health and less severe disease-related symptoms, reflective of higher QOL. Internal consistency of the scale during initial scale development was 0.91, and test-retest reliability ranged from 0.63–1.0. In this sample, Cronbach's alpha was 0.94.

The third instrument was the **Global Life Satisfaction Scale (GLSS)** adapted from Cantril (1965) for this study. The scale consists of three items that measure satisfaction with life and uses the Cantril ladder. Research has indicated that life satisfaction is the most crucial indicator of subjective QOL (George & Bearon, 1980). GLSS asks individuals to respond to their global life satisfaction on each of three ladders for “right now,” “in five years,” and “compared to most people.” The Cantril ladder is a vertical, self-anchoring scale with 10 rungs. Scaling responses range from 0 (worst possible life) to 9 (best possible life). Higher scores on each ladder represent the best possible life satisfaction. A more global scale without items reflecting specific psychological and physiologic outcomes was chosen to fit better with women who were beyond invasive treatment and the five-year survival date. In addition, the use of single items may measure important, single aspects of illness perception that directly assess theoretically important variables (Leventhal & Nerenz, 1985).

Procedure

Before the study began, the institutional review board approved the protocol. The ACS director agreed to provide access to potential subjects according to agency specifications, and the letter of informed consent indicated that the director gave permission. Only the names for current Reach to Recovery volunteers and women who were seen during the past three years were provided. Two hundred and eight subjects were sent a copy of the informed consent letter explaining the purpose of the study, the instruments, and a stamped return envelope. If completed questionnaires were not returned after two weeks, a reminder postcard was sent. Receipt of completed questionnaires was taken as an indication of informed consent. The overall return rate was 71% ($N = 148$).

Data Analysis

All data from the study instruments were coded, entered, verified, and analyzed using version 8.0 of SPSS® (SPSS Inc., Chicago, IL) for Windows® (Microsoft Corporation, Redmond, WA). Descriptive statistics were used to analyze personal and contextual characteristics. Pearson correlation coefficients were used to assess relationships between contextual variables, emotional state, and the outcomes of QOL and global life satisfac-

tion. In addition, after categorizing the variable of time since diagnosis, an analysis of variance (ANOVA) was used to assess the relationship between it and QOL. Post hoc comparisons using Scheffe were calculated to determine where the significant differences between groups occurred if a significant overall F ratio was generated. Statistical significance was set at $p < 0.05$.

Results

Sample Information

The subjects ranged in age from 28–80 years ($\bar{X} = 52.4$ years, $SD = 11.56$) (see Table 1). The majority of the women were married ($n = 107$, 72%), were Caucasian ($n = 126$, 85%), and had attended at least trade school or college ($n = 85$, 57%). Thirty-seven percent ($n = 55$) of the women were volunteers from the Reach to Recovery program, and the remaining 63% ($n = 93$) were women who were diagnosed with breast cancer and were seen by the volunteers.

Clinical characteristics of the sample included time since diagnosis, which ranged from 0.1–19 years ($\bar{X} = 3.54$ years, median = 2.7 years, $SD = 3.61$). Seventy-four percent ($n = 110$) had not reached the five-year survival mark yet. Fifty-three percent of the women ($n = 78$) initially were diagnosed with cancer localized in one breast. Fifty-two percent of the women ($n = 77$) currently were not receiving treatment. Of the women who were receiving treatment ($n = 71$, 48%), almost all were receiving hormonal therapy, such as tamoxifen alone or in combination with radiation or chemotherapy. More than 20 different forms of past treatment regimens were reported (see Table 2), but inadequate numbers existed in each group to test the relationships between types of past treatment and outcome variables. Thus, the variable of type of treatment was not included for further analysis.

Study Variables

Scores on PANAS ranged from 10–50, with 50 representing the most positive or most negative affect. Women in the sample had high positive affect scores ($\bar{X} = 37.96$, $SD = 7.06$) and low negative affect scores ($\bar{X} = 17.13$, $SD = 7.57$). QOL measured by QOLM was high ($\bar{X} = 256.1$, range = 47.5–280, $SD = 29.58$). Global life satisfaction also was high and ranged from 0–9 for each descriptor on GLSS. The women viewed their satisfaction “right now” ($\bar{X} = 7.14$, $SD = 1.54$) and as expected “in five years” ($\bar{X} = 7.85$, $SD = 1.65$) as high. They also believed that most people had lower life satisfaction than they did ($\bar{X} = 6.25$, $SD = 1.18$).

Time since diagnosis and extent of disease were assessed for correlations with emotional state and QOL using Pearson Product Moment Correlation (see Table 3). Time since diagnosis was related weakly to each outcome measure. As the length of time since diagnosis increased, women had less negative affect ($r = -0.29$, $p < 0.001$) and more positive overall QOL ($r = 0.28$, $p < 0.001$). Relationships between extent of disease and outcomes of breast cancer were stronger in magnitude than relationships between time since diagnosis and outcomes of breast cancer. As the extent of the disease increased, negative emotional affect increased ($r = 0.35$, $p < 0.001$) and QOL decreased ($r = -0.48$, $p < 0.001$).

Because time since diagnosis varied greatly (range = 0.3–19 years) and the number of subjects for each value was low, the variable of time since diagnosis was collapsed into five categories for further analysis. This provided additional analysis for

Table 1. Sample Characteristics

Variable	n	%
Age (years)		
28–39	16	11
40–49	31	21
50–59	50	34
60–69	37	25
70–80	14	9
Marital status		
Married	107	72
Divorced	15	10
Separated	3	2
Widowed	16	11
Single	7	5
Ethnicity		
Caucasian	126	85
African American	16	11
Hispanic	4	3
Other	2	1
Education		
Less than 12th grade	7	5
12th grade	56	38
Vocational school or college	64	43
Graduate school	20	13
Doctoral degree	1	1
Time since diagnosis (years)		
0.1–1.9	30	20
2.0–2.9	50	34
3.0–4.9	30	20
5.0–9.9	24	16
10.0–20.0	14	10
Extent of cancer		
Confined to one breast	78	53
Both breasts	1	1
One breast and lymph nodes	45	30
One breast with distant metastases	23	15
Both breasts and lymph nodes	1	1
Current treatment		
None	77	52
Chemotherapy	3	2
Hormonal	63	42
Hormonal and radiation	4	3
Hormonal and chemotherapy	1	1

N = 148

Note. Because of rounding, percentages may not total 100.

the relationship between this variable and QOL as the outcome of breast cancer. The recoded categories were 0.1–1.9 years, 2.0–2.9 years, 3.0–4.9 years, 5.0–9.9 years, and 10–19 years. The categories fit with common time periods after initial diagnosis of breast cancer and more evenly distributed the subjects. A one-way ANOVA of QOL by years since diagnosis was completed to assess whether typical survival time periods after diagnosis resulted in differences in outcome measures of QOL. The ANOVA revealed significant differences between the groups on QOL ($F[4, 144] = 4.26, p = 0.003$). Post hoc analysis using Scheffe revealed that the only significant difference occurred between women most recently diagnosed (0.1–1.9 years) and those whose original diagnosis was 10 or more years previously.

Table 2. Past Methods of Breast Cancer Treatment

Methods of Treatment	n	%
Simple mastectomy	3	2
Modified radical mastectomy (MRM)	25	17
Radical mastectomy	7	5
MRM and chemotherapy	27	18
MRM and hormonal	16	11
MRM and radiation	1	1
MRM, chemotherapy, and radiation	6	4
MRM, chemotherapy, and hormonal	13	9
MRM, radiation, and hormonal	1	1
Lumpectomy and radiation	10	7
Lumpectomy, radiation, and hormonal	10	7
Lumpectomy, radiation, and chemotherapy, hormonal	2	1
Other combinations	27	18

N = 148

Note. Because of rounding, percentages may not total 100.

Emotional state, QOL, and global life satisfaction (see Table 3) formed another correlation matrix. Positive affect was related positively to QOL ($r = 0.32, p < 0.001$), global satisfaction right now ($r = 0.50, p < 0.001$), and satisfaction as expected in five years ($r = 0.34, p < 0.001$). Negative affect was related negatively to QOL ($r = -0.66, p < 0.001$), global life satisfaction right now ($r = -0.58, p < 0.001$), and as expected in five years ($r = -0.52, p < 0.001$). Negative affect was related more strongly to each of the outcome variables of QOL, global life satisfaction right now, and QOL as expected in five years than positive affect was. In addition, the relationships between negative affect and the contextual variables of time since diagnosis and extent of disease were stronger than the relationships between contextual factors and positive affect.

Women had significantly different perceptions of life satisfaction right now compared to what they expected in five years ($t[147] = -3.74, p < 0.0001$). Paired t tests also were computed to compare women's responses about their life satisfaction right now and what they perceived to be the life satisfaction of most people. The women believed most people had significantly lower life satisfaction than they did ($t[146] = 6.66, p < 0.0001$).

Discussion

The findings of this study were consistent with the transactional model (Lazarus & Folkman, 1984). Despite the stress and negative outcomes that may result from the diagnosis and treatment of breast cancer, the women in this study reported more positive than negative affect. They also believed that their overall QOL was quite high ($\bar{X} = 256$). Thus, despite the reality of living with and surviving breast cancer, the women were coping positively. These findings closely resembled the results of studies in which emotional disturbances decreased over time (Graydon, 1994; Hurny et al., 1996; Wolberg et al.,

Table 3. Correlations Among Contextual Variables, Emotional State, Quality of Life, and Life Satisfaction

Variable	QOLM	Affect		GLSS	
		Positive	Negative	Right Now	In Five Years
Time since diagnosis	0.28*	0.11	-0.29*	-	-
Extent of disease	-0.48	*0.14	0.35*	-	-
Affect positive	0.32*	-	-	0.50*	0.34*
Affect negative	-0.66*	-	-	0.58*	-0.52*

N = 148

* $p < .001$

GLSS—Global Life Satisfaction Scale; QOLM—Quality-of-Life Measurement

1989). Other studies have demonstrated that symptom distress from the side effects of treatment was correlated negatively with QOL (King et al., 1997). When women experienced high symptom distress from breast cancer treatment, overall day-to-day functioning and adaptation decreased (Ferrell et al., 1996; Nail & Jones, 1995; Wells, 1990).

In other studies, emotional state improved as time continued after treatment (Graydon, 1994; Hurny et al., 1996; Wolberg et al., 1989). In this study, women had an overall positive affect and the contextual variables of time since diagnosis and extent of disease were related weakly to negative affect but not to positive affect. The presence of certain contextual characteristics related to breast cancer may lead to more critical negative emotional states because of the impact that contextual characteristics have on day-to-day life. This finding may be similar to that of Derogatis et al. (1979), who found that long-term survivors of metastatic breast cancer had more negative moods. Additionally, other unmeasured variables from the transactional model, such as cognitive appraisal, may influence emotional state more than clinical characteristics.

Time since diagnosis was related positively to QOL, and extent of disease was related negatively to QOL in this study. These findings were similar to other studies in which time from initial diagnosis of breast cancer was correlated positively with overall QOL (Hurny et al., 1996; Wolberg et al., 1989). Also, other researchers have found that women with more localized breast cancer have better adjustment and QOL (Derogatis et al., 1979; Friedman et al., 1988). However, the weak correlations in this study further supported the idea that other variables must account for overall adaptation to breast cancer. Because QOLM included side effects of treatment, the current study's author was not surprised that the magnitude of the correlation between extent of disease and QOLM was stronger. Women with greater extent of disease require more invasive treatment and cope with more daily symptoms that negatively affect functioning and QOL. Overall, the findings of this study demonstrated weak relationships between contextual variables and QOL. Further research is needed in this area because of the inconsistent findings reported in the literature.

Global life satisfaction was strong in this sample. This single item measured a critical attribute of coping in a consistent manner with the multi-item QOLM. The women in this study even saw themselves as having significantly greater global life satisfaction as compared to most people. In the work by Ganz et al. (1998), women reported better overall health-related QOL than other healthy, aged-matched women. Even though this study found similar results, further research should address this relationship in other samples. Researchers should examine how women with breast cancer perceive their QOL compared to how women without breast cancer perceive theirs. In addition, researchers should examine further the impact that estimates of others' QOL might have on personal QOL and psychosocial adaptation.

The women in this sample believed their global life satisfaction would improve in five years. Other studies have not reported findings on this topic. When concern about the future was measured, short-term survivors of breast cancer (Hughes, 1993) and those who had invasive surgical treatment (Wong & Bramwell, 1992) had high levels of illness uncertainty. Because the majority of women in this sample were not newly diagnosed, had localized breast cancer ($n = 78, 53\%$), or had breast cancer confined to local lymph nodes ($n = 45, 30\%$), they may have had a more optimistic view of the future based on what is known about survival rates five years after diagnosis. This was similar to the finding of uncertainty in long-term survivors of breast cancer (Wonghongkul et al., 2000). Long-term survivors (5–9.9 years) had low levels of uncertainty and perceived less ambiguity, complexity, and unpredictability in the future. Studies should examine this finding further in other samples of women with breast cancer, especially samples including more women with metastatic forms. In addition, the validity of measuring future life satisfaction should be examined further.

This study's findings offer further support for the transactional model (Lazarus & Folkman, 1984). Multiple factors are related to adaptation to stressful situations. Women diagnosed with breast cancer must respond daily to treatment outcomes that affect QOL and their futures. Despite the potential negative outcomes, women report positive affect and overall positive QOL. Women even believe that their life satisfaction is greater compared to most people and expect that their future life satisfaction will improve.

Limitations

These findings should be viewed with the study's limitations in mind. The convenience sample limited generalizability of the findings; however, the characteristics of the women did vary for age and contextual characteristics related to time since diagnosis. In this sample, 68% of the women were older than 50; each year in the United States, 77% of women newly diagnosed with breast cancer are older than 50 (ACS, 2001). In addition, the contextual characteristic of extent of disease was comparable to national statistics for breast cancer incidence (ACS, 2001). The majority of women (84%) in this study had breast cancer that had not spread beyond the local lymph nodes.

Another limitation was that the sampling technique may have led to differences in responders and nonresponders. The high return rate (71%) limited this source of bias. The sample was drawn from volunteers and women seen by ACS's Reach to Recovery program. Therefore, the results cannot be

generalized to populations other than similar women. Also, because almost 40% of the sample volunteered for the Reach to Recovery program, they may have had more positive emotional states and perceptions about QOL than the remainder of the sample. Additionally, the Reach to Recovery program may have introduced bias in the sample because the program offers a potential source of social support.

These women were survivors of breast cancer, and their responses reflect an important part of the population that should be studied. Few consistent findings in the literature support what specific factors help women cope and adjust to breast cancer. Multiple factors affect QOL and how women with breast cancer define social support.

Lastly, one measurement of global life satisfaction was based on women's expectations for their futures. Whether these expectations accurately reflected their futures is not clear. However, these expectations were based on the women's perceptions of their future life satisfaction. People perceive what they want to or need to in order to manage a potentially stressful situation (Lazarus & Folkman, 1984). Thus, the personal meaning of a stressful situation is important to overall appraisal.

Nursing Implications

Nurses must be aware of the impact that breast cancer has on emotional state and QOL. More and more women survive breast cancer because of earlier detection. Women may have feelings of sadness, anger, fear, and guilt as a result of breast

cancer, but these emotions may not predominate the women's views of the future. Despite potential negative outcomes, women can have a positive outlook for the future and adapt to treatment with good QOL. Nurses should use these findings to encourage women who are newly diagnosed with breast cancer as they cope with diagnosis and treatment. Women adapt well despite the potential negative outcomes of breast cancer, even report better QOL than they estimate most people have, and expect their lives to improve over time.

Results of this study indicated that other variables also may explain QOL and global life satisfaction. Some that should be considered include cognitive appraisal, social support, uncertainty, and coping strategies. The importance of family support and maintaining usual roles during cancer treatment has been reported in other studies. Perceived uncertainty about symptoms, diagnosis, treatment, and prognosis have been reported in the literature. Future research is recommended to determine how women's appraisals and responses to breast cancer and outcomes change over time. A longitudinal study from the time of diagnosis through treatment and beyond may provide answers to these questions. Until breast cancer is eliminated, women will continue to face diagnosis and treatment. Understanding survival and how women adapt will continue to be an important issue for nurses to address.

Author Contact: Theresa A. Kessler, PhD, RN, CS, can be reached at terry.kessler@valpo.edu, with copy to editor at rose_mary@earthlink.net.

References

- American Cancer Society. (2001). *Breast cancer facts and figures 2001–2002*. Atlanta, GA: Author.
- American Cancer Society. (2002). *Cancer facts and figures 2002*. Atlanta, GA: Author.
- Berglund, G., Bolund, C., Fornander, T., Rutqvist, L.E., & Sjoden, P.O. (1991). Late effects of adjuvant chemotherapy and postoperative radiotherapy on quality of life among breast cancer patients. *European Journal of Cancer*, 27, 1075–1081.
- Brandt, B. (1996). Depression and women with breast cancer. In K.H. Dow (Ed.), *Contemporary issues in breast cancer* (pp. 107–120). Boston: Jones and Bartlett.
- Cantril, H. (1965). *The pattern of human concerns*. New Brunswick, NJ: Rutgers University Press.
- Derogatis, L.R., Abeloff, M.D., & Melisaratos, N. (1979). Psychological coping mechanisms and survival time in metastatic breast cancer. *JAMA*, 242, 1504–1508.
- Dorval, M., Maunsell, E., Deschenes, L., Brisson, J., & Masse, B. (1998). Long-term quality of life after breast cancer: Comparison of 8-year survivors with population controls. *Journal of Clinical Oncology*, 16, 487–494.
- Farquhar, M. (1995). Definitions of quality of life: A taxonomy. *Journal of Advanced Nursing*, 22, 502–508.
- Ferrell, B.R., Grant, M., Dean, G.E., Funk, B., & Ly, J. (1996). Bone tired: The experience of fatigue and its impact on quality of life. *Oncology Nursing Forum*, 23, 1539–1547.
- Ferrell, B.R., Grant, M., Funk, B., Otis-Green, S., & Garcia, N. (1997). Quality of life in breast cancer. Part I: Physical and social well-being. *Cancer Nursing*, 20, 398–408.
- Ferrell, B.R., Grant, M.M., Funk, B.M., Otis-Green, S.A., & Garcia, N.J. (1998). Quality of life in breast cancer survivors: Implications for developing support services. *Oncology Nursing Forum*, 25, 887–895.
- Friedman, L.C., Baer, P.E., Lewy, A., Lane, M., & Smith, F.E. (1988). Predictors of psychosocial adjustment to breast cancer. *Journal of Psychosocial Oncology*, 6, 75–95.
- Ganz, P.A., Rowland, J.H., Desmond, K., Meyerowitz, B.E., & Wyatt, G.E. (1998). Life after breast cancer: Understanding women's health-related quality of life and sexual functioning. *Journal of Clinical Oncology*, 16, 501–514.
- George, L.K., & Bearon, L.B. (1980). *Quality of life in older persons: Meaning and measurement*. New York: Kluwer Academic.
- Graydon, J.E. (1994). Women with breast cancer: Their quality of life following a course of radiation therapy. *Journal of Advanced Nursing*, 19, 617–622.
- Hughes, K.K. (1993). Psychosocial and functional status of breast cancer patients. The influence of diagnosis and treatment choice. *Cancer Nursing*, 16, 222–229.
- Hurny, C., Bernhard, J., Coates, A.S., Castiglione-Gertsch, M., Peterson, H.F., Gelber, R.D., et al. (1996). Impact of adjuvant therapy on quality of life in women with node-positive operable breast cancer. *Lancet*, 347, 1279–1284.
- Johnson, J.E., & Lauver, D.R. (1989). Alternative explanations of coping with stressful experiences associated with physical illness. *Advances in Nursing Science*, 11(2), 39–52.
- Kiebert, G.M., de Haes, J.C., & van de Velde, C.J. (1991). The impact of breast-conserving treatment and mastectomy on the quality of life of early-stage breast cancer patients: A review. *Journal of Clinical Oncology*, 9, 1059–1070.
- King, C.R., Haberman, M., Berry, D.L., Bush, N., Butler, L., Dow, K.H., et al. (1997). Quality of life and the cancer experience: The state-of-the-knowledge. *Oncology Nursing Forum*, 24, 27–41.
- Lazarus, R.S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- Leventhal, H., & Nerenz, D.F. (1985). The assessment of illness cognition. In P. Karoly (Ed.), *Measurement strategies in health psychology* (pp. 517–554). New York: John Wiley and Sons.
- Lierman, L.M. (1988). Discovery of breast changes. Women's responses and nursing implications. *Cancer Nursing*, 11, 352–361.
- McCarthy, G. (1994). *Cognitive appraisal, coping responses, social support, and psychosocial adjustment in Irish women with breast cancer receiving*

cytotoxic chemotherapy. Unpublished doctoral dissertation, Case Western Reserve University: Cleveland, OH.

Mishel, M.H. (1981). The measurement of uncertainty in illness. *Nursing Research, 30*, 258–263.

Nail, L.M., & Jones, L.S. (1995). Fatigue as a side effect of cancer treatment: Impact on quality of life. *Quality of Life, 4*(1), 8–13.

Schag, C.A., Ganz, P.A., Polinsky, M.L., Fred, C., Hirji, K., & Petersen, L. (1993). Characteristics of women at risk for psychosocial distress in the year after breast cancer. *Journal of Clinical Oncology, 11*, 783–793.

Schain, W., Edwards, B.K., Gorrell, C.R., de Moss, E.V., Lippman, M.E., Gerber, L.H., et al. (1983). Psychosocial and physical outcomes of primary breast cancer therapy: Mastectomy vs. excisional biopsy and irradiation. *Breast Cancer Research and Treatment, 3*, 377–382.

Selby, P.J., Chapman, J.A., Etazadi-Amoli, J., Dalley, D., & Boyd, N.F. (1984). The development of a method for assessing the quality of life of cancer patients. *British Journal of Cancer, 50*, 13–22.

Watson, D., Clark, L.A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*, 1063–1070.

Wells, R.J. (1990). Rehabilitation: Making the most of time. *Oncology Nursing Forum, 17*, 503–507.

Wolberg, W.H., Romsaas, E.P., Tanner, M.A., & Malec, J.F. (1989). Psychosexual adaptation to breast cancer surgery. *Cancer, 63*, 1645–1655.

Wong, C.A., & Bramwell, L. (1992). Uncertainty and anxiety after mastectomy for breast cancer. *Cancer Nursing, 15*, 363–371.

Wonghongkul, T., Moore, S.M., Musil, C., Schneider, S., & Deimling, G. (2000). The influence of uncertainty in illness, stress appraisal, and hope on coping in survivors of breast cancer. *Cancer Nursing, 23*, 422–429.

Woo, B., Dibble, S.L., Piper, B.F., Keating, S.B., & Weiss, M.C. (1998). Differences in fatigue by treatment methods in women with breast cancer. *Oncology Nursing Forum, 25*, 915–920.

For more information . . .

- ▶ International Society for Quality of Life Research
www.isoqol.org
- ▶ Quality of Life Research Center
www.qlrcnet.org
- ▶ Quality of Life Instruments Database
<http://195.101.204.50:443/>

These Web sites are provided for information only. The hosts are responsible for their own content and availability. Links can be found using ONS Online at www.ons.org.
