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Investigation of the relationship between perceived social support and body image in women with breast cancer

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Abstract

Background: Patients with breast cancer have more body image disorders than healthy individuals. The present study aimed to determine the relationship between perceived social support and body image in women with breast cancer. This descriptive-analytical study was performed on 192 women with breast cancer undergoing mastectomy or tumor resection with breast preservation referred to Golestan Hospital in Ahvaz from February 2016 to May 2017. Data collection tools included Demographic Information, Perceived Social Support, and Multidimensional Body-Self Relationship Questionnaires (MBSRQ). Data analysis was performed using SPSS 22 and Pearson correlation coefficient and multivariate linear regression. A p value less than 0.05 was considered significant.

Results: The Pearson correlation test showed a positive and significant relationship between perceived social support from family, friends, and leading people and body image in mastectomy (r 0.81) and tumor resection groups with breast preservation (r 0.78) ($p < 0.001$).

Conclusion: The results showed a direct relationship between perceived social support and body image in women with breast cancer. Accordingly, by educating patients and their families and medical staff about the importance of perceived social support, it is possible to help improve the dimensions of social support in these patients and improve the body image of these patients.

Keywords: Perceived social support, Body image, Breast cancer

Background

Cancer is one of the leading causes of death worldwide, and its global burden is increasing dramatically due to aging and population growth [1]. Breast cancer accounts for one-third of all cancers in women [2]. The incidence of breast cancer per 100,000 women is 67.8, 23.8, and 37.5 in developed countries, less developed countries, and the whole world, respectively [3]. Annually, 7000 Iranian women are diagnosed with breast cancer, and currently, about 40,000 people in the country are diagnosed

with breast cancer [4]. Surgery is commonly used as primary treatment, and chemotherapy and radiotherapy as adjunctive therapies to prevent metastasis and increase the long-term survival of patients with breast cancer [5]. Body image is affected by the physical and psychological changes resulting from the diagnosis and treatment of breast cancer [6].

Patients with breast cancer have more disorders in body image than healthy people [7]. The body image is a mental issue and is a part of self-perception formed based on current and past perceptions of the body [8]. When a person does not have a positive body image and considers her appearance lower than the desired or ideal standards of society, she may face inappropriate feelings and attitudes towards herself, such as low self-esteem and depression [8]. A negative body

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image can lead to adverse psychological consequences such as depression, social anxiety, poor self-concept, and poor sexual function. Some results showed an association between negative mental imagery and an increased likelihood of high-risk behaviors such as sexually transmitted infections and HIV transmission [9].

Drug intervention, group therapy, cognitive-behavioral therapy, workout, and relaxation are used to treat body image disorders [10].

One of today's topics discussed in clinical studies is perceived social support. *Social support* is a social network that provides people with psychological and tangible resources to cope with stressful living conditions and daily problems. It can be provided as living resources (material resources such as food and money), information (providing information and suggestions), and emotion (loving, caring, understanding the other person) to the person [11]. There is evidence that social support has protective effects on cancer patients. Lack of social support is an important predictor of hospital readmission and mortality in cancer patients. Social support can affect a person's cognitive assessments and beliefs about the world [12].

Accordingly, Niroumand-Zandi et al.'s study on burned patients referred to hospitals in Tehran showed that people with higher social support are more satisfied with their body image [13]. Spatuzzi et al.'s study showed that the existence of a positive social support network could eliminate the psychological effects of surgery on body image in the breast reconstruction group after mastectomy [14]. In addition, the results of Ozkaraman et al.'s study showed that social image anxiety decreased by increasing social support [15].

Paying attention to body image in breast cancer patients is important due to the increasing prevalence of this disease, increasing the number of survivors, and women as mothers and wives play a key role in the family [16]. Furthermore, improving the negative mental image improves their survival and increases the quality of life and greater cohesion of the family structure [17].

Examining the adverse consequences of negative mental image and the importance of its treatment in women with breast cancer, we decided to conduct a study to determine the relationship between perceived social support and body image in women with breast cancer to prove the hypotheses. The study can help patients and their families as well as medical staff to understand the importance of social support, to improve the dimensions of social support in these patients, and, in this regard, to improve the body image of these patients.

Methods

This descriptive-analytical study was performed on 192 women with cancer referred to Golestan Hospital in Ahvaz, after obtaining the code of ethics (IR.AJUMS. REC.1397.644) from the ethics committee of Ahvaz Jundishapur University of Medical Sciences, from the beginning of February 2016 to the end of May 2017.

Based on the objectives of the present study and Niroomand Zandi et al.'s study [13] and considering the parameters of the Pearson correlation coefficient ($\beta = 0.2$, $\alpha = 0.05$, 0.2), the sample volume was calculated 192 through the following formula:

$$n = [(Z\,1 - \alpha/2 + Z\,1 - \beta)/(C)]2 + 3$$

$$c = 0.5 \ln\left((1 + r)/(1 - r)\right)$$

The convenience sampling method was done among individuals who met and did not meet the inclusion criteria. Inclusion criteria included breast surgery (mastectomy or tumor resection surgery with breast preservation), completion of chemotherapy and radiation therapy, willingness to accompany, and at least 6 months of breast cancer. Exclusion criteria included having a congenital disability, other cancers, mental illness such as schizophrenia, and major depression and having underlying diseases such as diabetes.

After selecting the eligible research units, the researcher introduces himself/herself to them and states the study aims. After obtaining written consent and assuring them about the confidentiality of information, the questionnaire was given to the research unit and, in case of necessity, completed by the researcher in an interview.

Data collection tools included the Demographic Information Questionnaire, Perceived Social Support Questionnaire (Zimet), and Multidimensional Body-Self Relations Questionnaire.

The Demographic Information Questionnaire consists of 11 questions about the duration of breast cancer, familial breast cancer, treatment status, age of couples, marital status, duration of the marriage, woman's employment status, economic status (based on individuals), and education status of couples. The content validity of this questionnaire was confirmed by the faculty members of Ahvaz Jundishapur School of Nursing and Midwifery.

Zimet's Perceived Social Support Questionnaire

This questionnaire consists of 12 questions including 3 dimensions of perceived social support from friends (4 questions), family (4 questions), and other main people (4 questions). A 7-point Likert scale, from strongly disagree

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(with a score of 1) to strongly agree (score of 7), was used for scoring. The score obtained in each dimension was 4–28, and the total score of the questionnaire was 12–84. The scores in the range of 12–35.9, 36–60, and 60.1–84 were considered low, moderate, and high social support, respectively. A high score in each dimension indicates the high perceived social support in that dimension, and obtaining a high score from the whole questionnaire indicates the high perceived social support in all three dimensions of the questionnaire [18]. Using Cronbach's alpha internal consistency coefficient, the scale's reliability for the whole scale was reported 0.89, and for three subscales of family, friends, and leading people's support, these were 0.87, 0.84, and 0.80, respectively [19]. Canty-Mitchell and Zimmet correlated this scale with the Adolescent Family Caring Scale to calculate the validity of this scale. The correlation with the family, friend, and leading people subscales were reported 0.76, 0.33, and 0.48, respectively [20]. In Iran, Salimi et al. estimated the reliability of this scale. Accordingly, Cronbach's alpha coefficient for three subscales of family, friends, and leading people has been reported 0.86, 0.86, and 0.82, respectively [21]. In Salimi and Jokar's study, the validity of divergence and convergence of the multidimensional scale of perceived social support through correlation with the scale of adult socio-emotional loneliness and life satisfaction scale were 0.42 and 0.77, respectively [22]. In this study, the reliability of this scale was reported 0.97 for the whole scale and 0.79, 0.97, and 0.96 for all three subscales of family, friends, and leading people support, based on Cronbach's alpha internal consistency coefficient.

Multidimensional Body-Self Relation Questionnaire

The standard questionnaire consists of 46 questions including six dimensions: (1) 7-item facial evaluation, (2) 12-item facial orientation, (3) 3-item fitness evaluation, (4) 13-item fitness orientation, (5) 2-item mental weight, and (6) 9-item physical satisfaction. For scoring, a 5-point Likert, from strongly disagree (1) to strongly agree (5), was used. The scores of 6 dimensions were 7–35, 12–60, 3–15, 13–65, 2–10, and 9–45, respectively, and the score of the whole scale was in the range of 46–230. The scores of 46–107.3, 107.3–168.6, and 168.6–230 were considered a body image with low satisfaction, moderate satisfaction, and high satisfaction, respectively. The higher scores indicated more satisfaction [23]. The validity of the main sections of this questionnaire was confirmed by Brown et al. in 1990, and the reliability was reported as 0.81 [24]. In Iran, the validity and reliability of the Persian version of this questionnaire were assessed by Rahati. The Cronbach alpha coefficients for each of the subscales in 217 students were reported as 0.88, 0.85, 0.83, 0.79, 0.91, and 0.94, respectively, which indicates good internal

consistency of the questionnaire. The correlation coefficients between the scores of 67 people were 0.78, 0.75, 0.71, 0.69, 0.84, and 0.89, respectively, in two shifts with a 2-week interval for each of the subscales. It showed the test-retest reliability on the satisfaction scale [25]. In this study, the reliability of this scale was estimated at 0.96 for the whole and 0.90, 0.86, 0.75, 0.88, 0.95, and 0.91, for each of the subscales, respectively, using Cronbach's alpha internal consistency coefficient.

Data were analyzed using SPSS 22 after being coded. To achieve the objectives and respond to the research hypotheses, descriptive statistics (including frequency table, percentage, mean (standard deviation)) and inferential statistics (Pearson correlation test and multiple linear regression) were used. The significance level in the tests was considered $p < 0.05$.

Results

The mean (standard deviation) age of research units was 46.34 (8.65) years (age range of 30–87 years), the duration of their marriage was 23.99 (10.79) years, and the age of spouse was 52.52 (9.43); 166 (86.4%) of the research units were married, and 171 (89.1%) were housewives. One hundred two (53.1%) of the research units had average economic status; 106 (55.2%) of the research units had high school education. One of the spouses had a high school education (99 (59.6%)). The mean (standard deviation) duration of breast cancer was 2.36 (1.58); 100 (52.1%) of the subjects had familial breast cancer; 95 (49.5%) of patients underwent a mastectomy, and 97 (50.5%) underwent tumor resection with breast preservation.

Table 1 shows the frequency (percentage) of research units regarding perceived levels of social support and demographic variables with body image levels in women with breast cancer referred to the accelerator ward of Golestan Hospital in Ahvaz in 2018 and 2019.

Table 2 displays a positive and significant relationship between perceived social support and its dimensions with the body image in the two groups of mastectomies and tumor resection with breast preservation, using a Pearson correlation test ($p < 0.001$). According to this table, in the mastectomy group, perceived social support on behalf of the family, friends, and leading people has a positive and significant relationship with body image. The impact of perceived social support on behalf of the friends and leading people on body image is greater than perceived social support on behalf of the family. Also, in the tumor resection with breast preservation group, perceived social support on behalf of the family, friends, and leading people has a positive and significant relationship with body image. The impact of perceived social support on behalf of the leading people on body image is greater

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Table 1 Frequency distribution (percentage) of research units according to perceived levels of social support and demographic variables with levels of body image in women with breast cancer referred to the accelerator ward of Golestan Hospital in Ahvaz in 2018 and 2019

Variables	Body image		
		Low	Average	High
Perceived social support	**Low**	10 (5.2)	29 (15)	0 (0)
	Average	16 (8.3)	16 (8.3)	2 (1.04)
	High	0 (0)	30 (15.6)	89 (46.3)
Age	**30–45**	6 (3.12)	38 (19.7)	42 (21.87)
	45–60	20 (10.14)	31 (16.14)	48 (25)
	<60	0 (0)	6 (3.12)	1 (0.52)
Employment status	**Housewife**	25 (13.02)	69 (35.93)	77 (40.1)
	Employed	1 (0.52)	6 (30.12)	14 (7.29)
Level of education	**High school**	23 (11.97)	45 (23.43)	38 (19.7)
	Diploma	2 (1.04)	20 (10.14)	38 (19.7)
	Higher education	1 (0.52)	10 (5.2)	15 (7.8)
The economic status	**Poor**	10 (5.2)	31 (16.14)	12 (6.25)
	Average	12 (6.25)	38 (19.7)	52 (27.08)
	Good	4 (2.08)	6 (3.12)	27 (14.06)
Married	**No**	9 (4.68)	16 (8.3)	1 (0.52)
	Yes	17 (8.85)	59 (30.72)	90 (46.87)
Duration of marriage	**>15yr**	0 (0)	14 (8.43)	29 (17.46)
	15–30yr	6 (3.61)	31 (18.67)	45 (27.1)
	<30yr	11 (6.62)	14 (8.43)	16 (9.63)
Spouse's education level	**High school**	18 (10.84)	39 (23.4)	42 (25.3)
	Diploma	1 (0.6)	12 (7.2)	32 (19.2)
	Higher education	0 (0)	7 (4.2)	15 (9.03)
Spouse age	**30–45yr**	0 (0)	17 (10.24)	26 (15.6)
	45–60yr	14 (8.43)	27 (16.2)	53 (31.9)
	<60yr	6 (3.61)	13 (7.8)	10 (6.02)
Familial breast cancer	**Yes**	15 (7.8)	34 (17.7)	51 (26.56)
	No	11 (5.7)	41 (21.3)	40 (20.83)
Duration of breast cancer	**>3yr**	18 (9.3)	60 (31.2)	70 (36.4)
	3–6yr	8 (4.16)	15 (7.8)	19 (9.8)
	<6yr	0 (0)	0 (0)	2 (1.04)
Type of surgery	**Mastectomy**	19 (9.8)	42 (21.87)	34 (17.7)
	Tumor resection with breast preservation	7 (3.64)	33 (17.18)	57 (29.68)

than perceived social support on behalf of the family and friends.

According to Table 3, multiple linear regression showed that perceived social support and demographic (age, employment status, level of education, economic situation, marital status, duration of marriage, spouse's education level, spouse's age, familial breast cancer, duration of breast cancer, type of surgery) variables predict 69% of the variance of body image. Increasing age, being employed, poor economic status, and increasing the level of education of the spouse cause a lower body image. Perceived social

support, increased level of education, marriage and duration of marriage, age of spouse, familial breast cancer, duration of breast cancer, and type of surgery cause high body image. According to this table, perceived social support and the duration of breast cancer variables positively and significantly predict body image.

Discussion

The present study aimed to determine the relationship between perceived social support and mental body image in women with breast cancer. In fact, it seems that as

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Table 2 Evaluation of the relationship between perceived social support and its dimensions with body image in two groups of mastectomy and tumor resection with breast preservation in women with breast cancer referred to the accelerator ward of Golestan Hospital in Ahvaz in 2018 and 2019

	Dimensions of perceived social support	Body image	
		r	P value
Mastectomy (n = 95)	On behalf of the family	0.74	<0.001
	On behalf of friends	0.77	<0.001
	On behalf of leading people	0.77	<0.001
	Total perceived social support	0.81	<0.001
Tumor resection with breast preservation (n = 97)	On behalf of the family	0.68	<0.001
	On behalf of friends	0.67	<0.001
	On behalf of leading people	0.81	<0.001
	Total perceived social support	0.78	<0.001

Table 3 Results of multiple linear regression analysis to predict the perceived body image through perceived social support and demographic variables in women with breast cancer referred to the accelerator ward of Golestan Hospital in Ahvaz in 2018 and 2019

Predictive variables	Unstandardized coefficients		Standardized coefficients	T	P value
	B	Std. error	Beta		
Constant	83.23	16.07	–	5.17	0.001
Perceived social support	1.42	0.08	0.79	16.38	0.001
Age	−0.55	0.50	−0.13	−1.09	0.273
Employment status	−1.71	5.69	−0.01	−0.30	0.764
Level of education	4.30	3.45	0.09	1.24	0.215
The economic situation	−1.08	2.52	−0.02	−0.42	0.669
Marital status	1.32	2.17	0.02	0.53	0.624
Duration of marriage	0.33	0.32	0.09	−1.02	0.306
Spouse's education level	−0.58	2.99	−0.01	−0.19	0.846
Spouse's age	0.12	0.38	0.03	0.32	0.749
Familial breast cancer	1.02	3.17	0.15	0.32	0.747
Duration of breast cancer	2.61	0.96	0.12	2.72	0.007
Type of surgery	0.99	1.59	0.02	0.62	0.532

ADJ.R^2 = 0.691, R^2 = 0.712, R = 0.844

much as family, friends, and leading people have socially supported women with breast cancer, these women use family, friends, and leading people as a source of support to adapt to the effects of breast cancer, especially changes in body image. In fact, this social support can be a supportive strategy for women to change their body image due to breast cancer.

The present study showed that perceived social support by the family is directly and positively related to body image in women with breast cancer undergoing mastectomy and tumor resection with breast preservation. The results of Spatuzzi et al.'s study showed that in the breast reconstruction group following mastectomy, there was a significant and positive relationship between perceived social support by the family and body image in women

with breast cancer [14]. Yiimaze et al. conducted a study to determine the comparison of body image, self-esteem, and social support in total mastectomy and breast-conserving therapy in Turkish women. The results of the study showed a negative correlation between the feeling of incompleteness, loss of womanhood, and increase in social support. An increasing feeling of incompleteness makes a woman think more of her loss of a breast whereas social support relieves these feelings [26]. Niroumand-Zandi et al. conducted a study to determine the relationship between family social support and satisfaction with body image in burned patients referred to hospitals in Tehran. The study results showed that people who had higher family social support were more satisfied with their body image [13]. Hodder et al. investigated the

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effect of social support on body image in burned survivors in South Australia. The results showed that those with high social support were less focused on the burn and its effects and felt more comfortable. Having received social support from the family, they continued their role in the community and had high self-esteem. Those with low social support felt more inferior and suffer. The results of another study indicate the positive effect of family social support on increasing body satisfaction [27].

The present study showed that perceived social support by friends was directly and positively related to body image in both mastectomy and tumor resection with breast preservation groups. In line with the results of the present study, Hodder et al. showed that those with high social support were less focused on burns and their effects and felt more comfortable, and those who received social support from friends continued to play a role in society and had high self-confidence [27]. Merianos et al.'s study showed that perceived social support by friends has a significant and positive correlation with students' body image [28]. Wu et al. conducted a study to determine body image and hopelessness among early-stage breast cancer survivors after surgery in China. The results of the study showed that body image was significantly and positively associated with and had a positive effect on hopelessness [29].

The results of Qudusi et al.'s study showed that, in patients with multiple sclerosis, there is a significant direct relationship between body satisfaction and social support perceived by friends [30].

The present study showed that perceived social support by leading individuals is directly and positively related to body image in both mastectomy and tumor resection with breast preservation groups. Consistent with the present study results, Spatuzzi et al.'s study was performed to determine and evaluate the quality of life, body image, and perceived social support of women undergoing breast cancer surgery in Italy. Results showed that in the breast reconstruction group following mastectomy, the social support perceived by leading people has a significant and positive relationship with the body image in women with breast cancer [14]. Furthermore, according to evidence, women with breast cancer who perceive more emotional support are positively correlated to the extent that they can share their concerns with leading people in their lives [31].

According to the present study results, in general, perceived social support has a significant and positive correlation with body image in women with breast cancer undergoing mastectomy and tumor resection. Yiimaze et al. conducted a study to determine the comparison of body image, self-esteem, and social support in total mastectomy and breast-conserving therapy in

Turkish women. The results of the study showed a negative correlation between the feeling of incompleteness, loss of womanhood, and increase in social support. An increasing feeling of incompleteness makes a woman think more of her loss of a breast whereas social support relieves these feelings [26]. Wu et al. conducted a study to determine body image and hopelessness among early-stage breast cancer survivors after surgery in China. The results of the study showed that body image was significantly and positively associated with and had a positive effect on hopelessness [29].

Ozkaraman et al. determined the relationship between social support and social image anxiety in Turkish women with breast cancer. According to the results, social image anxiety decreased with increasing social support [15]. The results of Türk and Yılmaz study showed that mastectomy has a negative impact on body image and quality of life of women and there was a strong positive correlation between body image and quality of life [32].

A negative body image can lead to adverse psychological consequences such as depression, social anxiety, poor self-concept, and poor sexual function. Some results showed an association between negative mental imagery and an increased likelihood of high-risk behaviors such as sexually transmitted infections and HIV transmission [9]. In this regard, Hodder showed that social support is the most critical factor in coping with body disfiguration and plays a key role in minimizing the feeling of physical differences. Thus, it is essential to understand the relationship between social support and body image [27].

Another study showed that in the breast reconstruction group following mastectomy, the existence of a positive social support network can eliminate the psychological effects of surgery on the mental image of the body [14]. A study performed on patients with multiple sclerosis showed a direct and significant linear relationship between body satisfaction and perceived social support [30]. However, Gila et al. did not find a significant relationship between the three components of perceived social support (family, friends, and leading people) and the evaluation of physical appearance [33], which is not consistent with the present study results.

Conclusions

Finally, the perceived social support with body image in both mastectomy and tumor resection groups has a significant and positive relationship. The present study results can be used to conduct other research in various fields for cancer patients and other chronic diseases.

It is suggested that educating the importance of perceived social support to patients, their families, and medical staff helps to improve the dimensions of social

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support in these patients and, in this regard, improve their body image.

Limitations and recommendations

The impatience of some research units to complete the questionnaires, then completed by the researcher in the form of an interview, was the present study's limitation.

Because the study was performed in a small community of patients, the results were not generalizable. Also, because few studies have been conducted in the field related to the subject, therefore, some of the objectives of the study cannot be compared with other studies.

It is recommended to conduct additional studies in comparing body image in mastectomy and tumor resection with breast preservation women with breast cancer in a larger community and the effect of social support on each group.

Abbreviations
MBSRQ: Multidimensional Body-Self Relationship Questionnaires.

Authors' contributions
ZD and KH: study design and concept and drafting; PM and SML: literature research and performing the study; HJ: collecting the data and analysis. All authors read and approved the study.

Availability of data and materials
The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate
The study is approved by the ethics committee of Ahvaz Jundishapur University of Medical Sciences (IR.AJUMS.REC.1397.644). Written informed consent was obtained from patients.

Consent for publication
Consent for publication was obtained.

Competing interests
The authors declare that they have no competing interests.

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