

The Relationship of Fatigue and Meaning in Life in Breast Cancer Survivors

This material is protected by U.S. copyright law. Unauthorized reproduction is prohibited. To purchase quantity reprints, please e-mail reprints@ons.org or to request permission to reproduce multiple copies, please e-mail pubpermissions@ons.org.

Paige Thompson, RN, DNSc

Purpose/Objectives: To determine relationships among (a) cancer-related fatigue and meaning in life, (b) overall symptom distress and meaning in life, (c) fatigue and performance, and (d) overall symptom distress and performance in breast cancer survivors.

Design: Cross-sectional and correlational.

Setting: Community-based setting in eastern Pennsylvania.

Sample: 34 women who had completed their last treatment for breast cancer within the prior 16 months.

Methods: Data were collected using the Piper Fatigue Scale (PFS), Life Attitude Profile–Revised (LAP-R), Memorial Symptom Assessment Scale–Short Form (MSAS-SF), and Medical Outcomes Study–Short Form 36 (SF-36).

Main Research Variables: Fatigue and meaning in life.

Findings: One moderate negative correlation was found between the PFS sensory subscale and the choice or responsibility dimension of the LAP-R. Significant moderate to strong negative correlations were found between the MSAS-SF total score and two subscale scores and the existential transcendence dimension of the LAP-R. Significant moderate to strong negative correlations were found between four subscales of the SF-36 representing performance and the MSAS-SF total score.

Conclusions: Meaning in life may influence fatigue and overall symptoms in breast cancer survivors.

Implications for Nursing: Assessment of meaning in life may be important in the management of fatigue and overall symptoms in women after treatment for breast cancer.

Key Points . . .

- Fatigue and other symptoms, including difficulty sleeping, worrying, pain, and feeling irritable and nervous, are present in breast cancer survivors as many as 16 months after treatment.
- Fatigue and other symptoms in breast cancer survivors are related to physical and social functioning.
- Assessment of meaning in life may be most important in late stages of cancer, in the first six months following cancer treatment, in patients taking antidepressants, and in survivors not eligible for hormonal therapy.

Literature Review

Fatigue

Factors with the potential to influence fatigue levels in cancer survivors have been identified. Cancer treatment is a physiologic factor that is related to fatigue levels in cancer survivors (Monga, Kerrigan, Thornby, & Monga, 1999; Schwartz, 1998). Cancer survivors who received a combination of surgery, radiation therapy, and chemotherapy had significantly greater fatigue than those whose treatment included only surgery or chemotherapy (Schwartz). In addition, Schwartz found that those who received chemotherapy experienced fatigue that was significantly more intense, incapacitating, distressing, or depressing than did subjects receiving only surgery or radiation therapy. Age also was related to fatigue in cancer survivors; however, the influence of age on fatigue varies. In their study, Woo et al. (1998) reported that younger breast cancer survivors experienced greater fatigue, but Loge et al. (2000) found the highest fatigue scores in the oldest survivors (i.e., 60–74 years) of Hodgkin disease.

Cancer survivors have been studied to determine the possible relationship between psychological factors and fatigue. Depression, anxiety, emotional distress, and other cancer stressors are related to fatigue levels in cancer survivors

The most recent statistics published show that the five-year cancer survival rates for all races have increased from 50% in 1975–1977 to 66% in 1996–2002 (Jemal et al., 2007). Fatigue has been studied in cancer survivors up to six years following the last cancer treatment (Arndt, Merx, Stegmaier, Ziegler, & Brenner, 2004; Bower et al., 2000; Ferrell, Grant, Dean, Funk, & Ly, 1996; Gelinis & Fillion, 2004; Hwang, Chang, Rue, & Kasimis, 2003; Loge, Abrahamson, Ekeberg, & Kaasa, 2000; Mast, 1998; Schwartz, 1998; Spelten et al., 2003; Woo, Dibble, Piper, Keating, & Weiss, 1998). Studies have shown fatigue to be a significant concern in cancer survivors, especially in the first two years following treatment. Fatigue in cancer survivors also affects performance of daily activities and ability to return to work (Smets et al., 1998; Spelten et al.). To provide an improved quality of life for the increasing numbers of cancer survivors, factors related to fatigue in survivors need to be identified further and effective treatments developed. Some evidence suggests that meaning in life contributes to a decrease in perceived levels of fatigue; therefore, it should be explored as a possible factor related to fatigue in cancer survivors (Bell, 1985; Frankl, 1984; Taylor, 1993).

Paige Thompson, RN, DNSc, is an associate professor in St. Luke's School of Nursing at Moravian College in Bethlehem, PA. Funding for this study was provided by Amgen Inc. (Submitted July 2006. Accepted for publication September 22, 2006.)

Digital Object Identifier: 10.1188/07.ONF.653-660

(Bower et al., 2000; Gelinas & Fillion, 2004; Loge et al., 2000; Smets et al., 1998). Situational factors found to be related to fatigue in cancer survivors include lower yearly income, Latino ethnicity, sleep disturbances, fewer hours of sleep at night, and daytime napping (Bower et al.; Eversley et al., 2005; Smets et al.).

Meaning in Life

Meaning in life is a broad phrase that also is referred to as existential meaning, whereas meaning of the cancer experience, or situational meaning, focuses on the meaning a person discovers from that particular event. According to Baumeister (1991), suffering stimulates the need for meaning. Patients who are confronted with a serious illness such as cancer tend to search for a meaning in that experience (Coward, 1996; Coward & Kahn, 2004, 2005; Fife, 1994; Moore, 1997; O'Connor, Wicker, & Germino, 1990; Richer & Ezer, 2002; Steeves, 1992; Taylor, 2003). Qualitative studies have been conducted in an attempt to describe the search for meaning in patients with cancer at various stages, including those newly diagnosed, undergoing treatment, or living with a terminal illness (Carter, MacLeod, Brander, & McPherson, 2004; Landmark & Wahl, 2002; Taylor, 2003). Some studies have shown that the search for meaning during the cancer experience can be transforming (Taylor, 2000; Utley, 1999). A greater sense of meaning in patients with cancer has been associated with greater social, psychological, and emotional adjustment (Ramfelt, Severinsson, & Lutzen, 2002; Schnoll, Knowles, & Harlow, 2002).

Some evidence indicates that meaning in life can contribute to a decrease in perceived levels of fatigue. Frankl's (1984) account of experiences in concentration camps shows that despite situational factors such as lack of sleep and poor nutrition, those who were able to maintain a sense of meaning were able to overcome their fatigue and continue to work to survive. Nuns, whose meaning in life is derived from their sacrifices honoring God, were able to conquer fatigue despite self-sacrifices of nutrition and sleep (Bell, 1985). Only one published study was found in which a low sense of meaning was associated with high symptom distress in patients diagnosed with recurrent cancer (Taylor, 1993). No studies were found that specifically attempted to determine a relationship between meaning in life and cancer fatigue. The aims of the current study were to determine relationships among (a) cancer-related fatigue and meaning in life, (b) overall symptom distress and meaning in life, (c) fatigue and performance, and (d) overall symptom distress and performance in breast cancer survivors.

Theoretical Framework

The middle-range theory of unpleasant symptoms (Lenz, Pugh, Milligan, Gift, & Suppe, 1997) guided the present study. The theory involves three major components: the symptoms an individual is experiencing, the influencing factors that give rise to or affect the nature of the symptom experience, and the consequences of the symptom experience. Three categories of variables—physiologic, psychological, and situational factors—influence the various dimensions of unpleasant symptoms (i.e., the occurrence, intensity, timing, distress level, and quality of symptoms). According to the theory, the three types of influencing factors relate to one another and can interact in relation to the symptom experience. The third component of the theory,

or consequences of the symptom experience, is performance and includes functional and cognitive activities. The theory as proposed by Lenz et al. depicts a reciprocal relationship between influencing factors and the symptom experience and also among performance, the symptom experience, and influencing factors. The present study investigated the relationships among meaning in life, a psychological factor; fatigue and the overall symptom experience; and performance in breast cancer survivors (see Figure 1).

Methods

Design and Sample

The design for the current study was cross-sectional and correlational. Approval was obtained from the sponsoring university and hospital institutional review boards.

Study participants were 18 years or older, female, and able to read and write English; had adequate visual acuity (as measured by their ability to read the consent form to ensure that they could read the measures); achieved a score of 24 or more on the Folstein Mini Mental State Exam (this was administered to determine study eligibility before participants signed the consent form to ensure that they were mentally alert and able to understand the measures); had a documented diagnosis of primary breast cancer; and completed their last cancer treatment, with the exception of hormonal therapy, within the prior 16 months. Potential participants were excluded if they had any other diagnosis of primary cancer or if they had another significant chronic illness.

Instruments

The revised **Piper Fatigue Scale (PFS)** was used to measure four dimensions of fatigue: behavioral or severity, affective or meaning, sensory, and cognitive (Piper et al., 1998). The PFS consists of 22 scaled items with word anchors. Participants rate their current fatigue experience on a scale of 0–10, with a high score indicating more fatigue. Cronbach's alpha for this study was 0.98 for the total scale and ranged from 0.93–0.96 for the subscales.

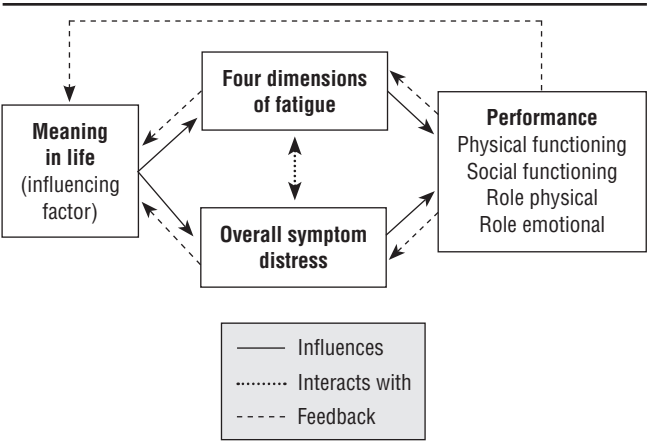


Figure 1. Study Variables and the Theoretical Framework
Note. From "The Middle-Range Theory of Unpleasant Symptoms: An Update," by E.R. Lenz, L.C. Pugh, R.A. Milligan, A. Gift, and F. Suppe, 1997, *Advances in Nursing Science*, 19(3), p. 17. Copyright 1997 by Lippincott Williams and Wilkins. Adapted with permission.

The **Life Attitude Profile-Revised (LAP-R)** was used to measure meaning in life, a multidimensional concept involving discovered meaning and purpose in life, as well as the motivation to find meaning and purpose in life (Reker, 1992). The LAP-R measures six dimensions. The first dimension, purpose, refers to having life goals and a sense of direction from the past, in the present, and toward the future. The second dimension, coherence, refers to having an integrated and consistent understanding of self, others, and life. The choice or responsibility dimension refers to the perception of freedom to make life choices. The death acceptance dimension refers to the absence of fear about death and the acceptance of death as a natural part of life. The existential vacuum dimension refers to a lack of meaning in life, lack of goals, and lack of direction. The goal-seeking dimension refers to the desire to search for new and different experiences. The six dimensions are used to calculate two composite scales. The first scale, Personal Meaning Index, is defined as “having life goals, having a mission in life, having a sense of direction, and having a consistent understanding of self, others, and life” (Reker, p. 20). The second composite scale, Existential Transcendence, measures the degree to which meaning and purpose have been discovered and the motivation to find meaning and purpose. The instrument consists of 48 statements rated on a seven-point scale from 1 (strongly disagree) to 7 (strongly agree). In the present study, Cronbach’s alpha coefficients for the six dimensions ranged from 0.72–0.87 and 0.80–0.92 for the composite scales.

Symptom distress was measured with the **Memorial Symptom Assessment Scale–Short Form (MSAS-SF)** (Chang, Hwang, Feuerman, Kasimis, & Thaler, 2000). The MSAS-SF measures 32 symptoms with respect to presence and distress. Participants rate each symptom from 0 (symptom not present) to 5 (symptom caused very much distress). Ratings for each symptom on the scale were added for a total scale score. In addition to the total score, the three subscales of the MSAS-SF are (a) Global Distress Index, consisting of four psychological symptoms and six physical symptoms; (b) physical symptom distress, consisting of 12 prevalent physical symptoms; and (c) psychological symptom distress, consisting of six prevalent psychological symptoms. In this study, Cronbach’s alpha was 0.85 for the total scale and ranged from 0.62–0.77 for the subscales.

To measure the influence of symptoms on performance, four subscales of the **Medical Outcomes Study–Short Form 36 (SF-36)** (Ware & Sherbourne, 1992) were used. The subscales evaluated (a) physical functioning, a measure of limitations in physical activities because of health problems; (b) social functioning, a measure of limitations in social activities caused by physical or emotional problems; (c) role physical, a measure of limitations in usual role activities because of physical health problems; and (d) role emotional, a measure of limitations in usual role activities because of emotional problems. Cronbach’s alphas for the subscales in this study ranged from 0.85–0.91.

Demographic data (i.e., age, ethnicity, marital status, employment, education, and religion) and medical information (i.e., stage of disease, type of treatment, and time since treatment) were obtained by a self-report questionnaire.

Procedure

Participants were recruited through advertisements in local newspapers, churches, employment offices, breast cancer support groups, physicians’ offices, and Hispanic organizations

in eastern Pennsylvania. Potential participants contacted the investigator by phone or e-mail. If a woman met the eligibility criteria and was interested in participation, the investigator met with the potential participant at the study site, where she could sign the consent and complete all measures. Participants were assured that all data would remain confidential. When the consent was signed, the investigator reviewed instructions and the participant completed the demographic and medical data questionnaire, PFS, LAP-R, MSAS-SF, and SF-36. After completing all measures at that single point in time, participants were compensated \$25 for their time and travel to the study site.

Table 1. Demographic Characteristics

Characteristic	n	%
Age (years)		
X = 50.94	–	–
SD = 8.37	–	–
Range = 36–70	–	–
Ethnicity		
Caucasian	32	94
Hispanic (Puerto Rican)	2	6
Marital status		
Married	28	82
Divorced	3	9
Separated	1	3
Widowed	2	6
Employment status		
Employed full-time	15	44
Employed part-time	8	23
Not employed	5	15
Retired	4	12
Other	2	6
Educational level		
Less than high school graduate	1	3
High school graduate	3	9
Some college but no bachelor’s degree	13	38
Bachelor’s degree or higher	17	50
Religion		
Catholic	13	38
Protestant	14	41
Jewish	1	3
Other	4	12
None	1	3
No response	1	3
Stage of disease		
0	2	6
I	13	38
II	13	38
III	4	12
IV	2	6
Type of cancer treatment		
Surgery	3	9
Chemotherapy	1	3
Radiation therapy	2	6
Surgery, chemotherapy, and radiation	19	56
Surgery and chemotherapy	6	17
Surgery and radiation	3	9
Months since last treatment		
≤ 6	17	50
7–12	12	35
13–16	5	15

N = 34

Analysis of Results

Data were analyzed using SPSS® version 12 (SPSS Inc.). Descriptive statistics for demographic and medical information, including means, medians, standard deviations, and ranges, were calculated for each of the measures. The total fatigue score and scores for each of the four PFS subscales were correlated individually, using Pearson *r*, with each of the six dimensions of the LAP-R and the two composite scales. Pairwise correlations also were calculated between the PFS total and subscales and each of the four subscales of the SF-36, between the MSAS-SF total and subscales and the four SF-36 subscales, and between the LAP-R dimensions and composite scales and the MSAS-SF subscales and total score. Analysis of variance (ANOVA) was used to compare means of groups on the PFS total and subscale scores and the LAP-R dimensions and composite scales.

Results

Participant Characteristics

The final study sample consisted of 34 women (see Table 1). The age of the study participants ranged from 36–70 years, with a mean of 50.94 years. Participants were primarily Caucasian (94%) and married (82%) and had at least some college education (88%). Participants reported their religion as Protestant (41%), Catholic (38%), Jewish (3%), other (12%), and no religion (3%).

Participants reported that their breast cancer was primarily stage I or II (76%). Fifty-six percent of the women had been treated with surgery, radiation therapy, and chemotherapy; 26% were treated with surgery and radiation therapy or chemotherapy; and 12% were treated with surgery or chemotherapy. Seventy percent of participants were being treated with hormonal therapy. Seventeen (50%) women reported that their last treatment was within the previous six months, 12 (35%) reported that their last treatment was 7–12 months prior to participation in the study, and five (15%) women reported that their last treatment was 13–16 months prior to study participation.

Fatigue

In the current study, the mean scores for the PFS total and subscales ranged from 2.40–3.22 (see Table 2). Fatigue scores ranged from 0–7.60. Mean scores for the total PFS and all subscales, except for the behavioral or severity subscale, indicated moderate fatigue levels ($\bar{X} = 2.72$ –3.22). One-way between-subjects ANOVA showed that breast cancer survivors

diagnosed with stage 0 or I had a significantly lower mean total fatigue score ($\bar{X} = 1.58$, $p < 0.01$) than those diagnosed with stage III or IV ($\bar{X} = 4.83$, $p < 0.01$). In addition, breast cancer survivors who were taking antidepressants had a significantly higher total fatigue mean score ($\bar{X} = 3.83$, $p < 0.05$) than women who were not taking antidepressants ($\bar{X} = 2.26$, $p < 0.05$).

Symptom Experience

The mean, median, standard deviation, and range for each of the MSAS-SF subscales and total scale are found in Table 3. Results indicate that the study participants continued to experience multiple symptoms causing distress when their cancer treatment was completed.

Meaning in Life

The mean, median, standard deviation, and range for each of the six subscales and the two composite scales of the LAP-R were calculated (see Table 4). One-way between-subjects ANOVA showed that breast cancer survivors aged 50–59 years scored significantly higher on the Personal Meaning Index ($\bar{X} = 93.93$, $p < 0.01$) than survivors aged 36–49 years ($\bar{X} = 76.79$, $p < 0.01$). Women with stage II breast cancer scored significantly less ($\bar{X} = 19.85$, $p < 0.01$) on the existential vacuum dimension (lack of meaning) than those with stage III or IV disease ($\bar{X} = 31.33$, $p < 0.01$). In addition, women who completed their last cancer treatment in the previous six months scored significantly higher ($\bar{X} = 26.82$, $p < 0.05$) on the existential vacuum dimension than those 7–12 months post-treatment ($\bar{X} = 19.33$, $p < 0.05$). Participants who were taking antidepressants scored significantly lower on Existential Transcendence ($\bar{X} = 79.7$, $p < 0.05$) than those who were not taking antidepressants ($\bar{X} = 107.0$, $p < 0.05$). Significant differences also were found in breast cancer survivors who were on hormonal therapy. Women on hormonal therapy scored significantly higher on the Personal Meaning Index and Existential Transcendence ($\bar{X} = 90.5$ and $\bar{X} = 108.4$, respectively; $p < 0.01$) compared to those not on hormonal therapy ($\bar{X} = 73.8$ and $\bar{X} = 76.3$, respectively; $p < 0.01$).

Correlations

The researcher hypothesized that cancer survivors who reported greater meaning in life would report less fatigue; therefore, a one-tailed test of significance was used. To control for type I errors when performing large numbers of correlational analyses, 0.01 was selected as the acceptable level of significance. The hypothesis was only partially supported. Only one

Table 2. Piper Fatigue Scale (PFS) Means, Medians, Standard Deviations, and Ranges

Variable	PFS Dimensions of Fatigue				PFS Total
	Behavioral Severity	Affective Meaning	Sensory	Cognitive Mood	
\bar{X}	2.40 ^a	3.22 ^b	2.75 ^b	3.12 ^b	2.72 ^b
SD	2.27	2.76	2.39	2.35	2.11
Median	2.16	2.80	2.20	2.80	2.16
Actual range	0–7.33	0–7.60	0–7.40	0–7.60	0–6.45
Potential range	0–10	0–10	0–10	0–10	0–10

^a Mild fatigue (0.00–2.49)

^b Moderate fatigue (2.50–5.99)

Table 3. Memorial Symptom Assessment Scale–Short Form Means, Medians, Standard Deviations, and Ranges

Variable	Subscales			Scale Total
	Global Distress Index	Physical Symptom Distress	Psychological Symptom Distress	
\bar{X}	11.12	9.21	7.56	24.59
SD	7.05	7.75	4.62	16.40
Median	9.50	7.50	7.00	23.50
Actual range	0–28	0–36	0–17.18	0–63
Potential range	0–50	0–60	0–30	0–160

moderate negative correlation ($r = -0.415$, $p < 0.01$) was found between the PFS sensory subscale and the choice or responsibility dimension of the LAP-R.

A correlation matrix for the MSAS-SF and LAP-R is found in Table 5. Significant ($p < 0.01$) moderate to strong negative correlations (one-tailed) were found between the MSAS-SF total and subscales, except physical symptom distress and the Existential Transcendence scale of the LAP-R. Significant ($p < 0.01$) moderate to strong positive correlations were found between the MSAS-SF total and subscales and the existential vacuum dimension of the LAP-R. Existential vacuum is defined as a lack of meaning in life; therefore, a positive correlation between symptom distress and existential vacuum would be expected. A significant ($p < 0.01$) negative correlation also was found between the psychological symptom distress and the purpose dimension of the LAP-R. The results provide support for a relationship between overall symptom distress and meaning in life.

Table 6 shows the results of the correlational analysis between fatigue and symptom distress and the SF-36 subscales (one-tailed). Results support a relationship between the overall symptom experience and performance. Significant moderate to strong negative correlations ($r = -0.439$ to -0.880 , $p < 0.01$) were found between the four subscales of the SF-36 and the MSAS-SF subscales and total score with one exception, the SF-36 physical functioning subscale and the MSAS-SF psychological symptom distress subscale. Results also support a relationship between fatigue and performance in breast cancer survivors. Significant ($p < 0.01$) moderate to strong negative correlations were found among the total PFS, all subscales, and the SF-36 role physical, role emotional, and social functioning subscales. One significant ($p < 0.01$) negative correlation was found between

the sensory dimension of the PFS and the SF-36 physical functioning subscale.

Discussion

Fatigue has been shown to be an ongoing symptom after breast cancer treatment. Findings from the current study confirm that women continue to experience moderate fatigue as many as 16 months after cancer treatment. Fatigue is significantly higher in women with stage II breast cancer receiving adjuvant chemotherapy compared to cancer-free women who were matched by age, ethnicity, and menopausal status (Payne, Piper, Rabinowitz, & Zimmerman, 2006). Further research should explore whether fatigue levels in cancer survivors are significantly different from demographically similar healthy populations.

Studies have shown a relationship between fatigue and factors such as cancer treatment, depression, anxiety, emotional distress, and sleep disturbances in cancer survivors. According to the theory of unpleasant symptoms, symptoms have similar dimensions, such as distress, timing, intensity, and quality (Lenz et al., 1997). The quality of a symptom is measured by questions that describe what the symptom feels like. The two subscales of the PFS with the highest mean scores in the current study, affective meaning and cognitive or mood, include questions regarding the quality of fatigue. Focus on the subscales may provide some direction for future research into the cause of continued fatigue in breast cancer survivors.

One other study of breast cancer survivors using the PFS was identified (Woo et al., 1998). The age of participants in the study and the time since completion of treatment (within 18 months) were similar to participants in the current study. Women in the current study ($N = 34$) reported somewhat less fatigue than in the Woo et al. study ($N = 322$). The difference in overall reported fatigue may be the result of the small sample size in the current study or the increased awareness and interventions for cancer-related fatigue since Woo et al.'s 1998 study.

Several studies using the PFS have been conducted to determine levels of fatigue during treatment for breast cancer. Although women in the current study continued to experience moderate fatigue following treatment, mean total PFS scores for women during treatment have been reported as higher, indicating that fatigue levels do decrease following completion of treatment. Mean fatigue scores on the PFS have ranged from 2.98–5.76 for women undergoing chemotherapy or radiation therapy as part of their treatment for breast cancer (Berger, 1998; Berger & Higginbotham, 2000; Lee, 2001; Payne, 2002).

Table 4. Life Attitude Profile–Revised Means, Medians, Standard Deviations, and Ranges

Variable	Dimensions						Scales	
	Purpose	Coherence	Choice or Responsibility	Death Acceptance	Existential Vacuum	Goal Seeking	Personal Meaning Index	Existential Transcendence
\bar{X}	42.15	43.41	45.51	33.11	24.41	40.79	85.56	98.98
SD	8.02	8.54	5.92	10.18	8.15	7.74	15.60	32.49
Median	44.50	45.50	45.50	35.00	24.50	41.50	92.00	99.50
Actual range	23–54	27–55	32–56	10–47	10–45	26–55	52–109	40–147
Potential range	8–56	8–56	8–56	8–56	8–56	8–56	16–112	–80 to 208

Table 5. Correlations (Pearson r) Between the Memorial Symptom Assessment Scale–Short Form (MSAS-SF) and Life Attitude Profile–Revised (LAP-R)

MSAS-SF Subscale	LAP-R Dimensions						LAP-R Scales	
	Purpose	Coherence	Choice or Responsibility	Death Acceptance	Existential Vacuum	Goal Seeking	Personal Meaning Index	Existential Transcendence
Global Distress Index	–0.298	–0.183	–0.360	–0.077	0.616*	0.172	–0.253	–0.407*
Physical symptom distress	–0.153	–0.076	–0.249	0.021	0.421*	0.076	–0.120	–0.220
Psychological symptom distress	–0.400*	–0.268	–0.344	–0.340	0.667**	0.308	–0.352	–0.579*
Total score	–0.356	–0.293	–0.365	–0.144	0.509*	0.144	–0.343	–0.438*

N = 34

* $p < 0.01$, ** $p < 0.001$

Norms have been reported for the LAP-R in a healthy population of men and women (Reker, 1992). However, 73% of the normative sample of women were younger than age 30. Meaning and purpose in life are expected to increase with age because meaning must be discovered (Reker); therefore, as expected, means for the Personal Meaning Index and Existential Transcendence for the study sample are higher than the means in the normative sample. No studies were found that reported mean scores for women with cancer that could be compared to the current study's sample.

As the theory of unpleasant symptoms suggests, multiple symptoms often are experienced simultaneously and two or more symptoms are likely to catalyze each other (Lenz et al., 1997). Recent studies in patients with cancer have focused on symptom clusters (Armstrong, Cohen, Eriksen, & Hickey, 2004; Bender, Ergun, Rosenzweig, Cohen, & Sereika, 2005; Gift, Jablonski, Stommel, & Given, 2004; Kim, McGuire, Tulman, & Barsevick, 2005; Knobf & Sun, 2005). Fatigue was identified as one symptom in a cluster in two studies of women with breast cancer during and following treatment (Bender et

al.; Knobf & Sun). Manning-Walsh's (2005) study of women with breast cancer found that overall symptom distress was inversely related to psychospiritual distress. The most frequently occurring symptoms were lack of energy (71%), difficulty sleeping (65%), worrying (65%), pain (59%), feeling irritable (53%), and feeling nervous (50%). The most distressing symptoms were lack of energy, difficulty sleeping, pain, worrying, feeling drowsy, and numbness and tingling in hands and feet. The data suggest that lack of energy or fatigue is only one of a cluster of symptoms. Because the symptom cluster is theorized to have an additive effect, those with stronger meaning in life likely would have less overall symptom distress. Correlations between symptom distress and meaning in life in the present study support that relationship. Additional research should investigate which symptoms generally form a cluster in women after treatment for breast cancer.

Performance scores for breast cancer survivors in the current study were compared to the findings in a study of women with stage I or II breast cancer undergoing adjuvant chemotherapy (Berger & Higginbotham, 2000). Women in both studies were

Table 6. Correlations (Pearson r) Between the Medical Outcomes Study–Short Form 36 and the Piper Fatigue Scale and Memorial Symptom Assessment Scale–Short Form

Scale	Medical Outcomes Study–Short Form 36 Subscales			
	Physical Functioning	Role Physical	Role Emotional	Social Functioning
Piper Fatigue Scale dimensions				
Behavioral severity	–0.387	–0.523*	–0.548**	–0.500*
Affective meaning	–0.381	–0.485*	–0.497*	–0.499*
Sensory	–0.444*	–0.510*	–0.513*	–0.430*
Cognitive mood	–0.334	–0.525*	–0.612**	–0.441*
Piper Fatigue Scale total	–0.426*	–0.562**	–0.596**	–0.518*
Memorial Symptom Assessment–Short Form Subscales				
Global distress index	–0.439*	–0.696**	–0.880**	–0.764**
Physical symptom distress	–0.502*	–0.559**	–0.713**	–0.684**
Psychological symptom distress	–0.305	–0.681**	–0.752**	–0.661**
Total Memorial Symptom Assessment Scale–Short Form score	–0.526*	–0.623**	–0.735**	–0.726**

N = 34

* $p < 0.01$, ** $p < 0.001$

similar in age, employment, and marital status. Women in the current study had a higher mean physical functioning score than women two months following treatment in the comparison study. However, social functioning scores in the current study were comparable to women two months following treatment in Berger and Higginbotham's study. The women in the current study had completed their cancer treatment as many as 16 months prior to study participation. The difference in the physical functioning scores may indicate that physical functioning increases over time after treatment completion and should be verified through further research. Both studies indicated that social functioning scores in women after breast cancer treatment remain lower than the norms established for the LAP-R in healthy women.

Significant differences were found on both composite indices of the LAP-R between women on hormonal therapy compared to women not on hormonal therapy. That suggests that the treatment form may influence life attitude. Further investigation of the potential differences in life attitude is recommended. Women who are not on hormonal therapy may need to be targeted for interventions to improve the psychological factor.

Study Limitations

Several limitations should be considered when interpreting the study results. First, the cross-sectional design using correlational analysis does not allow determination of causality, only whether a positive or negative relationship exists. Second, the small convenience sample consisting primarily of middle-aged, white, middle-class, working women with breast cancer limits generalization of the results to other populations. Additional studies would need to be conducted in various types of cancer diagnoses, with male patients, with different forms of treatment, and in groups with different demographic profiles. Third, the process of recruitment for the study was a potential source of bias. Women who respond to an advertisement for participation may have very different meaning in life than those who are not interested, motivated, or able to contact the investigator. In addition, the use of self-report for gathering medical information limited the data that could be requested, as well as the accuracy of information such as stage of disease, treatment types, and names of medications.

Research and Practice Implications

Although the study has limitations, the results do lend some support to a relationship between meaning in life and

cancer-related fatigue. This initial study lays the foundation for future research on the concept of meaning in life and its relationship to cancer-related fatigue as well as other symptoms in patients with cancer and cancer survivors. The concept of meaning in life should be studied in various forms of cancer to determine whether meaning in life changes throughout the process of diagnosis, during treatment, following treatment, and during advanced stages of cancer. In a review of interdisciplinary literature, Baumeister (1991) identified four needs for meaning: purpose, value, efficacy, and self-worth. Interventions such as counseling, support groups, and expressive writing that might guide patients with cancer to meet those needs should be developed and investigated for their effects on fatigue and overall symptom distress.

Although the present study is only a beginning to understanding the concept of meaning in life and its relation to fatigue and other symptoms in patients with cancer, it has implications for nursing practice. First, nurses should be aware that meaning in life may be related to symptom experience. That awareness should lead to assessment of a sense of life meaning or purpose in patients and survivors. Assessment may lead to determination of a potential source of meaning for individuals and guide nurses in possible interventions or referrals. Results of the study also indicate that assessment and intervention to promote a greater sense of meaning might be most important in the later stages of cancer, in the first six months following cancer treatment, in those taking antidepressants, and in survivors not receiving hormonal manipulation.

Conclusion

This study is the first to consider meaning in life as a potential psychological factor influencing fatigue and overall symptom experiences in patients with cancer and cancer survivors. Results suggest the need for further investigation of the concept and its relationship to symptoms during the overall cancer experience. Continued investigation may lead to the development of interventions to improve fatigue and overall symptoms for patients during the cancer experience. Results of the study also suggest that assessment of meaning in life may be an important aspect in caring for women with breast cancer.

Author Contact: Paige Thompson, RN, DNSc, can be reached at pt@moravian.edu, with copy to editor at ONFEditor@ons.org.

References

- Armstrong, T.S., Cohen, M.Z., Eriksen, L.R., & Hickey, J.V. (2004). Symptom clusters in oncology patients and implications for symptom research in people with primary brain tumors. *Journal of Nursing Scholarship*, 36, 197–206.
- Arndt, V., Merx, H., Stegmaier, C., Ziegler, H., & Brenner, H. (2004). Quality of life in patients with colorectal cancer one year after diagnosis compared with the general population: A population-based study. *Journal of Clinical Oncology*, 22, 4829–4836.
- Baumeister, R.F. (1991). *Meanings of life*. New York: Guilford Press.
- Bell, R. (1985). *Holy anorexia*. Chicago: University of Chicago Press.
- Bender, C.M., Ergun, F.S., Rosenzweig, M.Q., Cohen, S.M., & Sereika, S.M. (2005). Symptom clusters in breast cancer across three phases of the disease. *Cancer Nursing*, 28, 219–225.
- Berger, A. (1998). Patterns of fatigue and activity and rest during adjuvant breast cancer chemotherapy. *Oncology Nursing Forum*, 25, 51–62.
- Berger, A., & Higginbotham, P. (2000). Correlates of fatigue during and following adjuvant breast cancer chemotherapy: A pilot study. *Oncology Nursing Forum*, 27, 1443–1448.
- Bower, J.E., Ganz, P.A., Desmond, K.A., Rowland, J.H., Meyerowitz, B.E., & Belin, T.R. (2000). Fatigue in breast cancer survivors: Occurrence, correlates, and impact on quality of life. *Journal of Clinical Oncology*, 18, 743–753.

- Carter, H., MacLeod, R., Brander, P., & McPherson, K. (2004). Living with terminal illness: Patients' priorities. *Journal of Advanced Nursing*, 45, 611–620.
- Chang, V.T., Hwang, S.S., Feuerman, M., Kasimis, B.S., & Thaler, H.T. (2000). The Memorial Symptom Assessment Scale Short Form (MSAS-SF): Validity and reliability. *Cancer*, 89, 1162–1171.
- Coward, D.D. (1996). Self-transcendence and correlates in a healthy population. *Nursing Research*, 45, 116–121.
- Coward, D.D., & Kahn, D.L. (2004). Resolution of spiritual disequilibrium by women newly diagnosed with breast cancer [Online exclusive]. *Oncology Nursing Forum*, 31, E24–E31. Retrieved April 11, 2007, from <http://www.ons.org/publications/journals/ONF/Volume31/Issue2/pdf/24.pdf>
- Coward, D.D., & Kahn, D.L. (2005). Transcending breast cancer: Making meaning from diagnosis and treatment. *Journal of Holistic Nursing*, 23, 264–283.
- Eversley, R., Estrin, D., Dibble, S., Wardlaw, L., Pedrosa, M., & Favila-Penney, W. (2005). Post-treatment symptoms among ethnic minority breast cancer survivors. *Oncology Nursing Forum*, 32, 250–256.
- 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.
- Fife, B.L. (1994). The conceptualization of meaning in illness. *Social Science and Medicine*, 38, 309–316.
- Frankl, V. (1984). *Man's search for meaning*. New York: Washington Square Press.
- Gelinas, C., & Fillion, L. (2004). Factors related to persistent fatigue following completion of breast cancer treatment. *Oncology Nursing Forum*, 31, 269–278.
- Gift, A.G., Jablonski, M.S., Stommel, M., & Given, C.W. (2004). Symptom clusters in elderly patients with lung cancer. *Oncology Nursing Forum*, 31, 202–212.
- Hwang, S.S., Chang, V.T., Rue, M., & Kasimis, B. (2003). Multidimensional independent predictors of cancer-related fatigue. *Journal of Pain and Symptom Management*, 26, 604–614.
- Jemal, A., Siegel, R., Ward, E., Murray, T., Xu, J., & Thun, M.J. (2007). Cancer statistics, 2007. *CA: A Cancer Journal for Clinicians*, 57, 43–66.
- Kim, H., McGuire, D.B., Tulman, L., & Barsevick, A.M. (2005). Symptom clusters: Concept analysis and clinical implications for cancer nursing. *Cancer Nursing*, 28, 270–282.
- Knobf, M.T., & Sun, Y. (2005). A longitudinal study of symptoms and self-care activities in women treated with primary radiotherapy for breast cancer. *Cancer Nursing*, 28, 210–218.
- Landmark, B.T., & Wahl, A. (2002). Living with newly diagnosed breast cancer: A qualitative study of 10 women with newly diagnosed breast cancer. *Journal of Advanced Nursing*, 40, 112–121.
- Lee, E. (2001). Fatigue and hope: Relationships to psychosocial adjustment in Korean women with breast cancer. *Applied Nursing Research*, 14(2), 87–93.
- Lenz, E.R., Pugh, L.C., Milligan, R.A., Gift, A., & Suppe, F. (1997). The middle-range theory of unpleasant symptoms: An update. *Advances in Nursing Science*, 19(3), 14–26.
- Loge, J.H., Abrahamsen, A.F., Ekeberg, O., & Kaasa, S. (2000). Fatigue and psychiatric morbidity among Hodgkin disease survivors. *Journal of Pain and Symptom Management*, 19, 91–99.
- Manning-Walsh, J.K. (2005). Psychospiritual well-being and symptom distress in women with breast cancer [Online exclusive]. *Oncology Nursing Forum*, 32, E56–E62. Retrieved April 11, 2007, from <http://www.ons.org/publications/journals/ONF/Volume32/Issue3/pdf/3203543.pdf>
- Mast, M.E. (1998). Correlates of fatigue in survivors of breast cancer. *Cancer Nursing*, 21, 136–142.
- Monga, U., Kerrigan, A.J., Thornby, J., & Monga, T.N. (1999). Prospective study of fatigue in localized prostate cancer patients undergoing radiotherapy. *Radiation Oncology Investigations*, 7, 178–185.
- Moore, S.L. (1997). A phenomenological study of meaning in life in suicidal older adults. *Archives of Psychiatric Nursing*, 11(1), 29–36.
- O'Connor, A.P., Wicker, C.A., & Germino, B.B. (1990). Understanding the cancer patient's search for meaning. *Cancer Nursing*, 13, 167–175.
- Payne, J.K. (2002). The trajectory of fatigue in adult patients with breast and ovarian cancer receiving chemotherapy. *Oncology Nursing Forum*, 29, 1334–1340.
- Payne, J.K., Piper, B.F., Rabinowitz, I., & Zimmerman, M.B. (2006). Biomarkers, fatigue, sleep, and depressive symptoms in women with breast cancer: A pilot study. *Oncology Nursing Forum*, 33, 775–783.
- Piper, B.F., Dibble, S.L., Dodd, M.J., Weiss, M.C., Slaughter, R.E., & Paul, S.M. (1998). The revised Piper Fatigue Scale: Psychometric evaluation in women with breast cancer. *Oncology Nursing Forum*, 25, 677–684.
- Ramfelt, E., Severinsson, E., & Lutzen, K. (2002). Attempting to find meaning in illness to achieve emotional coherence. *Cancer Nursing*, 25, 141–149.
- Reker, G.T. (1992). *Manual: Life Attitude Profile-Revised*. Peterborough, Canada: Student Psychologists Press.
- Richer, M., & Ezer, H. (2002). Living in it, living with it, and moving on: Dimensions of meaning during chemotherapy. *Oncology Nursing Forum*, 29, 113–119.
- Schnoll, R.A., Knowles, J.C., & Harlow, L. (2002). Correlates of adjustment among cancer survivors. *Journal of Psychosocial Oncology*, 20, 37–59.
- Schwartz, A.L. (1998). Patterns of exercise and fatigue in physically active cancer survivors. *Oncology Nursing Forum*, 25, 485–491.
- Smets, E.M.A., Visser, M.R.M., Willems-Groot, A.F.M.N., Garssen, B., Oldenburger, F., van Tienhoven, G., et al. (1998). Fatigue and radiotherapy: (A) experience in patients undergoing treatment. *British Journal of Cancer*, 78, 899–906.
- Spelten, E.R., Verbeek, J.H.A.M., Uitterhoeve, A.L.J., Ansink, A.C., van der Lelie, J., de Reijke, R.M., et al. (2003). Cancer, fatigue and the return of patients to work—A prospective cohort study. *European Journal of Cancer*, 39, 1562–1567.
- Steeves, R.H. (1992). Patients who have undergone bone marrow transplantation: Their quest for meaning. *Oncology Nursing Forum*, 19, 899–905.
- Taylor, E.J. (1993). Factors associated with meaning in life among people with recurrent cancer. *Oncology Nursing Forum*, 20, 1399–1405.
- Taylor, E.J. (2000). Transformation of tragedy among women surviving breast cancer. *Oncology Nursing Forum*, 27, 781–788.
- Taylor, E.J. (2003). Spiritual needs of patients with cancer and family caregivers. *Cancer Nursing*, 26, 260–266.
- Uitley, R. (1999). The evolving meaning of cancer for long-term survivors of breast cancer. *Oncology Nursing Forum*, 26, 1519–1523.
- Ware, J.E., & Sherbourne, C.D. (1992). The MOS 36-item short-form health survey (SF36). *Medical Care*, 30, 473–485.
- Woo, B., Dibble, S.L., Piper, B., Keating, S.B., & Weiss, M.C. (1998). Differences in fatigue by treatment methods in women with breast cancer. *Oncology Nursing Forum*, 25, 915–919.