

Symptom Experience, Mood Disturbance, & Social Support in Breast Cancer Patients Undergoing Radiotherapy*

Chung, Bok Yae¹⁾ · Yu Xu²⁾ · Lee, Eun-Hyun³⁾

I. INTRODUCTION

Breast cancer is the most common type of cancer in South Korean women. Advances in treatment have increased the survival rate of breast cancer. The treatment of breast cancer includes some combinations of surgery, radiation therapy, chemotherapy, hormonal therapy, and biotherapy. Radiotherapy is one of the major treatments recommended to breast cancer patients who are in early stage of cancer as well as to patients with locally recurrent breast cancer in order to reduce their tumor.

But cancer patients experience physical and psychological discomfort during their treatment. Physical symptoms experienced include fatigue (Carpenter et al., 2004), anemia(Blohmer et al., 2005), nausea and vomiting(Dibble, Casey, Nussey, Israel, & Luce, 2004), sleep disturbance(Carpenter et al., 2004), cognitive impairment(Jansen, Miaskowski, & Dodd, 2005)

and so on. Bormeth et al.(2003) reported more than 50% of breast cancer patients have light to moderate pain during treatment. They also reported that pain, a more common symptom of breast cancer patients during radiation therapy, is normally assumed.

Psychological symptoms experienced during treatment include depression, anxiety, psycho-spiritual discomfort, and fear(Manning-Walsh, 2005). Bleiker, Pouwer, Ploeg, Leer, & Ader (2000) found that about one out of five breast cancer patients experienced high levels of distress in a study of psychological distress of patients with a breast cancer diagnosis for two years. Mehta, Lubeck, Pasta, & Litwin(2003) studied the fear of cancer recurrence. They found that fear of cancer recurrence was severe before and after treatment.

Physical and psychological symptoms of breast cancer patients are inter-related. Physical symptoms may play a part in

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1) Professor, College of Nursing, Kyungpook National University, South Korea

2) Professor, School of Nursing, University of Nevada, Las Vegas, USA(Corresponding author E-mail: yuxu@unlv.edu)

3) Professor, Graduate School of Public Health, Ajou University, South Korea

psychological symptomatic presentations and induce alterations of emotional status (Manning-Walsh, 2005). Likewise, psychological symptoms influence physiological presentations. Jacobsen, Andrykowski, & Thors(2004) reported that psychological factors play a great role in patients' experience of symptoms in their research. Fulton(1997) also reported that a weak positive correlation between physical symptoms and, anxiety, and depression in research to explore the levels of anxiety and depression experienced by breast cancer patients before their death. Dunn, Steginga, Occhipinti, Wilson, & McCaffrey(1998) also suggested that difficult psychological and physical symptoms, inadequate informational support, and decisional uncertainty were related to women's anxiety and depression.

Social support generally is known to be an important factor for patients to overcome acute and chronic conditions. In terms of relationship between social support and emotional status, Montazeri et al.(2001) indicated that the most important factor contributing to patients' psychological wellbeing was support group involvement. Nosarti, Roberts, Crayford, McKenzie, & David(2002) reported that social support seems to be associated with successful adjustment in the first year following a breast cancer diagnosis. Lee, Chung, Park, & Chun(2004) also suggested that a higher level of mood disturbance led to a higher level of symptoms when patients received average or low levels of social support. Further, Spiegel, & Davis(2003) indicated that psychosocial support reduced depression, anxiety, and pain, and increased cancer survival time because of the psycho-physiological linkage mechanisms that suppressed and slowed cancer progression. Baider, Ever-Hadani, Goldzweig, Wygoda, & Peretz(2003) reported in their study of prostate and breast cancer couples that perceived family support is

associated with psychological distress in both patients. This means that social support for cancer patients are effective in control of psycho-emotional distress because social support serves as a buffer.

But there is in discord with the relationship between social support and physical status of the patients. Studies involving patients with testicular(Ord-Lawson, & Fitch, 1997), lung (Uchitomi, Mikami, Kugaya, Nakano, & Okuyama, 2001), and head and neck(Kugaya, Akechi, Okamura, Mikami, & Uchitomi, 1999) cancer have revealed no relationship between social support and psychological symptoms such as mood disturbance or depression. The study by Lee et al.(2004) revealed a weak, negative relationship between social support and mood disturbance, which is consistent with previous studies involving breast cancer patients(Tae, 1985). And also there are only a few research of social support are not effective in control of physiological symptoms.

This discordance among the studies of the relationship between physical and psychological status and social support called for further research. In addition, there are a limited number of descriptive studies on symptom experience, mood disturbance, and social support, and on their relationships in breast cancer patients undergoing radiotherapy. This study has been conducted to contribute to the knowledge base in this area. The aim of this study was to describe symptom experience, mood disturbance, and social support in breast cancer patients who are receiving radiotherapy. A second aim was to examine the relationships among these study variables.

II. METHODS

1. Design and sample

A descriptive, correlational design was used

to describe symptom experience, mood disturbance, and social support in breast cancer patients undergoing radiotherapy, and to examine the relationships among the study variables. One hundred twenty-six breast cancer patients receiving radiotherapy at two university hospitals in Korea participated in the study. Eligibility criteria for participation in the study were a diagnosis of breast cancer, treatment with radiotherapy, and first breast cancer experience.

2. Study variables and instruments

Questionnaire of this study consisted of general and disease characteristics, symptom experience, mood disturbance, and social support. General and disease characteristics were measured by age, marital status, education, religion, income, surgery, and stage of cancer.

Symptom experience was measured using Symptom Experience Scale (SES; Samarel et al., 1996). SES consists a total of 24 items covering eight common symptoms associated with treatment for breast cancer: nausea, pain, appetite, sleep, fatigue, bowel pattern, concentration, and appearance. Each symptom was measured for its frequency, intensity, and associated distress. The items were measured on a 5-point Likert-type scale, which contains descriptions of the frequency, intensity, and distress of symptoms. A composite score was obtained by summing up all the item scores, with higher scores indicating a more negative symptom experience. Cronbach's alpha of SES was reported as 0.94 by Lee(2000). Cronbach's alpha of this study was also 0.94 coincidentally.

Mood disturbance was measured using the Linear Analogue Self-Assessment Scale (LASA; 1989; Sutherland, Walker, & Till, 1988, Sutherland, Lockwood, & Cunningham, 1989), which consisted of six 10-mm linear analogue

measures for quantifying the following six aspects of mood: anxiety, confusion, depression, fatigue, anger, and energy. The total score was obtained by summing up the score for the six items, with the score of energy weighted negatively. In the present study, the item measuring fatigue was not included in the scoring because there was a conceptual overlap between the item of LASA and that of SES. A higher score indicates a higher level of mood disturbance. Cronbach's alpha in a study by Lee et al.(2004) was 0.85. Cronbach's alpha of this study was 0.86.

Social support was measured using the Social Support Scale (SSS; Tae, 1985), which consisted of family support (eight items) and professional health team support (eight items) scales scored using a 5-point Likert-type scale, where a score of 1 indicated "not at all" and a score of 5 indicated "always." The total score was obtained by averaging all item scores, and a higher score indicated a higher level of social support. Cronbach's alpha of family and professional health team supports were reported as 0.84 and 0.94, respectively, by Lee et al.(2004) and were 0.96 and 0.80, respectively, in the present study.

3. Data collection and analysis

Data were collected through self-report questionnaire from March to July, 2002 at two university hospitals in South Korea. Demographic and disease-related data were extracted from patient records. Potential study subjects were identified by physicians or nurses who were providing care. Those who met the inclusion criteria and were interested in participating were contacted by a researcher. Those participants met and completed the questionnaire in a waiting room or a small private room while waiting to be seen by their physicians or while waiting for the administration of radiotherapy.

During the contact, the purpose of this study and the nature of participation were communicated to each patient. If the patient articulated an understanding of the goal of the study and agreed to participate, she signed a consent form and was given the questionnaire. The collected data were computed by mean, range, standard deviation, and stepwise multiple regression using SPSS Window 10.0 Version. All correlations were analyzed using Pearson Correlation coefficients.

4. Ethical considerations

Ethical considerations concerned individual autonomy, informed consent, and risk of causing emotional injury. Consent was obtained from each patient who agreed to participate in this study. Data were collected by a research assistant who received training in interviewing patients from by the primary author(principal investigator) regarding the right of the participants. All data were treated as confidential information and stored in a secured place.

III. RESULTS

1. Sample characteristics

〈Table 1〉 presents the general and clinical characteristics of subjects. The age ranged from 20-69, with the most common decade being 40-49 years at 39.7%. Most of the subjects were married(67.5%), high school graduates(41.3%), and were predominantly Buddhist(36.5%). The monthly income of 31.0% of the women was 1-2 million South Korean Won. Most of the women(96.8%) had received a modified radical mastectomy, and were between Stage 1(47.6%) and Stage 2(37.3%).

〈Table 1〉 General and clinical characteristics of subjects (n=126)

Variable	N	Percent
Age(years)		
20-29	1	0.8
30-39	22	17.5
40-49	50	39.7
50-59	26	20.6
60-69	7	5.6
Missing cases	20	15.9
Marital status		
Single, Never married	2	1.6
Married	85	67.5
Divorced	2	1.6
Widowed	11	8.7
Separated	1	0.8
Live together	4	3.2
Missing cases	21	16.7
Education Completed		
Elementary school	14	11.1
Middle school	18	14.3
High school	52	41.3
University	16	12.7
Graduate education	3	2.4
Missing cases	23	13.8
Religion		
Buddhist	46	36.5
Roman Catholic	18	14.3
Protestant	22	17.5
None	19	15.1
Others	1	0.8
Missing cases	20	15.9
Monthly income(won)		
< 1,000,000	18	14.3
1,000,000-1,999,999	39	31.0
2,000,000-2,999,999	25	19.8
≥ 3,000,000	20	15.9
Missing cases	25	19.0
Surgery		
Yes	122	96.8
No	4	3.2
Stage of disease		
Stage I	60	47.6
Stage II	47	37.3
Stage III	13	10.3
Stage IV	6	4.8

2. Study variables

The descriptive statistics of variables of this study are presented in 〈Table 2〉. The mean scores of symptom experience was 21.96(SD =

14.14). Of the eight symptom experiences, the most severe symptom was fatigue(mean 4.18, SD = 2.05) while the least was bowel pattern (Mean = 1.92, SD = 2.54). The mean scores of mood disturbance was 100.95(SD = 100.92). Of the six mood disturbances, the most severe was anger while the least was energy. The mean score of social support was 3.70(SD = 0.98). Family support and health professional support were 3.94(SD = 1.03) and 3.47(SD = 1.04), respectively.

〈Table 2〉 Descriptive statistics of study variables

Variable	M	SD	Range
Symptom experience	21.96	14.14	0-54
Nausea	2.28	2.59	0-12
Pain	2.99	2.25	0-10
Appetite	2.77	3.03	0-12
Sleep	2.61	2.45	0-10
Fatigue	4.18	2.05	0-10
Bowel Pattern	1.92	2.54	0-11
Concentration	2.52	2.16	0-9
Appearance	2.83	2.68	0-11
Mood disturbance	100.95	100.92	-100-340
Anxiety	35.42	27.75	0-90
Confusion	35.64	28.74	0-90
Depression	39.23	25.47	0-100
Fatigue	35.90	28.50	0-100
Anger	62.93	24.39	0-100
Energy	37.07	24.39	0-100
Social support	3.70	0.98	1-5
Family	3.94	1.03	1-5
Health Profession	3.47	1.04	1-5

3. Correlation among variables

〈Table 3〉 shows the correlations among study

〈Table 3〉 Correlation among variables

Variables	Symptom experience	Mood disturbance	Social support
	r(p)	r(p)	r(p)
Symptom experience			
Mood disturbance	.396(.001)		
Social support	-.021(.849)	-.304(.003)	

〈Table 4〉 Symptom experiences predictors

Variables	β	R ²	Cum R ²	F	P	VIF
Mood disturbance	.141	.165	.165	13.613	.001	2.540

variables. Symptom experiences and mood disturbance was found to have statistically significant positive correlation($r = .396, p = .000$). The relation between mood disturbance and social support was found to have statistically significant negative correlation($r = -.304, p = .003$). But there was no significant relationship between symptom experiences and social support.

4. Predictors of symptom experience

〈Table 4〉 showed the stepwise multiple regression analysis of symptom experience predictors including six aspect of mood disturbance. The predictive factors on symptom experiences were also identified mood disturbance, which was explained 16.5% symptom experiences of breast cancer patients who are receiving radiotherapy.

IV. DISCUSSION AND CONCLUSION

It is reported that many cancer patients with pain, depression, and fatigue receive inadequate treatment for their symptoms. All patients with cancer should have optimal symptom control throughout the course of treatment. One of the important role of nurses is symptom management of patients in clinical practices. Nurses caring for breast cancer patients should be concerned about the distress of their patients who are undergoing treatment

such as radiotherapy.

In this study, the total score of symptom experience was 21.96, lower than that of 32.44 reported by Lee et al.(2004) for breast cancer patients with undergoing chemotherapy. This suggests that the symptom experiences of breast cancer patients receiving radiotherapy are less severe than those of breast cancer patients receiving chemotherapy.

The result show that the highest score of sub-items of symptom experiences was fatigue(mean 4.18, SD = 2.05), which was consistent with the previous study by Lee et al.(2004). Donovan et al.(2004) reported that chemotherapy was associated with more severe fatigue than radiotherapy. This study appears to confirm that fatigue is the most important distress of cancer patients undergoing either chemotherapy or radiotherapy.

Breast cancer patients in the present study experienced a low-to-moderate level of mood disturbance. This finding was consistent with the study by Lee et al.(2004) that involved women receiving chemotherapy therapy for breast cancer.

The score of social support is 3.70(SD = 0.98). And the score of family support and health professional support were 3.94(SD = 1.03) and 3.47(SD = 1.04), respectively. This result is similar with the study of Cimprich (1999) on women undergoing chemotherapy for breast cancer. Cimprich(1999) reported the pretreatment symptom distress in women newly diagnosed with breast cancer and that the mean score of family support from spouse, parents, siblings, children, or other extended family was 3.94(SD = 1.03). This reported finding suggested that women recognized moderate to high level of social support. And also women percept more social support than professional support. According to Landmark, strandmach, & Wahl(2002), women with a new breast cancer diagnoses experienced both

social support and lack of social support in their interactions with their close relatives, friends and colleagues, and institutional staff. Further, these researchers indicated a weak social network increased the patient's vulnerability whereas a strong social network increased the ability to cope with stress, distress, and cancer. Moreover, social support from health care professional was believed to promote feelings of wellbeing and coping in cancer patients(Landmark et al., 2002).

Symptom experience and mood disturbance had a statistically significant positive correlation in this study. Similar result has been reported in a number of studies involving cancer patients receiving radiation. Manning- Walsh (2005) reported that symptom distress was related to psycho-spiritual well-being. Fulton (1997) also suggested a strong relation between anxiety and depression and symptomatology. In sum, it appears that symptom experiences and mood disturbance are closely correlated in cancer patients undergoing treatments. Therefore, nurses caring for the breast cancer patients receiving radiotherapy should pay attention to their emotional status.

The present study also indicated a statistically significant negative correlation between social support and mood disturbance ($r = -.304$, $p = .003$). This finding is consistent with a previous study involving breast cancer patients(Lee et al., 2004) and confirms the efficacy of social support to achieve the goal of patient's symptoms management. Potential interventions may be targeted at emotional reactions and social support in order to manage patients' symptoms effectively.

But there was no significant correlation between symptom experience and social support. Bleaker, Pouwer, Ploeg, Leer, & Aderet(2000) reported that no significant association was found between previous life events, social support, biomedical variables and levels of

distress in breast cancer patients. However, Chen and Ma(2004) suggested physical symptom distress, psychological distress, and social function distress were positively correlated in breast cancer patients. Further study is needed to find out the relationship between symptom experiences and social support in order to arrive a conclusive answer.

Stepwise multiple regression analysis showed that the most powerful predictor of patient' symptom experiences was mood disturbance. Mood disturbance accounted for 16.5% of the variance of symptom experiences that included sub-items measuring physical experiences of breast cancer patients. This indicates mood disturbance was the most important factor influencing the symptom experiences of breast cancer patients undergoing radiotherapy.

Symptom experiences of persons who are suffering from diseases would vary depending on the state and the type of disease, physical status, perception of disease, social support, emotional status, and so forth. To date, the majority of research on symptom management is inadequate in addressing how health care professionals can intervene to eliminate and reduce the symptoms of cancer patients. The current study suggests that nurses need to be concerned about patients' emotional status and social support in order to achieve the goal of symptom management in breast cancer patients undergoing radiotherapy.

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- 국문초록 -

방사선 치료를 받는 유방암 환자의 증상경험, 정서상태 및 사회적지지*

정복례¹⁾ · Yu Xu²⁾ · 이은현³⁾

- 1) 경북대학교 간호대학 교수
- 2) 네바다대학교 간호대학 부교수
- 3) 아주대학교 보건대학원 교수

목적: 본 연구는 방사선치료를 받는 유방암 환자의 증상경험, 정서적 상태와 사회적지지 및 관련 변수간의 관계를 파악하기 위한 서술적 상관관계 연구이다. **방법:** 연구대상자는 T시에 위치한 2개 대학병원에서 방사선 치료를 받는 유방암 환자 126명으로, 연구도구는 일반적 특성과 증상경험, 정서적 상태 및 사회적지지를 측정하기 위한 도구로 구성된 질문지이다. **결과:** 연구대상자의 증상경험은 21.96(SD = 14.14), 정서적 상태는 110.95(SD = 100.92), 사회적지지는 3.70(SD = 0.98)로 나타났다. 증상경험과 정서상태는 유의한 정 상관관계($r = .396, p = .001$)를 나타내었고, 증상경험과 사회적지지는 유의한 부적 상관관계($r = -.304, p = .003$)를 나타내었다. 증상경험에 영향을 미치는 요인은 정서적 상태로 설명력이 16.5%이었다. **제언:** 이상의 연구결과 방사선치료를 유방암 환자의 증상경험과 환자의 정서적 상태가 관련이 됨을 알 수 있으나, 그 설명력은 약하므로 앞으로 더 연구하여야 할 영역이라 생각한다.

주요용어 : 증상, 유방암, 방사선치료

Address reprint requests to : Yu Xu PhD, RN, CTN
 School of Nursing, University of Nevada
 Las Vegas, Nevada 89154-3018, U.S.A.
 Tel: 702-895-3175 Fax: 702-895-4807 E-mail: yuxu@unlv.edu