The Effects of Social Support on Stress and Depression in Breast Cancer Patients

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Abstract

This study aims to explore the effects of social support on stress and depression in patients with breast cancer. This study is a descriptive correlational research to provide basic data for a nursing intervention program with a social support system in order to reduce stress and depression in breast cancer patients. Subjects of this study are 75 women patients who have been diagnosed breast cancer and have undergone breast cancer surgery without a past history of other diseases and cancers. Frequency, 100percentile, mean, standard deviation, Pearson Correlation, t-test, ANOVA, Simple Linear Regression are estimated with SPSS. There is no statistical correlation among breast cancer patients' stress and the support received from family members, medical staff, and fellow cancer patients. While there is no significant statistical correlation between breast cancer patients' depression and the support received from medical workers and fellow cancer patients, there is a negative correlation between the patient's depression and family support (r=-.436, p=.000). The more family support that a breast cancer patient receives, the less likely they are to become depressed. This result suggests that family support should be considered as a key parameter in developing a nursing intervention program. Therefore, in order to reduce depression of breast cancer patients, nurses need to offer comprehensive and integrated nursing interventions encouraging family support.

Keywords: Breast cancer, Stress, Depression, Social support

1. Introduction

1.1. Background

Breast cancer is a commonly reported occurrence in developed nations. Breast cancer is also the most common cancer in the US and occurs in 1 out of 8 women [1]. In Korea, breast cancer is the second most commonly diagnosed cancer in women, following only thyroid cancer. According to the National Cancer Registration Annual Report 2010, the rate of occurrence of breast cancer was 15.4% among the whole female cancers in 2010 [2].

In Korea, the 5-year survival rate of breast cancer patients was 83.2% between 1996 and 2000, which improved approximately by 5% to 88.5% between 2001 and 2005. Recently, from 2006 to 2010, the 5-year survival rate for patients with breast cancer has shown a steady increase to 91.3%, which is the world-class level of overall survival rates. According to the study "The International comparison of the 5-year survival rate of breast cancer patients" published by The Ministry of Health and Welfare, the 5-year survival rate of breast cancer patients in Korea was far ahead of major developed countries in

medical practices, such as 89.2% in the US (2003~2009) and 88% in Canada (2006~2008) [2-4].

Despite the high survival rate of breast cancer patients, there are several stressful factors related to breast cancer. During process of breast cancer treatment, patients experience symptoms such as paresthesia, skin pigmentation or redness in skin, vomiting, alopecia, weakened immune system, and fatigue [5]. Moreover, breast cancer patients experience fear of cancer and death, the removal of a breast which represents a symbol of femininity, anxiety, and depression while undergoing or being exposed to medical treatments and procedures [6]. This depression usually happens due to social prejudice against breast cancer patients and a communication gap with others [7]. Anxiety and depression are major emotional responses that prevent cancer patients from responding to their disease and treatment actively and effectively [8]. Incidence rates of depression in breast cancer patients are approximately 50% in the year of the diagnosis, 25% after 2 - 4 years, and 15% after 5 years, respectively [9].

According to Bottomley and Jones, social support is providing economical, material, and informative help to overcome stressful situations which people are exposed to [10]. Appropriate social support works as a buffer in stressful situations to make patients overcome frustration, and then to help them adapt and achieve psychological stability [11]. A lot of previous studies insisted that social support is needed as a psychological nursing intervention for cancer patients. These studies also suggested that the roles of family members and medical staff are important as the fundamental source of social support to encourage cancer patients to adjust or cope with cancer treatment successfully [12-13]. Kim and Lee [14], proceeded to publish studies to show differences in social support, according to subjects' general features or characters. It turned out that social support would be helpful for physical and psychological adjustment. In this study, the aim is to assess the relationship between "social support" and "stress and depression", to analyze the impact of each factor, and to suggest effective social support methods in order to reduce stress and depression in breast cancer patients.

1.2. Research Questions

What is the level of stress, depression, and social support in breast cancer patients? How does social support impact the feelings of on stress and depression in breast cancer patients? What is the most influential factor of stress and depression in patients with breast cancer?

1.3. Definition of Terms

1.3.1. Stress

Although the meaning of stress encompasses all negative or positive life events, stress generally signifies tension or feeling nervousness, fatigue, and exhaustion. Furthermore, it is a universal phenomenon with environmental, internal, physical, physical, and social burdens going far beyond a limitation of personal acceptability [15]. In this study, stress means were measured using the following two tools: A tool that was developed by Volicer and Bohannon [16], modified by Kang [17], and revised by Kim [18]. Another tool used this study was developed by Jeon [19] to evaluate cancer patients' stress.

1.3.2. Depression

Depression here refers to reactive depression caused by external events and expected depression due to worrying about future situations on a series of mood changes, from the normal range of emotional ups and downs to psychiatric conditions [20]. This study used Zung Self Rating Depression Scale [20] which was translated by Song [21] and Choi [22].

1.3.3. Social Support

Social support is providing economical, material, and informative assistance to overcome stressful situations that people are exposed to [10]. This study divided social support into family members, medical staff, and fellow cancer patients. Regarding the support of family members, this study used a measurement tool developed by Tae [12], and revised by Kim [23] and by Lee [11]. In relation to medical staff support, this study used and measured scores with a measurement tool developed by Tae [12], and revised and modified by Kim [23]. With regard to fellow cancer patients' support, this study used and measured scores with a measurement tool developed by Park [24], revised, and modified by Kim [25], and reconstituted by Lee [11].

2. Study Methods

2.1. Study Design

This study is a descriptive correlational research to examine the effects of social support on stress and depression in breast cancer patients.

2.2. Selection and Sampling of Subjects

Subjects of this study were 75 female patients who understood the purposes of the study and agreed to participate in the study. These subjects had been diagnosed with breast cancer without a past history of other diseases. Convenience sampling method was used in the study.

2.3. Research Tool and Measurement

2.3.1. Stress

A measurement tool used in this study was adapted by Jeon [19] (Cronbach's a=.893) to estimate the stress of cancer patents. The tool had been originally developed by Volicer and Bohannon [16], modified by Kang [17], and revised by Kim [18] (Cronbach's α =.92). The reliability of this measurement in this study (Cronbach's α) was 0.834. The 5-point Likert scale was used [from 'never feel stress' (1 point) to 'feel stress very strongly' (5 points)].

2.3.2 Depression

A measurement tool developed by Zung [20] and adapted by Choi [22] (Cronbach's α =.83) was used in this study and Cronbach's α was 0.815. The measurement was the 4-point Likert scale to estimate levels of depression and consisted of 20 questions, which were 10 positive questions and 10 negative questions. In each negative question, 'strongly agree' was 4 points and 'strongly disagree' was 1 point; in each positive question, the points were assigned reversely. The minimum point was 20 and the maximum was 80; the higher scores are, the higher the level of depression is.

2.3.3. Among Social Support

Family support was estimated by the measurement tool developed by Tae [12] (Cronbach's $\alpha = .82$), adapted by Kim [23] (Cronbach's = $\alpha .868$), and revised by Lee [11] (Cronbach's $\alpha = .871$). The reliability of the measurement was 0.919 (Cronbach's α).

A measurement tool of family members' support consisted a total of 8 questions (Emotional support: taking care of and paying attention to patients, respectful support: making patients feel respect and self-worth, network support: making patients believe that

they are a member of the network, communicating with mutual responsibility, and practical support: providing material help). In the Likert scale, a higher score means the higher family support.

The medical staff's support was estimated by a measurement tool, which was developed by Tae [12] (Cronbach's $\alpha = .84$) and revised by Kim [23] (Cronbach's $\alpha = .904$). The Cronbach's α was .865 in this study. The measurement tool consisted of 8 questions. It was a 5-point Likert scale, and the higher the scores mean the higher the support is from the medical staff.

The fellow cancer patients' support was estimated by a measurement tool developed by Park [24] (Cronbach's a=.93), revised by Kim [25] (Cronbach's a=.98), and reconstructed by Lee [11] (Cronbach's a=.929). The reliability (Cronbach's α) of this study was 0.946 [26]. The list of the measurements and their reliability are displayed in Table 1.

Variables		Number of questions	Cronbach's α
Stress		13	.834
Depression		20	.815
Social Support	Family Support	8	.919
	Medical Support	8	.865
	Fellow patient Support	8	.946

Table 1. List of the Measurements and Reliability

2.4. Methods and Procedure of Collecting Data

A self-administered questionnaire is used as the method of collecting data. After explaining the purposes of the study and obtaining subjects' consent, breast cancer patients without a past history of other diseases and cancers were enrolled into this study. For collecting data per subject, it took approximately $15 \sim 20$ minutes. 18 of the total 93 filled questionnaires were excluded. This is because some questionnaires missed many items to be answered, or the subjects turned out to have had a history of other diseases unlike what they had disclosed about not having had any history. Therefore, in the end, only 75 questionnaires were used and analyzed.

2.5. Data Analysis

The collected data has been analyzed with SPSS, and the analysis methods are as follows: support: All characteristics of breast cancer patients were displayed with the frequency and percentile. The mean and the standard deviation of stress, depression, social support of breast cancer patients were estimated. The correlations among stress, depression, and social support were analyzed using Pearson Correlation. The differences between "stress and depression" and "social support" of all characteristics of breast cancer patients were estimated by t-test and ANOVA. The expected factors, which affected the stress and depression of breast cancer patients, were analyzed using simple linear regression.

2.6. Ethical Consideration

This study went through an investigation process and received the official approval of K hospital's IRB (Institutional Review Board, No: 2015-02-046). Researchers of this study explained the purposes of the study, distributed documents of an explanation and informed consent, and obtained the subjects' written consent from among subjects who met inclusion criteria. The researchers promised confidentiality and anonymity, and

explained to subjects that it is possible to give up in the middle of filling in the questionnaire in advance.

3. Results

3.1. Characteristics of Subjects

As for the age distribution of this study, most of the subjects are over 60 years old at 42.7%, followed by 50-53 years old (36.0%), and less than 49 years old (21.3%). As for marital status, 76% are married and 24% are non-married (e.g., single, divorced, separated, and separated by the death). Thus, most of the subjects in this study have a spouse. As for religion, 72% of the subjects have a religion and 28% of the subjects don't have one. About economic status, 'normal' is 86.7%, and 'better' is 13.3%. As for the Job status, unemployed is 76.0% and employed is 16.0%, and lay-off is 8.0% in <Table2>.

Table 2. Stress and Depression by General Characteristics

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					Stre	SS			Depre	ssion	
Variables	Categories	Ν	%	Mean	SD	F/T	р	Mean	SD	F/T	р
Age	Less than 49	16	21.3	26.88	7.96	.572	.567	20.88	7.88	2.338	.104
	50-59	27	36.0	26.19	5.97			26.30	9.33		
	more than 60	32	42.7	24.72	7.73			25.44	7.47		
Marital	with spouse	57	76.0	26.05	7.55	743	.460	24.95	8.90	317	.752
Sidius	without spouse	18	24.0	24.61	5.78			24.22	6.87		
Religion	Have	54	72.0	26.26	7.18	- 1.074	.286	24.07	7.64	1.156	.251
	None	21	28.0	24.29	7.07			26.57	10.15		
Economic status	Upper	10	13.3	25.50	5.40	097	.923	22.20	6.60	-1.039	.302
	Middle	65	86.7	25.74	7.42			25.17	8.64		
Occupation	Yes	12	16.0	26.92	7.73	1.452	.241	22.50	8.21	.905	.409
	No	57	76.0	25.02	7.26			25.51	8.57		
	During leave of absence	6	8.0	29.83	2.40			22.33	7.23		
The	2	27	36.0	26.33	8.35	.793	.456	26.30	6.94	.883	.418
families	3-4	39	52.0	24.79	6.36			24.28	9.50		
	more than 5	9	12.0	27.78	6.67			22.33	7.42		

3.2. The levels of Stress, Depression, and Social Support of Breast Cancer Patients

In table 3, the estimations of stress, depression, and social support of breast cancer patients are displayed. The level of stress in breast cancer patients ranges from 19 to 58, with a mean of 38.71; the level of depression ranges from 30 to 68, with a mean of 44.77.

Among social support, the level of family support ranges from 8 to 40, with a mean of 31.68; the level of medical staff's support ranges from 18 to 40, with a mean of 39.97; and the level of fellow cancer patients' support ranges from 8 to 40, with a mean of 29.49.

						<n=75></n=75>
Variables		(Range)	Mean	SD	min	max
Stress		(13-65)	38.71	7.15	19.00	58.00
Depression		(20-80)	44.77	8.42	30.00	68.00
Social	Family Support	(8-40)	31.68	7.36	8.00	40.00
Support	Medical Support	(8-40)	30.97	6.01	18.00	40.00
	Fellow patient support	(8-40)	29.49	6.74	8.00	40.00

Table 3. Descriptive Statistics for Variables

3.3. The Differences of Stress and Depression by all Demographic Characteristics

The differences in stress and depression among all demographic characteristics of breast cancer patients are displayed in Table 3. The differences in stress and depression of breast cancer patients by age, marital status, religion, economic status, employment, and number of family members were estimated, but there is no statistical difference found.

3.4. The Differences of Social Support by all Demographic Characteristics

The differences in support from family members, medical staff, and fellow cancer patients among the demographic characteristics of the breast cancer patients are displayed in the Table 4 When it comes to the family support by patient's age, one for less than 49-year old patients (28.50 ± 3.83) is higher than one for equal to and more than 60-year old patents (21.47 ± 8.58), which is statistically significant (F=5.482, p=.006).

There is no statistical difference among family support, medical staff's support and fellow cancer patients' support by marital status, religion, economic status, employment, and the number of the family members.

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		Family Support			Medical Support			Fellow patient Support					
Variables	Categories	Mean	SD	F/T	р	Mean	SD	F/T	р	Mean	SD	F/T	р
Age	Less than 49	28.50	3.83	5.482	.006	23.13	4.87	2.028	.139	19.44	10.20	1.577	.214
	50-59	23.44	6.12			24.19	6.05			21.00	6.54		
	more than 60	21.47	8.58			21.38	6.28			22.94	4.19		
Marital status	with spouse	23.44	6.66	.503	.617	22.79	6.20	.469	.641	22.50	4.93	.725	.471

Table 4. Social Support by General Characteristics

	without spouse	24.44	9.43			23.56	5.48			21.18	7.22		
Religion	Have	23.94	7.43	496	.621	22.67	6.03	.706	.482	21.54	6.64	089	.929
	None	23.00	7.32			23.76	6.04			21.38	7.16		
Economic	Upper	25.00	5.21	.607	.546	23.40	6.72	.240	.811	21.50	6.82	.003	.997
510105	Middle	23.48	7.65			22.91	5.95			21.49	6.78		
0	Yes	24.00	7.34	1.388	.256	23.42	7.54	2.203	.118	18.92	9.61	1.296	.280
Occupation	No	23.12	7.61			22.39	5.63			22.18	4.97		
	During leave of absence	28.33	2.16			27.67	4.93			20.17	12.97		
The number	2	21.89	8.98	2.156	.123	21.22	5.91	2.050	.136	20.30	5.59	1.078	.346
of families	3-4	24.03	6.44			23.69	5.91			21.74	7.70		
	more than 5	27.56	3.68			25.11	6.09			24.00	4.95		

3.5. Social Support Effects on Stress and Depression in Breast Cancer Patients

Results of correlation analysis between" social support" and "stress and depression" in breast cancer patients are enumerated as follows. In <Table 5>, there is no statistical correlation among breast cancer patients' stress and support from family members, medical staff, and fellow patients. While there is no significant statistical correlation between breast cancer patients' depression and support from medical workers and fellow cancer patients, there is a negative correlation between the patient's depression and family members' support (r=-.436, p=.000). The more family support that a breast cancer patient receives, the less likely they are to become depressed.

	 ,	<n=75></n=75>
	Stress	Depression
Variables	r(p)	r(p)
Family Support	029(.803)	436(.000)
Medical Support	077(.510)	.039(741)
Fellow patient Support	.047(.687)	128(.275)

Table 5, Correlations Among the Stress, Depression and Social Support

Table 6 shows results of the simple linear regression of depression and family support. Family support is a significant independent variable in the depression of breast cancer patients, and family support accounts for 19% of variation of depression. As family support increases, the depression tends to decrease (beta = -0.499, p<.001).

					<n=75></n=75>
Variables	В	S.E	β	R²	t(p)
Family Support	499	.120	436	.190	-4.140(.000)

Table 6. Influencing	Factor on the	Subject's	Depression

4. Conclusion

This study is a descriptive correlational study to examine the effects of social support upon stress and depression in breast cancer patients. This study attempted to offer basic data for a nursing intervention program using a social support system to reduce stress and depression in patients with breast cancer.

Subjects of this study were 75 female patients. They have been diagnosed with breast cancer, underwent related surgery, and received treatment in an outpatient clinic in K General Hospital in Seoul. The period of data collection was from April 14, 2015 to June 3, 2015. A self-administered questionnaire was used as a method of collecting data. Breast cancer patients without a past history of other diseases and cancers were enrolled in this study as subjects after receiving an explanation of the goals the study along with obtaining the subjects' consent. As for research tools, the level of stress was measured via a tool translated by Choi (2013). For the measurement of social support, the study utilized the following tools: Lee (2012) for family support, Kim (2005) for medical staff's support, and Lee (2012) for fellow cancer sufferers' support. With the use of SPSS, frequency, 100-percentile, mean, standard deviation, Pearson Correlation, t-test, ANOVA, Simple Linear Regression was estimated.

4.1. Results of this Study are as follows

As for the age distribution of this study, most of the subjects are over 60 years old at 42.7%, followed by 50-53 years old (36.0%), and less than 49 years old (21.3%). As for marital status, 76% are married and 24% are non-married (e.g. single, divorced, separated, and separated by the death). Thus, most of the subjects have a spouse. In relation to religion, 72.0% of the subjects answered that they have a religion and 28.0% of the subjects don't have a religion. About economic status, 'normal' is 86.7%, and 'better' is 13.3%. As for the Job status, unemployed is 76.0%, employed is 16.0%, and lay-off is 8.0%.

The level of stress in breast cancer patients ranges from 19 to 58, with a mean of 38.71 (2.89 in five-point scale). The level of depression ranges from 30 to 68, with a mean of 44.77 (2.29 in four-point scale). In social support, the family support ranges from 8 to 40, with a mean of 31.68 (3.96 in five-point scale): the medical staff's support ranges from 18 to 40, with a mean of 30.97 (3.87 in five-point scale): and the fellow cancer patients' support ranges from 8 to 40, with a mean of 29.49 (3.69 in five-point scale).

There is no statistical difference between levels of stress and depression in breast cancer patients and the following factors: age, marital status, religion, economic status, employment statues, and the number of family members.

In the differences among family members, medical staff, and fellow cancer patients' support by demographic characteristics of the breast cancer patients, the family support of less than 49 year-old patients was 28.50 ± 3.83 , which is statistically higher than that equal

to and more than 60 year-old patients (21.47 ± 8.58) (F=5.482, p=.006). There is no statistical difference of medical staff's support and fellow cancer sufferers by age, marital status, religion, economic status, employment, the number of family members.

There is no statistical correlation among breast cancer patients' stress and support from family members, medical staff, and fellow patients. While there is no significant statistical correlation between breast cancer patients' depression and support from medical workers and fellow cancer patients, there is a negative correlation between the patient's depression and family members' support (r=-.436, p=.000). The more family support that a breast cancer patient receives the less likely they are to become depressed.

According to the simple linear regression of depression and family support, which has a statistically significant difference, the family support is a significant independent variable for the depression of the breast cancer patient, and family support accounts for 19 % of variation of the depression. As family support increases, the depression tends to decrease (beta = -0.499, p<.001).

Results of this study show that levels of stress and depression in breast cancer patients are moderate, and that family, medical staff, and fellow cancer patients' support are relatively high. More importantly, family support is shown as the highest. There is a negative correlation (r=-.436(p=.000)) between depression and family support. This result suggests that family support should be considered as a key parameter in developing a nursing intervention program. Therefore, in order to reduce depression of breast cancer patients, it is necessary to provide comprehensive and integrated nursing interventions promoting family support.

Considering family structures in modern society, we recommend further research on the effects of medical staff and fellow cancer patients' support related to stress and depression of breast cancer patients in one-man households and the family with its member's absence (e.g., solitude, immigration, separation by death) in the future.

4.2. Limitation of the Research

The result in this study would be overestimated or underestimated because it is dependent on self-reporting by the subjects. This is a limitation in the generalization of these results to other situations or all breast cancer patients in Korea. This is because the data is collected from the breast cancer patients of one hospital via convenience sampling.

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