

ORIGINAL ARTICLE

Unmet Needs and Their Relationship with Quality of Life among Women with Recurrent Breast Cancer

Byeong-Woo Park, Sook Yeon Hwang¹Department of Surgery, Yonsei University Health System, Yonsei University College of Medicine, Seoul; ¹Department of Social Welfare, Duksung Women's University College of Social Sciences, Seoul, Korea

Purpose: This study aimed to evaluate the prevalence and the effects of unmet needs on quality of life (QOL) among recurrent breast cancer survivors. **Methods:** Completed questionnaires were collected from 52 women with recurrent breast cancer. Clinical and socio-demographic characteristics were reviewed, and the Supportive Care Needs Survey, Functional Assessment of Cancer Therapy-Breast Cancer Instrument, and Beck Depression Inventory (BDI) were administered. The frequency of unmet needs and the mean differences by patient characteristics and BDI scores were analyzed. The predictive value of unmet needs on QOL, controlling for socio-demographic variables and then for clinical variables, was analyzed in hierarchical regression models. **Results:** The most common unmet needs belonged to the health system and information domain. The depressive group had greater unmet needs in the psychological domain ($p < 0.001$), physical and daily living domain ($p = 0.001$), and health and information domain ($p = 0.002$). Patients with lower education attain-

ment and those with lower performance status had greater unmet needs in the psychological needs ($p = 0.002$) and in the physical and daily living needs domain ($p = 0.002$), respectively. Unmet needs in the psychological domain ($p = 0.008$), physical and daily living domain ($p = 0.022$), and sexuality domain ($p = 0.040$) strongly predicted QOL of women with recurrent breast cancer. **Conclusion:** Unmet needs were strong predictors for QOL among recurrent breast cancer patients. This suggests that QOL of women with recurrent breast cancer is possibly more affected by unmet needs than by patient's socio-demographic or clinical characteristics. Intervention strategies could be developed based on the identified needs of women with recurrent breast cancer in order to improve their QOL. Further longitudinal and prospective studies will be necessary to confirm the independent impact of unmet needs on QOL.

Key Words: Breast carcinoma, Quality of life, Recurrence, Unmet needs

INTRODUCTION

The risk of cancer recurrence is an ongoing and significant issue for breast cancer survivors [1,2]. Although early detection and advances in treatment have improved disease-free survival rates of women diagnosed with breast cancer, a substantial proportion still experience recurrence or are diagnosed with a new primary breast cancer [2].

It has been reported that women experience recurrence as a

time of increased psychological distress and threat [3]. Previous studies showed psychosocial adaptation experienced by recurrent breast cancer patients were poorer than that experienced by patients with an initial diagnosis of breast cancer [4-9]. Cancer patients with advanced or recurrent disease are reported to be more depressed and experience worse quality of life (QOL) than patients with early disease [4,5].

Psychosocial adaptation to cancer has been evaluated using a variety of constructs including QOL, satisfaction with care, and needs assessment [10]. Needs assessment identifies specific issues that patients need help with and directly assesses the perceived urgency of the need for help, which enables focused care on the issues patients themselves have identified as ones that require most help [11]. Identifying and addressing the unmet needs of patients are important because they are found to be significantly associated with both psychological distress and poor QOL [4-6], which may in turn negatively affect the health care system by increasing health care utilization and

Correspondence to: Sook Yeon Hwang

Department of Social Welfare, Duksung Women's University College of Social Sciences, 33 Samyang-ro 144-gil, Dobong-gu, Seoul 132-714, Korea
Tel: +82-2-901-8287, Fax: +82-2-901-8581
E-mail: sookhyhwang@duksung.ac.kr

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costs [12-15].

Although the QOL of breast cancer patients is well documented, few studies have assessed unmet needs and their role in QOL among women with recurrent breast cancer. A few factors have been identified as predictors of overall quality of life among women with recurrent breast cancer, including age, time since recurrence, recurrence pattern (local-regional or distant recurrence), sites of metastasis, current physical symptoms, and treatment status [16-18]. Unmet needs were reported to be associated with QOL in breast cancer patients [13,15,19,20]. However, to our knowledge, no study has investigated the predictive value of unmet needs on QOL among recurrent breast cancer patients.

The specific aims of the current study were to examine the unmet needs and depression among patients with recurrent breast cancer and to explore the predictive value of unmet needs on QOL along with socio-demographic and clinical variables.

METHODS

Patients

The subjects in this study were a consecutive sample of 55 outpatients diagnosed with recurrent breast cancer at Severance Hospital Breast Cancer Clinic, Seoul, Korea. The eligibility criteria for inclusion in the study were as follows: 1) a diagnosis of recurrence of breast cancer, 2) aged between 20 and 80 years old, and 3) no evidence of psychosis, dementia, or suicidal behavior. After informed consent had been obtained, the patients were asked to complete the questionnaires. Among the 55 eligible patients, 53 consented to participate in the study and 52 returned the completed surveys. A total of 52 cases were used in the analysis. Data were collected from January 2007 until October 2008. This study was approved by the Institutional Review Board of Severance Hospital (4-2009-0269).

Measurements

Socio-demographic and medical background

Socio-demographic background including patient's age, marital status, job, education, and economic status were included in the survey. Medical/treatment variables were collected by reviewing the patients' medical records. Performance status was evaluated by the Eastern Cooperative Oncology Group Performance Status (ECOG-PS) scale. ECOG-PS assesses the level of functioning based on activity, ambulatory status, and the need for care ranging from grade 0 (normal activity) to grade 4 (completely bedridden). ECOG-PS is widely used and well validated [21].

The Supportive Care Needs Survey (SCNS)

The unmet needs of recurrent breast cancer patients were assessed by the SCNS, which was designed to provide direct assessment of cancer patients' perceived needs for help and to identify the magnitude of the need for help [10]. The survey contains 59 items covering five domains of needs and other additional items as follows: psychological (22 items), health system and information (15 items), physical and daily living (7 items), patient care and support (8 items), sexuality (3 items), and additional 4 items. The participants were asked to indicate the level of their need for help over the last month in relation to having cancer ranging from 1, no need (not applicable); 2, no need (satisfied); 3, low need; 4, moderate need; to 5, high need. Subscale scores were calculated by summing the responses to each of the items of need and dividing the total by the number of items in the domain. A higher score indicated a higher perceived need. The survey's psychometric properties have been well documented [10]. We used the SCNS-LF59 survey in Korean language, which had been translated and back-translated by Hwang and Park [22]. The reliability coefficient was 0.964 in the psychological needs domain, 0.905 in the physical and daily activity domain, 0.927 in the sexuality domain, 0.947 in the health system and information domain, and 0.916 in the patient care and support domain.

The Beck Depression Inventory (BDI)

The BDI is one of the most commonly used self-report depression symptom questionnaires in the medical field. BDI is a 21-item inventory used to describe symptoms and attitudes. Each item describes a particular aspect of depression and has four self-evaluative statements. The study participants were asked to circle the items that best describe how they have been feeling in the last week. The Korean version of the BDI was standardized [23] and its validity and reliability have been established [24]. The reliability coefficient for BDI was 0.873 in this study.

Functional Assessment of Cancer Therapy-Breast (FACT-B)

The FACT-B version 4 was used to assess health-related QOL. The FACT-B is a 36-item questionnaire composed of the FACT-General (27 items) and the breast cancer subscale (9 items). FACT-B consists of the following subscales: physical well-being, emotional well-being, social/family wellbeing, and breast cancer subscale. A total FACT-B score is calculated by summing the subscales. The participants were asked to rate how true each statement was for the period of last 7 days, using a scale from 0 to 4. The psychometric properties of the FACT-B are well documented [25], and the survey was validated in Korea [26]. The α coefficient for the FACT-B total score was

0.713 in this study.

Statistical analysis

Descriptive statistics were used to analyze the socio-demographic and clinical characteristics of the sample. The frequency of each response option of the 59 items was generated and the 20 items with the highest frequency of moderate to high needs were ranked. Differences of unmet needs between two groups, depressive group vs. non-depressive group, by the BDI cutoff score were examined with the t-test. Hierarchical multiple regression models were employed to identify significant predictors of QOL. Independent variables were separated into 3 hierarchical blocks. Socio-demographic characteristics (age at recurrence, education, financial status, marital status) were entered in the first block (Model A) and then clinical characteristics (time since recurrence, performance status, recurrence pattern) were entered in the second block (Model B) because they are more stable characteristics that are less subjected to errors. Five domains of SCNS (psychological, physical and daily living, sexuality, health system, and information domain) were entered in the last block (Model C) to examine the predictive value of unmet needs after controlling for socio-demographic and clinical characteristics. Prior to analyzing the regression models using these predictor variables, tests were conducted to ensure that the inclusion of all the above-mentioned variables did not introduce statistically significant multicollinearity. Data analyses were conducted using the SPSS software version 17.0 (SPSS Inc., Chicago, USA). A *p*-value less than 0.05 was considered statistically significant.

RESULTS

Patient characteristics

The demographic and clinical characteristics of 52 study participants are displayed in Table 1. The mean age of the study participants was 48.34 ± 8.28 years, 86.5% were married, and 11 (21.2%) were educated under high school level. Most women (82.7%) were unemployed at the time of survey and 71.2% reported their economic status as middle. The mean time since recurrence was 20.26 ± 22.19 months. Most women were amenorrheic (84.6%) and almost fully ambulatory in the performance status (90.4%). In terms of recurrence pattern, 32.7% of women were local-regional and 67.3% were either systemic or both systemic and local. Among the patients with systemic recurrence, 51.4% were bone and soft tissue metastases.

Prevalence of unmet needs

The top 20 unmet needs that were rated as moderate to high are shown in Table 2. Among the 20 highest needs items, 13

Table 1. Socio-demographic and clinical characteristics

Characteristic	No. (%)
Age at recurrence (yr)	
Mean \pm SD	48.34 \pm 8.28
<50	27 (51.9)
\geq 50	25 (48.1)
Marital status	
Married	45 (86.5)
Single	7 (13.5)
Education (yr)	
<9	11 (21.2)
10-12	25 (48.1)
>13	16 (30.8)
Job	
Yes	9 (17.3)
No	43 (82.7)
Economic status	
High	4 (7.7)
Middle	37 (71.2)
Low	11 (21.2)
Menstruation	
Yes	8 (15.4)
No	44 (84.6)
Time since recurrence (mo)	
Mean \pm SD	20.26 \pm 22.19
<6	17 (32.7)
\geq 6	35 (67.3)
ECOG-PS	
0	24 (46.2)
1	23 (44.2)
2	5 (9.6)
Recurrence pattern	
Local	17 (32.7)
Systemic	28 (53.8)
Systemic+local	7 (13.5)
Site of metastasis region	
Bone and soft tissue	18 (51.4)
Visceral	13 (37.1)
Visceral+bone and soft tissue	4 (11.4)

ECOG-PS = the Eastern Cooperative Oncology Group Performance Scale.

items were in the health system and information domain, 3 in the psychological domain and 4 were in the patient care and support domain. The most common unmet needs were 'Being informed about cancer which is under control or diminishing' (50.3%) followed by 'To be informed about things you can do to help yourself get well' (47.6%), 'Waiting a long time for clinic appointments' (43.7%), 'To be informed about your test results as soon as possible' (42.5%), and 'To have one member of hospital staff with whom you can talk to about all aspects of your condition, treatment and follow-up' (41.8%).

Unmet needs by patient characteristics

Table 3 shows the mean differences of SCNS subscales by patient characteristics. In the psychological needs domain,

Table 2. Top 20 unmet needs by percentage rating with moderate or high need

	Unmet needs item	% of sample reporting needs	Needs domain
1	To be informed about cancer which is under control or diminishing	50.3	Health system and information
2	To be informed about things you can do to help yourself get well	47.6	Health system and information
3	Waiting a long time for clinic appointments	43.7	Patient care and support
4	To be informed about your test results as soon as possible	42.5	Health system and information
5	To have one member of hospital staff with whom you can talk to about all aspects of your condition, treatment and follow-up	41.8	Health system and information
6	To have access to professional counseling if you/family/friends need it	41.2	Health system and information
7	To be given explanations of those tests for which you would like explanations	40.7	Health system and information
8	To be given information about aspects of managing your illness and side-effects at home	34.7	Health system and information
9	To be adequately informed about the benefits and side-effects of treatments before you choose to have them	33.9	Health system and information
10	Fears about cancer spreading	33.1	Psychological
11	Fears about cancer returning	33.1	Psychological
12	To be treated in a hospital or clinic that is as physically pleasant as possible	32.9	Health system and information
13	To be given written information about the important aspects of your care	31.9	Health system and information
14	To be given choices about when to go in for tests or treatment	30.3	Health system and information
15	Family or friends to be allowed with you in hospital whenever you want	29.6	Patient care and support
16	The opportunity to talk to someone who understands and has been through a similar experience	29.6	Health system and information
17	Hospital staff to attend promptly to your physical needs	27.3	Patient care and support
18	Fears about physical disability or deterioration	26.9	Psychological
19	To be treated like a person, not just another case	26.3	Health system and information
20	More choice about which cancer specialist you see	26.3	Patient care and support

patients with a lower level of education were more likely to report significantly higher unmet needs ($p=0.003$). Economic status was marginally significant ($p=0.072$). In the physical and daily living needs domain, patients with a lower performance status ($p=0.002$) were more likely to have higher unmet needs; marital status ($p=0.076$) was marginally significant. In the sexuality needs domain, no significant factor was found, except economic status ($p=0.053$) and education ($p=0.077$) which were marginally significant. In the health system and information needs domain and the patient care and support needs domain, there were no mean differences of SCNS subscales by patient characteristics.

Differences of unmet needs between depressive vs. non-depressive recurrent breast patients

The mean scores of unmet needs between the depressive group and the non-depressive group are compared in Table 4. A cutoff score of 21 was used to divide the two groups for this analysis, which was suggested as suitable to distinguish between those having depressive symptoms from those not having such symptoms in Korea, since Korean patients tend to report their symptoms higher than what they actually experience [24].

Twenty-five percent of the participants were depressive (BDI score ≥ 21). Patients in the depressive group exhibited a significantly higher level of unmet needs in the psychological domain ($p<0.001$), physical and daily living domain ($p=0.001$) and

health system and information domain ($p=0.002$) than those in the non-depressive group (BDI score < 21).

Predictors of QOL in a hierarchical multivariate framework

The mean scores of FACT-B are presented in Table 5. The mean total score of FACT-B was 90.44 ± 20.33 . Table 6 displays the standardized regression coefficients and p -values for the hierarchical multivariate regression analyses. Firstly, univariate analyses were performed for socio-demographic characteristics including age at first diagnosis, age at recurrence, marital status, education, job, economic status and clinical variables including menstruation, time since first diagnosis, time since recurrence, performance status, chemotherapy, and recurrence pattern (data not shown). We only included variables in the multiple regression models which were determined as significant according to univariate analysis or were reported as strong predictors for QOL of recurrent breast cancer patients in previous studies [2,8,16-18]. Therefore, age at recurrence, education, financial status and marital status among the socio-demographic characteristics were entered in the first block, and time since recurrence, performance status and recurrence pattern among clinical variables were entered in the second block. In model A ($R^2=0.216$), in which socio-demographic variables were entered, higher level of education (> 13 years) was a significant predictor for better QOL among women with recurrent breast cancer ($p=0.023$). However, it did not

Table 3. The mean scores of SCNS subscales by patient characteristics

	No. of patients	Psychological needs		Physical and daily living needs		Sexuality needs		Health system and information needs		Patient care and support needs	
		Mean	p-value	Mean	p-value	Mean	p-value	Mean	p-value	Mean	p-value
Age at recurrence (yr)											
<50	27	52.59	0.286	16.11	0.121	6.36	0.978	49.88	0.954	21.70	0.768
≥50	25	58.52		19.04		6.33		49.64		22.44	
Education (yr)											
<9	11	72.63	0.003	20.90	0.148	5.10	0.077	57.90	0.135	26.90	0.124
10-12	25	51.88		17.20		7.41		47.32		20.72	
>13	16	49.18		15.81		5.46		48.00		20.81	
Economic status											
High	4	43.25	0.072	15.75	0.115	7.25	0.053	41.50	0.131	18.50	0.617
Middle	37	53.51		16.64		5.65		48.45		21.97	
Low	11	66.36		21.30		8.40		57.18		23.63	
Marital status											
Married	45	56.00	0.642	18.00	0.076	6.36	0.904	48.84	0.181	21.93	0.802
Single	7	51.85		14.28		6.20		55.71		22.85	
Time since recurrence (mo)											
<6	17	56.88	0.702	17.41	0.951	6.58	0.710	51.29	0.592	23.35	0.466
≥6	35	54.74		17.52		6.21		49.02		21.42	
ECOG-PS											
0	24	50.08	0.160	14.70	0.002	5.50	0.219	47.41	0.337	20.79	0.631
1	23	58.91		19.04		6.86		50.34		23.30	
2	5	65.20		25.25		8.00		58.40		22.40	
Recurrence pattern											
Local	17	53.76	0.680	15.81	0.472	6.20	0.741	49.52	0.935	22.76	0.847
Systemic	28	57.57		18.25		6.62		50.35		22.03	
Both	7	51.00		18.28		5.57		48.00		20.42	
Site of metastasis											
Bone and soft tissue	18	55.33	0.944	16.22	0.186	7.29	0.231	48.66	0.481	19.66	0.304
Visceral	13	57.76		19.92		5.15		53.30		23.23	
Both	4	55.50		22.00		6.75		44.25		26.00	

SCNS=the Supportive Cancer Needs Survey; ECOG-PS=the Eastern Cooperative Oncology Group Performance Scale.

Table 4. Unmet needs differences by BDI cutoff score

BDI score	No. of patients (%)	Psychological needs		Physical and daily living needs		Sexuality needs		Health system and information needs		Patient care and support needs	
		Mean	p-value	Mean	p-value	Mean	p-value	Mean	p-value	Mean	p-value
<21	39 (75.0)	49.66	<0.001	15.53	0.001	5.91	0.110	46.07	0.002	20.71	0.058
≥21	13 (25.0)	72.76		23.83		7.66		60.84		26.07	

BDI=Beck Depression Inventory.

Table 5. The mean scores of FACT-B

FACT-B scale	No. of patients	Mean ± SD
Physical well-being	52	19.90 ± 6.66
Social well-being	52	17.19 ± 6.27
Emotional well-being	51	16.62 ± 4.62
Functional well-being	51	17.25 ± 5.63
Breast cancer specific concerns	52	20.12 ± 6.20
Fact-B total	52	90.44 ± 20.55

FACT-B=Functional Assessment of Cancer Therapy-Breast.

remain significant once clinical variables were entered in model B ($R^2 = 0.363$). There was no significant clinical predictor in model B, although performance status was marginally significant ($p = 0.078$). In the final equation (model C, $R^2 = 0.635$), the psychological needs, physical and daily living needs and sexuality needs were identified as strong predictors of quality of life. Having a higher level of unmet needs in the psychological needs domain ($p = 0.008$) and in the physical and daily living needs domain ($p = 0.022$), and a lower level of unmet needs in the sexuality domain ($p = 0.040$) were significantly

Table 6. The hierarchical regression models predicting QOL

Variable	Model 1		Model 2		Model 3	
	β	<i>p</i> -value	β	<i>p</i> -value	β	<i>p</i> -value
Age at recurrence (yr)						
<50						
≥50	0.241	0.135	0.247	0.115	0.260	0.054
Education (yr)						
<9						
10-12	0.365	0.064	0.271	0.169	-0.092	0.653
>13	0.496	0.023	0.165	0.486	-0.004	0.984
Financial status						
High	0.244	0.133	0.307	0.074	0.134	0.357
Middle	0.202	0.205	0.250	0.161	0.124	0.438
Low						
Marital status						
Married						
Single	0.168	0.230	0.161	0.252	0.055	0.650
Time since recurrence (mo)						
<6						
≥6			0.178	0.246	0.102	0.428
ECOG-PS						
0			0.526	0.078	0.354	0.185
1			0.178	0.537	0.129	0.604
2						
Recurrence pattern						
Local						
Systemic			-0.168	0.273	-0.076	0.544
Systemic and local			-0.062	0.687	-0.044	0.730
Psychological needs					-0.462	0.008
Physical and daily living needs					-0.418	0.022
Sexuality needs					0.341	0.040
Health and information needs					-0.090	0.654
Care and support needs					0.262	0.104
Constant	63.459	0.000	54.223	0.000	100.431	0.000
<i>p</i> -value		0.098		0.070		0.001
R ²		0.216		0.363		0.635

QOL=quality of life; ECOG-PS=the Eastern Cooperative Oncology Group Performance Scale.

associated with poorer quality of life. Older age (≥ 50 years at recurrence [$p = 0.054$]) was the only variable that was marginally associated with better quality of life among all the socio-demographic and clinical variables in the final model. The final model accounted for 63.5% of the variance.

DISCUSSION

The present findings indicated that unmet needs including the psychological, the physical and daily living, and the sexuality needs were strong predictors for QOL of recurrent breast cancer patients. Most of the common unmet need items belonged to the health system and information needs domain. In addition, depressive patients reported a significantly greater level of unmet needs in the psychological, the physical and daily living domain, and in the health system and information domain.

In terms of unmet needs, the highest frequencies of unmet needs were from the health system and the information domain, which is consistent with previous studies for survivors of breast cancer [15,19,27]. Among previous Asian studies, our results are similar to the results of study involving a population of Hong Kong Chinese patients [15], which also showed that 9 out of 10 highest unmet needs belonged to the health and information domain. On the contrary, a Japanese study with advanced breast cancer patients showed a much higher prevalence of moderate to high unmet needs from 59.4% to 78.8% [20], compared with that from 29.6% to 50.3% in the present study. Also, patients in the Japanese study considered psychological unmet needs (8 out of 10 highest unmet needs) as their utmost priority, while the health system and information needs were prioritized the most in the present study (8 out of 10 highest unmet needs). This indicates that differences exist even

among Asian countries as well as between Caucasian and Asian countries. It is interesting to note that the prevalence of unmet needs in the present study was almost no different from a previous study of early breast cancer patients in Korea [19], except that 2 psychological unmet needs ('Fears about cancer spreading,' 'Fears about cancer returning') were ranked as 10th and 11th respectively in the present study. This might suggest that health system and information needs are the most highly perceived needs for both early and recurrent breast cancer patients. Since various patient education programs are regularly provided and booklets or cyber information is so easily accessible these days, new strategies must be developed in terms of the level of detail, the timing of presentation, and the medium in which information is presented [27], in addition to the quantity of information. Satisfaction with care could be significantly improved if preferences of patients regarding provision of information are considered.

The percentage of depression (≥ 21 on BDI score) observed in our study participants (25%) was higher than that of a previous study involving early breast cancer patients in Korea (20.4%) [28], which is consistent with other research [6,7]. The depressive group expressed a significantly greater level of the psychological, the physical and daily living, and the health system and information needs, which confirms the results of other research which showed that depression was associated with a higher level of unmet needs [27]. Also, recurrent breast cancer patients were still struggling with fears about cancer spreading and recurrence. This might suggest that the threat of another recurrence is an ongoing and significant issue for recurrent breast cancer survivors as well as for primary cancer patients. Further research with randomized samples is needed to confirm the differences of unmet needs and depression between early and recurrent breast cancer patients.

Overall QOL in the present participants measured by FACT-B (90.44 ± 20.55) was much lower than those in other studies with recurrent [29] and primary breast cancer patients [30], which were evaluated by the same measure. This confirms that QOL experienced by recurrent breast cancer patients was worse than that experienced by patients with an initial diagnosis [4,16]. However, this needs a further study because the statistical significance could not be examined among these results.

Interestingly, there was no significant predictor for QOL among the demographic and clinical characteristics in the final regression model, which supports a previous study with metastatic breast cancer [27]. Only older age was marginally associated with better QOL in the present study. This may result from older patients being more emotionally mature and having more resources and support, and are therefore coping

better with recurrence. Although significant improvement of QOL at 6 months after recurrence [17] and a significant association between local recurrence and QOL were suggested previously [2,17], the present study was not consistent with such findings. The association between local recurrence and QOL has been somewhat contradictory. In one study, local recurrence was associated with poorer QOL [17], whereas it was associated with better QOL in another study [2]. Patients in our study may have perceived recurrence as equally overwhelming irrespective of their clinical characteristics, and therefore unmet needs rather than clinical differences were considered more important in perceived QOL.

Another interesting result in this study was the association between greater sexuality needs and better QOL. Prior studies noted that Asian women report significantly lower sexuality needs than Caucasian women [12,15,19] and showed significant association between higher education attainment and higher unmet needs scores in the sexuality domain [15]. Taking into account that Asian women are more reluctant to talk about their sexual needs, it is plausible that those who express their sexual needs directly might have better functioning and better QOL than those who do not. Patients who suffer more serious difficulties might consider sexual needs as relatively less important than other needs, which might result in a significant association between greater sexuality needs and better QOL. This needs further examination in a future study.

Even though this study provides important information of unmet needs and QOL among recurrent breast cancer patients, it has some limitations including the cross-sectional design, sample bias, and the small sample size. As we used the cross-sectional design, inferences about causality could not be made based on this study. Furthermore, because the sample was accrued from outpatients, the unmet needs of recurrent breast cancer patients with severe physical impairment might not have been reflected in the study results. Thus, the present findings cannot be generalized to all recurrent breast cancer patients. Further studies should be undertaken to confirm the present findings.

In the present study, the unmet needs of recurrent breast cancer patients were determined as strong predictors for their QOL. This suggests the importance of identifying the specific needs of women with breast cancer in order to improve their QOL. If future studies can confirm the predictive value of unmet needs on QOL among recurrent breast cancer patients, direct assessment of unmet needs may become an effective means to improve QOL and reduce utilization and costs of the health care system.

CONFLICT OF INTEREST

The authors declare that they have no competing interests.

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