

QUALITY OF LIFE OF HUSBANDS OF WOMEN WITH BREAST CANCER

CHRISTINA D. WAGNER^a, SILVIA M. BIGATTI^{a,*} and ANNA MARIA STORNIOLLO^b

^a*Indiana University Purdue University Indianapolis, IN, USA*

^b*Indiana University School of Medicine, IN, USA*

SUMMARY

The life-threatening nature of breast cancer, along with the side effects of treatment, place great strain on patients and their families. Husbands may be especially vulnerable as the main source of support to patients. The present study compared the quality of life (QOL) of husbands of patients with breast cancer (HBC; $n = 79$) to spouses of healthy wives ($n = 79$). Additionally, associations between QOL and caregiver burden, social support, and coping were examined. HBC scored lower on general health, vitality, role-emotional, and mental health subscales of the Medical Outcomes Study (MOS) SF-36 than comparison group participants. No differences were found between groups on the physical functioning, role-physical, bodily pain, or social functioning subscales. Higher QOL in HBC was associated with less caregiver burden as evidenced by lower burden on the Illness Impact Form, lower use of emotion-focused coping on the Ways of Coping Questionnaire, and higher social support on the Interpersonal Support Evaluation List. Wife illness characteristics such as stage of disease and time since diagnosis were not related to QOL in husbands. These findings illuminate the need to support HBC, whose QOL suffers during the breast cancer experience. Copyright © 2005 John Wiley & Sons, Ltd.

KEY WORDS: husbands as caregivers; caregiver burden; coping; breast cancer; social support; quality of life

The diagnosis of a potentially life-threatening disease, such as breast cancer, disrupts not only the life of the patient but also the lives of those closest to the patient. Cancer is associated with prolonged stress as families overcome a series of obstacles related to the treatment process. Throughout this journey, the adverse effects of cancer and its treatment extend beyond the patient to negatively impact the quality of life (QOL) of the family, especially of husbands, who often act as informal caregivers and are the most frequent providers of support to married women with breast cancer (Petrie *et al.*, 2001).

Providing support as an informal caregiver may result in caregiver burden. Caregiver burden can be defined as the perception on the part of spouses of the degree to which their physical health

and psychological well-being, social life, and financial status are affected by the patient's illness (Zarit *et al.*, 1986). Factors that lead to caregiver burden include the patient's severity of illness and the number of activities of daily living (ADLs) and instrumental activities of daily living (IADLs) for which the patient needs assistance. Spouses of cancer patients have reported the need to help patients with transportation, monitoring of symptoms and an increase in household tasks (Bakas *et al.*, 2001). Husbands face repeated exposure to the stresses associated with cancer and are at risk of wearing down under the strain of work and household duties (Bigatti and Wagner, 2003).

In fact, a breast cancer diagnosis in a wife/partner is associated with considerable psychological distress for husbands, typically manifested and studied as anxiety and depression. When confronted with illness, studies demonstrate that the prevalence of these affective disorders is relatively equal between partners and patients

*Correspondence to: IUPUI, Department of Psychology, 402 N. Blackford St., LD 124, Indianapolis, IN 46202, USA.
E-mail: sbigatti@iupui.edu

(Compas *et al.*, 1994; Haddad *et al.*, 1996; Northouse, 1987), and some studies find greater psychological distress levels among husbands than their wives (Given and Given, 1992).

The literature on spouses of cancer patients provides much less information on changes in physical health associated with cancer in a partner. Cancer caregivers have been found to report higher levels of fatigue and lower perceived health than comparison groups (Haley *et al.*, 2001; Teel and Press, 1999), and to report experiencing symptoms other than fatigue, such as decreases in appetite and significant sleep disturbance (Wellisch *et al.*, 1978). Clearly, these limited findings suggest more research is warranted into the physical consequences of a cancer diagnosis in a partner.

Understanding physical and mental health outcomes of a breast cancer diagnosis on husbands is important because these variables are key components of QOL, albeit not sole components. QOL is a multi-dimensional construct measuring overall enjoyment of life. It includes many domains such as physical, mental, spiritual, social, and socio-economic well-being (Ferrans, 1990). A search of the PSYCHINFO and OVID databases for QOL specifically in husbands of breast cancer patients yielded no results, suggesting that the full spectrum of QOL has yet to be examined in this population.

Outcome in terms of QOL is usually examined within a stress and coping framework. Specifically, Lazarus and Folkman's (1984) model of stress and coping suggests pathways through which breast cancer in a wife may lead to poorer QOL in the husbands. These factors include the caregiver burden identified above as well as variables such as coping and social support. Over a decade ago Pearlin *et al.* (1990) had already recognized social support and coping as historically consistent predictors of outcome in the stress process.

The general caregiving literature supports the notion that social support is related to QOL for spouses of patients (Blankfeld and Holahan, 1999). In the cancer literature, social support has been associated with improved immune function among husbands and wives of patients (Baron *et al.*, 1990), and better psychological adjustment (Northouse *et al.*, 2002), as well as post-traumatic growth in husbands (Weiss, 2004).

An equally small literature examines coping strategies among husbands of breast cancer

patients. This literature suggests that husbands of patients use coping strategies less than their wives and that their coping is mostly problem-focused (Ptacek *et al.*, 1994), although to a lesser degree than the patient/wife (Ben-Zur *et al.*, 2001). Findings from this literature also support general coping research in that coping style is associated with psychological functioning. For example, Morse and Fife (1998) found that among husbands, avoidance coping was associated with poorer adjustment to the illness, and denial was associated with better adjustment, because it entailed minimizing the impact of the disease.

While men make up nearly 30% of all caregivers (Chang and White-Means, 1991) and over 36% of spousal caregivers (Stone *et al.*, 1987), there is a dearth of information on the impact of partner illness and caregiving on men. The impact of caregiving has been studied most extensively in female caregivers of cognitively impaired older adults, and the limited literature that examines spouses of cancer patients most often evaluates spousal adjustment in relation to patient coping and adjustment. Additionally, most studies examining husbands compare their adjustment to the adjustment of their wives, rather than to husbands of women without illness, a group these men belonged to before the diagnosis. This leaves us with little understanding of how their QOL is impacted by the diagnosis and treatment of their wives. The present study focuses on husbands as a separate entity from their wives. Comparison to a group of husbands of healthy women provides many advantages when examining QOL in these men. Most importantly, it allows us to examine how much husbands depart from the norm when adjusting to their wives' cancer, if there is departure at all. To date, we know very little about the QOL of husbands' of women with breast cancer compared to husbands in the general population.

The primary purpose of the present study was to compare the QOL of husbands of women in treatment for breast cancer to a group of husbands whose wives did not have acute or chronic illness. Additionally, and using the model of stress and coping as a framework, we examined the correlates of QOL for husbands of patients. It was hypothesized that husbands of patients would report lower QOL than comparison husbands, and that their QOL would be related to caregiver burden, social support and coping style.

METHODS

Participants

Two hundred and forty-one men were recruited for this study; 119 spouses of breast cancer patients (HBC group) and 122 control participants. Eighty-four husbands of women with breast cancer (70.6%) and 99 control participants (81%) returned their survey packets. Three husbands of patients returned only partial packets, stating that completing the study caused them too much psychological distress to continue. These husbands were dropped from the final sample. This left 180 participants in our sample. For the purpose of the present analyses, and because of the relationship between health and age, groups were matched on age. Participants in each group who could not be matched were removed from the analysis. The final sample included 79 husbands of patients and 79 comparison husbands. Participants were predominantly Caucasian (91.7%) with an average age of 50 years (S.D. = 12.61). Most participants were college graduates (54.7%), employed full-time (64.6%), and a large proportion of participants (42.7%) earned an annual income over \$70 000.

Procedures

After receiving approval from the Scientific Review Committee of the cancer center and the university Institutional Review Board, research assistants approached breast cancer patients and/or their husbands at the cancer center in chemotherapy infusion clinics. These clinics were chosen as recruitment sites because husbands typically wait for their wives to receive infusions, and women receiving infusions are in active treatment, the broad eligibility criteria selected for the study. Research assistants explained the purpose of the study and asked husbands to participate. All husbands approached agreed on initial contact. These men completed informed consent at the infusion clinic and were provided a packet of questionnaires to take home and return by mail upon completion. Surveys took approximately 60 min to complete. Eligibility of husbands of patients was limited to one characteristic, i.e. their wife/partner was currently being treated for breast cancer. This broad criterion allowed for increased external validity and for the examination

of specific disease factors that may have an impact on QOL of these husbands.

Husbands in the comparison group were recruited through flyers placed around campus and e-mail advertisements. Both the flyers and the e-mails contained the same text to invite participants. Recruitment criteria was (a) that men be in a married or stable, live-in relationship, and (b) whose wives had no history of breast cancer and no other chronic or acute illness such as asthma, heart disease, diabetes. Interested participants called or e-mailed the lab, provided their contact information and initial verbal informed consent. Written informed consent forms and questionnaires were mailed to their homes.

Husbands in either group who failed to return packets within 2 weeks were contacted by phone. Research assistants reviewed all returned packets and called participants for missing data. All participants who returned packets were compensated for their time with \$30 grocery gift certificates.

Measures

Project questionnaire. This instrument was developed by project personnel and used to obtain demographic information and information on the patient's cancer and treatment.

QOL—Medical Outcomes Study SF-36. QOL was measured with the Medical Outcomes Study MOS SF-36; a multi-dimensional, self-administered questionnaire. This questionnaire, developed for use with a variety of populations and within a variety of settings (Ware and Sherbourne, 1992), consists of 36 items which are divided into eight multi-item scales. Scale scores were computed according to norm-based guidelines. Ware and Kosinski (2004) recommend this type of scoring, because it is most likely to produce scores with the same reliability and validity as previously reported MOS SF-36 scales, ensures that differences in scores will have the same interpretation, and allows comparison across studies. The MOS SF-36 scale scores are standardized according to the 1998 general US population and are transformed to have a mean of 50 and standard deviation of 10; therefore, scores falling under 50 are below average and each point is one-tenth of a

standard deviation (Ware and Kosinski, 2004). The MOS SF-36 has demonstrated acceptable internal consistency (Andresen *et al.*, 1996; McHorney *et al.*, 1994; Ware and Sherbourne, 1992) and high test–retest reliability (Andresen *et al.*, 1996). Multiple indicators of validity have also been established (McHorney *et al.*, 1993; Ware *et al.*, 1993; Ware and Sherbourne, 1992). For the present study, the subscales showed good internal consistency reliability, with coefficient alpha scores of 0.89 for physical functioning, 0.86 for role-physical, 0.83 for bodily pain, 0.75 for general health, 0.88 for vitality, 0.70 for social functioning, 0.83 for role-emotional, and 0.86 for mental health.

Activities of daily living—Illness Impact Form. Designed by Gallo and reported in Sexton (1984), this instrument measures how much the patient depends on the spouse for activities of daily living (ADLs, such as toileting) and instrumental activities of daily living (IADLs, such as shopping). The measure can be adapted to a variety of illnesses by changing the name of the disease to which the respondent replies. For the present study, the measure asked how much, *and specifically because of the breast cancer*, the wife depended on the respondent for each activity on a 4-point Likert scale (0 = never to 3 = always). Reliability in the present sample was $\alpha = 0.81$. This is a measure of burden of illness, and was only measured among husbands of women with breast cancer.

Coping—Ways of Coping Questionnaire. Coping strategies were measured using the ways of coping questionnaire (Folkman and Lazarus, 1998). The measure contains 66 items that can be divided into two scales: problem- (22 items) and emotion-focused (28 items) coping. The measure has internal consistency reliabilities ranging from $\alpha = 0.61$ to 0.79. Construct validity has been supported by consistency with theoretical predictions (White *et al.*, 1992). Reliability was estimated with the sample used for the present study and found to be $\alpha = 0.83$ for emotion-focused coping and $\alpha = 0.84$ for problem-focused coping.

Social support—Interpersonal Support Evaluation List. This measure, developed by Cohen *et al.* (1985), was specifically designed to assess the ‘role social supports play in protecting people from the

pathogenic effects of stress’ (p. 74). It consists of a list of 40 true/false statements that assess the availability of four types of social support (tangible, appraisal, self-esteem, and belonging) and also provides an overall functional support scale. Validity was tested with other social support measures ($r = 0.46$ – 0.62). Six-month test–retest reliability was good ($\alpha = 0.74$). Internal consistency reliability ranges from $\alpha = 0.77$ to 0.86. Reliability was estimated with the sample used for the present study and found to be $\alpha = 0.90$.

Data analysis

Multivariate and univariate analysis of variance as well as chi square analysis were used to compare groups on demographic variables and on variables related to the aims of the study. To examine correlates of QOL in husbands, Pearson product–moment correlations were examined first, followed by multiple regression analyses regressing QOL subscales on the variables that correlated in bivariate analysis. This last statistical analysis allowed for examination of multivariable correlations for each relevant QOL domain.

RESULTS

Husbands’ demographics

T-tests and chi square tests were conducted to examine differences in demographic characteristics between the experimental and comparison groups, which were matched on age. No statistically significant differences were found between groups in education, employment status, income, ethnicity, chronic health conditions, or years married ($p > 0.05$; see Table 1).

Differences between groups

A multivariate analysis of variance (MANOVA) was performed with the eight subscales of the MOS SF-36 to examine differences between groups on these variables. A MANOVA was chosen to protect against inflated type I error that can result from conducting multiple analyses on dependent variables that are likely correlated. Using Wilks’ criterion, the model was statistically

Table 1. Demographic and health variables by group

Variable	HBC group N = 79	Comparison group N = 79
Age		
Mean	50.76	49.45
S.D.	12.56	14.06
Years married		
Mean	21.73	19.51
S.D.	14.06	14.08
Ethnicity		
% Caucasian	93.7	89.7
% African American	2.5	3.8
% Hispanic	1.3	1.3
% Native American	1.3	0
% Asian/Pacific Islander	1.3	3.8
% Other	0	1.3
Education		
Below college grad	35 (44.3%)	36 (46.2%)
College and beyond	44 (55.7%)	42 (53.8%)
Employment status		
Employed	59 (74.7%)	63 (79.7%)
Unemployed	3 (3.8%)	3 (3.8%)
Retired	13 (16.5%)	10 (12.7%)
Disabled	2 (2.5%)	0 (0.0%)
Other	2 (2.5%)	3 (3.8%)
Income level		
\$40 000 and below	13 (16.7%)	16 (20.3%)
\$40 001–\$70 000	27 (34.6%)	34 (43.1%)
Above \$70 000	38 (48.7%)	29 (36.7%)
Number of chronic illnesses		
No diagnosis	51 (64.6%)	51 (67.1%)
One diagnosis	21 (26.6%)	14 (18.4%)
Two diagnoses	6 (7.6%)	8 (10.5%)
Three diagnoses	1 (1.3%)	3 (3.9%)
Frequency of husband's diagnosis		
High blood pressure	7	8
Heart disease	5	5
Diabetes	5	5
Cancer	1	3
Stomach or blood disease	0	3
Lung disease	1	0
Mental illness	0	4
Other	17	15
No diagnosis	51	52

lower QOL than control participants on general health ($p = 0.009$, $\eta^2 = 0.043$), vitality ($p = 0.001$, $\eta^2 = 0.075$), role-emotional (i.e. extent to which emotions interfere with work or daily activities; $p = 0.046$, $\eta^2 = 0.026$), and mental health QOL ($p = 0.003$, $\eta^2 = 0.057$) (see Table 2). There were no differences between groups on physical functioning, role-physical, bodily pain, or social functioning QOL subscales ($p > 0.05$).

No differences were found between groups in social support or use of emotion-focused coping ($p > 0.05$, see Table 2). Husbands of patients reported significantly less use of problem-focused coping than comparison husbands, $F(1, 151) = 37.21$, $p < 0.0001$ (see Table 2).

Burden of breast cancer for husbands of patients

Caregiver burden was conceptualized as consisting of measure of severity of illness and treatment in the wife and needs of the wife for assistance with ADLs and IADLs, specifically related to the breast cancer.

Information regarding the health status and breast cancer experience of the wives was obtained solely from husbands (see Table 3). According to husbands, the average time since diagnosis of the breast cancer was 35 months (median = 14 months). For 46.2% of the sample, the diagnosis had occurred within the past year; for 9.0% of the sample more than 10 years passed since diagnosis. In terms of current stage of disease, 19.0% of the patients were Stage I, 32.9% Stage II, 20.3% Stage III, and 17.7% Stage IV. Ten percent of the husbands were unable to report stage of illness for their wives. For surgery husbands reported that 45.6% had mastectomy and 34.2% lumpectomy. Nine percent of husbands reported their wives had no surgery and 11.4% reported their wives had received both lumpectomy and mastectomy, suggesting possible recurrent disease for this subgroup. However, we did not specifically ask whether the breast cancer was first occurrence, recurrence, or metastatic. For purposes of analyses, type of surgery was coded by increasing complexity as 0 = none, 1 = lumpectomy, 2 = mastectomy, 3 = both surgeries. For adjuvant treatment, 2.4% (two wives) had received no adjuvant treatments yet, 93.7% chemotherapy, 44.3% radiation, and 25.3% hormone therapy; 48.8% had received only

significant, $F(8, 147) = 2.395$, $p = 0.019$, multivariate effect size = 0.115. Univariate follow-up tests revealed that husbands of patients reported

Table 2. Means and standard deviations for subscales of the MOS SF-36, social support, and coping by group as well as effect sizes based on comparisons between groups

Variable	HBC group N = 79 M (S.D.)	Comparison group N = 79 M (S.D.)	Univariate effect size
MOS SF-36			
Physical functioning	53.19 (7.05)	53.33 (6.54)	0.000
Role-physical	50.89 (8.99)	52.44 (8.51)	0.008
Bodily pain	52.72 (8.58)	52.75 (7.27)	0.000
General health**	51.89 (8.90)	55.22 (6.69)	0.043
Vitality**	48.57 (10.10)	53.61 (7.50)	0.075
Social functioning	52.20 (7.88)	54.08 (5.91)	0.018
Role-emotional*	47.64 (11.47)	51.02 (9.37)	0.026
Mental health**	48.75 (9.56)	53.01 (7.67)	0.057
Social support	33.84 (6.04)	33.06 (6.36)	0.004
Coping			
Emotion-focused	30.39 (11.35)	32.86 (9.57)	0.014
Problem-focused**	22.24 (9.15)	30.54 (7.55)	0.199

Higher scores on the MOS SF-36 indicate better functioning. The highest possible score on each subscale of the MOS SF-36 is 100.

* $p < 0.05$, two-tailed;

** $p < 0.01$, two-tailed.

Table 3. Illness characteristics of wives of HBC group

N = 79	Total number	Percentage
Severity of cancer		
Stage I	15	21.1
Stage II	26	36.6
Stage III	16	22.5
Stage IV	14	19.7
Time since diagnosis		
Less than 1 year	39	46.2
1 year	13	16.6
2–5 years	19	23.1
6–10 years	4	5.1
More than 10 years	7	9
Treatment methods		
Chemotherapy	74	93.7
Hormone therapy	20	25.3
Radiation	35	44.3
Type of surgery		
No surgery	7	8.9
Lumpectomy	27	34.2
Mastectomy	36	45.6
Both	9	11.4

one of the three (radiation, chemotherapy, or hormone therapy), 30.5% had two, and 18.3% had received all three adjuvant treatments.

Husbands reported some needs by their wives in terms of ADLs, and significant needs in terms of IADLs (see Table 4). Only 15 husbands (19% of the sample) scored zero on this scale, suggesting no needs from their wives for help associated with the breast cancer diagnosis.

Correlation analyses with husbands of patients only

A correlation analysis was run between the eight subscales of the MOS SF-36 in the group of husbands of breast cancer patients and the variables of interest, i.e. wives' disease characteristics, illness impact form scores (ADLs and IADLs), social support, and coping (see Tables 5 and 6).

No disease characteristics correlated with any QOL outcome. Higher illness impact of husbands in terms of helping their wives with ADLs and IADLs were associated with lower vitality, more role limitations due to emotional problems, and lower mental health QOL in husbands.

Higher social support was correlated with better mental health QOL. Higher use of emotion-focused coping was associated with lower role-physical (i.e. extent to which physical problems interfere with work or daily activities), lower

Table 4. Activities of daily living and instrumental activities of daily living performed by husbands

Because of the breast cancer, how often is your partner dependent on you for the following:			
Dressing		Use the toilet	
Never	63.7%	Never	93.3%
Sometimes	35.6%	Sometimes	6.7%
Most times	0.7%		
Eating		Organizing appointments	
Never	83%	Never	66.7%
Sometimes	13.3%	Sometimes	27.4%
Most times	3%	Most times	4.4%
Always	0.7%	Always	1.5%
Bathing		Managing finances	
Never	87.4%	Never	54.1%
Sometimes	11.1%	Sometimes	24.4%
Most times	0.7%	Most times	13.3%
Always	0.7%	Always	8.1%
Trips outside		Taking medication	
Never	58%	Never	72.6%
Sometimes	29%	Sometimes	23.7%
Most times	12%	Most times	2.2%
Always	1%	Always	1.5%
Walk in house		Shopping	
Never	80.7%	Never	37%
Sometimes	17.0%	Sometimes	42.2%
Most times	2.2%	Most times	15.6%
Always	1.5%	Always	5.2%

Table 5. Correlations between QOL subscales and wife's illness characteristics

QOL variable N = 79	Wives' cancer stage	Surgery type	Time since diagnosis
Physical functioning	-0.11	-0.10	-0.21
Role-physical	-0.03	-0.02	0.08
Bodily pain	-0.09	-0.05	-0.12
General health	-0.17	-0.07	-0.05
Vitality	-0.08	-0.07	-0.12
Social functioning	-0.05	0.03	0.18
Role-emotional	-0.07	-0.12	-0.00
Mental health	-0.23	-0.02	0.05

general health, lower vitality, lower social functioning, lower role-emotional, and lower mental health. Higher use of problem-focused coping was

Table 6. Correlations between QOL subscales and illness impact (ADLs/IADLs), social support and coping

QOL variable N = 79	Illness impact	Social support	Emotion-focused coping	Problem-focused coping
Physical functioning	-0.11	-0.03	-0.20	-0.20
Role-physical	-0.19	0.12	-0.34**	-0.25*
Bodily pain	0.12	0.18	-0.20	-0.13
General health	0.15	0.13	-0.27*	-0.19
Vitality	-0.33**	0.22	-0.24*	-0.10
Social functioning	-0.20	-0.06	-0.24*	-0.24*
Role-emotional	-0.28*	0.16	-0.30**	-0.19
Mental health	-0.33**	0.34**	-0.37**	-0.19

* $p < 0.05$, two-tailed;
** $p < 0.01$, two tailed.

associated with lower role-physical and lower social functioning.

Multiple regression analyses with husbands of patients only

When two or more variables correlated with a QOL subscale, a multiple regression analysis was conducted to examine the joint influence of the variables (see Table 7 for information on each analysis). Vitality and role-emotional QOL were each regressed on illness impact and emotion-focused coping. Both models were significant. In vitality, only illness impact accounted for significant proportions of variance; in role-emotional, only emotion-focused coping accounted for significant proportions of variance. Role-physical and social functioning qualities of life were each regressed on emotion-focused and problem-focused coping. For role-physical, the model was significant, but only emotion-focused coping accounted for significant proportions of variance. The model for social functioning was not significant. Finally, mental health QOL was regressed on illness impact, social support, and emotion-focused coping. The model was significant and all variables accounted for variance.

DISCUSSION

The present study compared the QOL of husbands of women in treatment for breast cancer to a

Table 7. Summary of regression analyses for predictors of QOL outcomes of HBC group ($N=79$)

Variable	<i>B</i>	SE <i>B</i>	Beta
Vitality			
Illness impact	-0.76	0.29	-0.29*
Emotion-focused coping	-0.14	0.10	-0.16
Multiple <i>R</i>	0.36		
<i>F</i> -test	5.49**		
Variance	13%		
Role-emotional			
Illness impact	-0.62	0.33	-0.21
Emotion-focused coping	-0.24	0.12	-0.24*
Multiple <i>R</i>	0.39		
<i>F</i> -test	3.18*		
Variance	16%		
Role-physical			
Emotion-focused coping	-0.26	0.11	-0.34*
Problem-focused coping	-0.03	0.13	-0.03
Multiple <i>R</i>	0.36		
<i>F</i> -test	5.43**		
Variance	13%		
Social functioning			
Emotion-focused coping	-0.10	0.10	-0.14
Problem-focused coping	-0.14	0.13	-0.16
Multiple <i>R</i>	0.27		
<i>F</i> -test	2.72 (n.s.)		
Variance	7%		
Mental health			
Illness impact	-0.58	0.26	-0.23*
Emotion-focused coping	-0.21	0.09	-0.24*
Social support	0.44	0.17	0.27*
Multiple <i>R</i>	0.51		
<i>F</i> -test	8.49***		
Variance	26%		

* $p < 0.05$, two-tailed;** $p < 0.01$, two-tailed;*** $p < 0.001$, two-tailed.

group of husbands whose wives did not have acute or chronic illness. To date, no study had examined multi-dimensional QOL in these men, or compared them to a group of husbands whose wives were not ill. Our two groups were comparable in demographic and health variables.

As hypothesized, we found lower QOL among husbands of women with breast cancer than comparison husbands when measured with the MOS SF-36, specifically in the subscales of general health, vitality, role-emotional, and mental health. Prior research with husbands of breast cancer patients supports our findings. For example, among husbands of patients with recurrent disease, researchers have found similar levels of distress as in the wife/patient (Northouse *et al.*, 1995). As well, fatigue and lower perceived health have been found in spouses of patients with cancer (Haley *et al.*, 2001; Teel and Press, 1999).

Based on the stress and coping literature, caregiver burden, social support, and coping were examined as correlates of QOL in husbands of patients. The model was useful in predicting between 13 and 26.4% of the variance in four of the eight QOL domains. Mental health QOL was best predicted by the model, where caregiver burden, social support, and emotion-focused coping accounted for 26.4% of the variance.

Caregiver burden consisted of two constructs. The first was severity of illness and treatment of the wife, specifically stage of illness, time since diagnosis, and type of surgery. The second was the amount of need for help in activities of daily living and instrumental activities of daily living of the wife specifically because of the breast cancer.

Not surprisingly, none of the wife illness variables correlated with husbands' QOL. Our findings suggest that it is not necessarily the specific characteristics associated with the illness that are impacting QOL as much as the presence of the illness itself. Our findings support extensive literature that has identified no relationship between these disease variables and outcome in spouses and families of cancer patients (Given and Given, 1992; Glasdam *et al.*, 1996; Northouse *et al.*, 2002; Walker, 1997).

Unlike wife illness variables, help with activities of daily living, both basic and instrumental (ADLs/IADLs), correlated with a number of QOL domains. Specifically, in bivariate analyses, husbands who reported that their wives had more needs for help reported lower vitality, lower mental health, and more limitations in their work and everyday roles associated with their own emotions (role-emotional QOL). In multivariate correlations, ADLs/IADLs explained significant proportions of variance in vitality and mental

health QOL. These findings may point to the fact that husbands who need to help their wives are taking on new roles and responsibilities related to their wives' decaying health, therefore increasing their fatigue and distress. Other researchers have reported findings consistent with our own. Hilton *et al.* (2000) found that husbands reported the need to make changes in their work related activities and to put themselves on hold during the course of their wives' treatment. Additionally, they reported the need to provide reassurance and support to their wives, while at the same time learning about the illness and dealing with mounting financial costs and their own anger and fear (Hilton *et al.*, 2000). Other duties that spouses have reported include patient transportation, monitoring of symptoms and an increase in household tasks (Bakas *et al.*, 2001). It is not surprising under these circumstances that husbands would report lower vitality and poorer mental health in our study and others, and that our study showed a relationship between these variables and ADLs/IADLs.

Social support did not differ between husbands of patients and comparison husbands. When examined as a correlate of QOL among husbands of patients, social support correlated with mental health QOL only, and this relationship remained in a multivariate regression analysis. Although this limited finding is supported by existing literature with this specific patient population (Northouse, 1988) it is rather disappointing given the vast literature that suggests beneficial effects of social support on QOL. Although in the present study social support was not related to any of the physical health QOL indicators, past research with other patient and spouse populations suggests social support may be associated with functional outcomes (King *et al.*, 1993) and with immune function (Baron *et al.*, 1990). It is possible that a cross-sectional design is less than ideal to identify the relationships between social support and QOL. Also when examining dyadic husband-wife relationships, measures that specifically assess the support spouses provide to each other may yield richer information than those that assess general social support.

Coping efforts in these husbands present a complex picture. We found differences between groups in use of problem-focused coping but not emotion-focused coping. Specifically, husbands of patients used less problem-focused coping than comparison husbands, suggesting a suppression of

these coping behaviors at the time of active treatment in the wife. This may point to the fact that during active treatment, there is not much problem-solving that can be done by the husbands, who must acquiesce to the recommendations of oncologists and other professionals caring for their wives. Findings such as these, that elicit more questions than they provide answers, point to the shortcomings of checklist coping measures (Coyne and Gottlieb, 1996). An interview format versus the checklist used in the present study could potentially shed more light on the findings regarding problem-focused coping, since reports could be followed up with questions assessing the reasoning behind the various coping styles used and the value of each style for the participant. Our findings are partially contradicted by the small literature that examines coping in this population. Ptacek and colleagues (1994) did find less use of coping among husbands than wives (their comparison group), but they found that these husbands used mostly problem-focused coping as opposed to emotion-focused coping.

Our findings are significant because husbands' coping style has been associated with outcome in the wife/patient. In Ptacek *et al.*'s (1994) study, problem-focused coping in the husband was associated with higher marital satisfaction in the wife/patient, while emotion-focused coping in the husband is associated with distress in the patient (Ben-Zur *et al.*, 2001), a finding replicated with other illness groups (Kotchick *et al.*, 1996).

Of all the variables from the stress and coping model used, emotion-focused coping had the most bivariate correlations with QOL domains, and remained in the model in most multivariate analyses as well, explaining portions of variance in role-emotional, role-physical, and mental health QOL. In addition, it was the only variable to correlate with general health QOL. However, use of emotion-focused coping as a predominant coping style does not seem to be helpful to these husbands. In each of its correlations, emotion-focused coping was associated with poorer QOL for husbands. Clearly, the role of emotion-focused coping on QOL in this population needs to be studied further, and more complex models need to be examined.

There are a number of limitations associated with the present study. Of note is the cross-sectional design, which limits our ability to draw causal explanations for our findings. The voluntary nature of participation introduces the possi-

bility of bias. Also noteworthy is the demographic characteristics of our sample. Our sample was mostly Caucasian, older, and with relatively high education and income. This limitation is especially important since the demographic characteristics of our sample suggest they may have more financial resources to handle the situation. Husbands of patients in lower SES families may experience more stress associated with more financial strain and fewer resources. Non-Caucasian husbands may experience the breast cancer in their wives differently because of cultural and demographic factors.

A better understanding of the experience of these men would have been gleaned had we obtained access to patient files to collect information regarding the wives' illness, such as stage, time since diagnosis, recurrence or metastasis, etc. Most of this data was collected through husbands in the present study. Although these variables did not correlate with QOL, and have not in other studies, the limitations inherent in trusting husbands to report detailed medical information for their wives are numerous.

Although we are the only study to collect data on illness impact in terms of ADLs and IADLs from husbands, a limitation of our study may be our failure to collect similar data from comparison husbands. Although there was no expectation that comparison husbands would help their wives with ADLs/IADLs related to a specific diagnosis, collecting data from them may have provided information on which of these tasks are normally conducted by husbands. This would have permitted comparisons and a deeper understanding of the impact of the illness on the everyday responsibilities of husbands of patients.

Finally, although the literature suggests that ADLs and IADLs performed by spouses of patients result in burden, not all spouses may describe their help to the patient in those terms. In their review of the literature on caregivers of Alzheimer's disease patients, Williamson and Schulz (1990) comment on the positive aspects reported by caregivers, such as making them feel useful, contributing to their self-worth, and improving relationships with the care recipients, among others. Recognizing this, Folkman and colleagues have begun to assess positive aspects of caregiving in their own research on caregivers of AIDS patients (Folkman *et al.*, 1996). We estimate that husbands in the present study would possibly report many positive aspects associated with

helping their wives through the breast cancer experience.

In spite of these limitations, the present study makes a number of significant contributions to the existing literature. QOL in several domains was examined, for the first time, specifically among husbands whose wives are currently being treated for breast cancer. Also for the first time these husbands were compared to husbands of women who were not ill. The dimensions where differences between groups were found (mental health, general health, role-emotional, and vitality) suggest husbands of patients are experiencing worse psychological well-being that is impacting their other roles and activities, and that they perceive their health as poorer and feel more tired or worn out than comparison husbands.

The use of the stress and coping model highlighted a number of relationships that point to implications for further research and practice. For example, husbands can be encouraged to seek help from family and friends for instrumental activities of daily living such as shopping, since our findings suggest these are new activities for a large proportion of husbands, and that they impact QOL. Additionally, interventions aimed at decreasing the use of emotion-focused coping as a general coping style may result in improved QOL for these husbands.

Future research should examine QOL in these husbands longitudinally, so that specific times of vulnerability can be identified. In addition, a more complex model with more detailed information regarding the coping styles and availability of support and other resources of these husbands can further inform clinical and research interventions. There are still many gaps in knowledge regarding this specific population and QOL outcomes. Studies that evaluate the processes through which these husbands arrive at poorer QOL, for example, are yet to be conducted. In addition, protective factors need to be identified, although recent research examining post traumatic growth among these husbands has already surfaced (Weiss, 2004). Profiles of husbands who fare well in the face of breast cancer in a wife versus those who do not would further our understanding of the needs and strengths of this population. Our findings add to the small but important literature that suggests that spouses of cancer patients are an at-risk group that requires attention from both researchers and practitioners.

ACKNOWLEDGEMENTS

This research was supported by a grant made available by the Walther Cancer Institute. The authors thank the research assistants who collected these data, April Bogard Giffin who assisted with the preparation of the manuscript, as well as the oncologists and staff at Indiana University Cancer Center who assisted with recruitment of participants.

REFERENCES

- Andresen EM, Bowley N, Rothenberg BM, Panzer R, Katz P. 1996. Test-retest performance of a mailed version of the Medical Outcomes Study 36-Item Short-Form Health Survey among older adults. *Med Care* **34**: 1165–1170.
- Bakas T, Lewis RR, Parson JE. 2001. Caregiving tasks among family caregivers of patients with lung cancer. *Oncol Nurs Forum* **28**: 847–854.
- Baron RS, Cutrona CE, Hicklin DI *et al.* 1990. Social support and immune function among spouses of cancer patients. *J Pers Soc Psychol* **59**: 344–352.
- Ben-Zur H, Gilbar O, Lev S. 2001. Coping with breast cancer: Patient, spouse, and dyad models. *Psychosom Med* **63**: 32–39.
- Bigatti S, Wagner C. 2003. Psychological consequences of breast cancer for patients and families. *Psychol Beitr* **45**: 75–89.
- Blankfeld D, Holahan C. 1999. Social support, coping, and psychological adjustment among caregivers of head-injured patients. *Psychol Health* **14**: 609–624.
- Chang C, White-Means S. 1991. The men who care: An analysis of male primary caregivers who care for frail elderly at home. *J Appl Gerontol* **83**: 537–547.
- Cohen S, Mermelstein R, Kamarck T, Hoberman HM. 1985. Measuring the functional components of social support. In *Social Support: Theory, Research, and Applications*, Sarason IG, Sarason BR (eds). The Hague: Nijhoff; 73–94.
- Compas BE, Worsham NL, Epping-Jordan JE *et al.* 1994. When mom or dad has cancer: Markers of psychological distress in cancer patients, spouses, and children. *Health Psychol* **13**: 507–515.
- Coyne J, Gottlieb B. 1996. The mismeasure of coping by checklist. *J Pers* **64**: 959–991.
- Ferrans CE. 1990. Development of a quality of life index for patients with cancer. *Oncol Nurs Forum* **17**: 15–21.
- Folkman S, Chesney M, Collette L, Boccillari A, Cooke M. 1996. Postbereavement depressive mood and its prebereavement predictors in HIV+ and HIV- gay men. *J Pers Soc Psychol* **70**: 336–348.
- Folkman S, Lazarus RS. 1998. *Manual for the Ways of Coping Questionnaire*. Consulting Psychologists Press: Redwood City, CA.
- Given B, Given CW. 1992. Patient and family caregiver reaction to new and recurrent breast cancer. *J Am Med Women's Assoc* **47**: 201–206, 212.
- Glasdam S, Jensen AB, Madsen EL, Rose C. 1996. Anxiety and depression in cancer patients' spouses. *Psycho-Oncology* **5**: 23–29.
- Haddad P, Pitceathly C, Maguire P. 1996. Psychological morbidity in the partners of cancer patients. In *Cancer and the Family*, Baider CL, Kaplan De-Nour A (eds). Wiley: New York; 257–268.
- Haley WE, LaMonde LA, Han B, Narramore S, Schonwetter R. 2001. Family caregiving in hospice: Effects on psychological and health functioning among spousal caregivers of hospice patients with lung cancer or dementia. *Hosp J* **15**: 1–18.
- Hilton BA, Crawford JA, Tarko MA. 2000. Men's perspectives on individual and family coping with their wives' breast cancer and chemotherapy. *West J Nurs Res* **22**: 438–459.
- King K, Reis H, Porter L, Norsen L. 1993. Social support and long-term recovery from coronary artery surgery on patients and spouses. *Health Psychol* **12**: 56–63.
- Kotchick BA, Forehand R, Armistead L, Klein K, Wierson M. 1996. Coping with illness: Interrelationships across family members and of psychological adjustment. *J Fam Psych* **10**: 358–370.
- Lazarus RS, Folkman S. 1984. *Stress, Appraisal, and Coping*. Springer: New York.
- McHorney C, Ware Jr JE, Raczek A. 1993. The MOS 36-Item Short-Form Health Survey (SF-36): II. Psychometric and clinical tests of validity in measuring physical and mental health constructs. *Med Care* **31**: 247–263.
- McHorney CA, Ware Jr JE, Lu JF, Sherbourne CD. 1994. The MOS 36-item Short-Form Health Survey (SF-36): III. Tests of data quality, scaling assumptions, and reliability across diverse patient groups. *Med Care* **32**: 40–66.
- Morse SR, Fife B. 1998. Coping with a partner's cancer: Adjustment at four stages of the illness trajectory. *Oncol Nurs Forum* **25**: 751–760.
- Northouse LL. 1987. Adjustment of patients and husbands to the initial impact of breast cancer. *Nurs Res* **36**: 221–225.
- Northouse LL. 1988. Social support in patients' and husbands' adjustment to breast cancer. *Nurs Res* **37**: 91–95.
- Northouse LL, Laten D, Reddy P. 1995. Adjustment of women and their husbands to recurrent breast cancer. *Res Nurs Health* **18**: 515–524.
- Northouse LL, Mood D, Kershaw T *et al.* 2002. Quality of life of women with recurrent breast cancer and their family members. *J Clin Oncol* **20**: 4050–4064.
- Pearlin LI, Turner H, Semple SJ. 1990. Coping and mediation of caregiver stress. In *Alzheimer's Disease Treatment and Family Stress: Direction for Research*,

- Light E, Lebowitz B (eds). US Department of Health and Human Services: Rockville, MD; 198–217.
- Petrie W, Logan J, DeGrasse C. 2001. Research review of the supportive care needs of spouses of women with breast cancer. *Oncol Nurs Forum* **28**: 1601–1607.
- Ptacek JT, Ptacek JJ, Dodge KL. 1994. Coping with breast cancer from the perspective of husbands and wives. *J Psychosoc Oncol* **12**: 47–72.
- Sexton DL. 1984. The supporting cast: Wives of COPD patients. *J Gerontol Nurs* **10**: 82–84.
- Stone R, Cafferata G, Sangl J. 1987. Caregivers of the frail elderly: A national profile. *Gerontologist* **27**: 616–626.
- Teel CS, Press AN. 1999. Fatigue among elders in caregiving and noncaregiving roles. *West J Nurs Res* **21**: 498–520.
- Walker BL. 1997. Adjustment of husbands and wives to breast cancer. *Cancer Pract* **5**: 92–98.
- Ware Jr JE, Kosinski MA. 2004. *SF-36 Physical and Mental Health Summary Scales: A Manual for Users of Version 1*. QualityMetric Incorporated: Lincoln, RI.
- Ware Jr JE, Snow KK, Kosinski MA, Bandek B. 1993. *SF-36 Health Survey: Manual and Interpretation Guide*. New England Medical Center, The Health Institute: Boston, MA.
- Ware JE, Sherbourne CD. 1992. The MOS 36-Item Short-Form Health Survey: Conceptual framework and item selection. *Med Care* **30**: 473–481.
- Weiss T. 2004. Correlates of posttraumatic growth in husbands of breast cancer survivors. *Psycho-Oncology* **13**: 260–268.
- Wellisch DK, Jamison KR, Pasnau RO. 1978. Psychosocial aspects of mastectomy II: The man's perspective. *Am J Psychiatry* **135**: 543–546.
- White NE, Richter JM, Fry C. 1992. Coping, social support, and adaptation to chronic illness. *West J Nurs Res* **14**: 211–224.
- Williamson GM, Schulz R. 1990. Relationship orientation, quality of prior relationship, and distress among caregivers of Alzheimer's patients. *Psychol Aging* **5**: 502–509.
- Zarit SH, Todd PA, Zarit JM. 1986. Subjective burden of husbands and wives as caregivers: A longitudinal study. *Gerontologist* **26**: 260–266.

Copyright of *Psycho-Oncology* is the property of John Wiley & Sons Ltd. 1996 and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.