Assessment of the predictive factors in body image of Iranian patients with breast cancer: Demographic factors

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Abstract

Background: Changes of body image following breast cancer is one of the factors affecting the quality of life of women with this disease.

Objectives: Thus, the factors affecting the body image need to be identified to improve their quality of life. Therefore, this study aimed to investigate the factors affecting the body image in Iranian women diagnosed with breast cancer.

Methods: In this cross-sectional study, 200 breast cancer women were participated using convenience sampling method during April to January, 2018. The data were collected using a demographic questionnaire and body image questionnaires after breast cancer (BIBCQ). The data were analyzed using Univariate and Multivariate linear regression in $SPSS_{25}$ at a significance level of 0.05.

Results: The mean age of participants was 48.43 (SD=10.53). The results showed that the variables such as type of treatment (p=0.002), physical health (β=-0.49, p<0.001), economic status (β=-0.62, p<0.001), and quality of life (β=-0.41, p=0.003) had the predictability potential of the body image in those under mastectomy. Educational level (β= 0.22, p=0.02) and physical health (β=-0.25, p=0.01) factors could predict body image in people with no mastectomy.

Conclusion: The results of the study indicated that the improvement of the economic status has a positive effect on the body image of breast cancer. In addition, this factor can improve the quality of life in women who survive breast cancer.

Keywords: body image, breast cancer, socio-demographic characteristics

Introduction

Breast cancer is among the most prevalent types of cancer in women and can lead to death across the world [1]. Prevalence of this disease is 30 to 35 cases per 100000 persons in Iran, and up to 8000 women get influenced each year [2]. Mazandaran province is one of the high prevalent places for breast cancer [3]. Today, improvements in treating breast cancer caused an increase in life expectancy in patients. However, the nature of this disease and treatments have various side effects such physical damage, which can suddenly or regularly lead to changes in body of patients with breast cancer and have significant effects on body image [4,5].

Body image has a multi-dimensional structure and includes perception, ideas, feeling, behavior related to body shape, ability, and functions [6].

The prevalent ways of treatment of this disease are mastectomy, chemotherapy, radiotherapy, and hormone therapy. all of those treatments have important consequences such as hair loss, vomiting, weight loss, and less sexual functions and negatively affect pregnancy that cause depression and anxiety and effects on body image of patients [7,8]. Impaired body image (as one of the important psychological factors) effects on quality of life and causes reductions in all dimensions of health [9].

All efforts to improve quality levels of body image in these patients can have significant effect on their quality of lives, psychological disasters, and trend of recovery [10]. Some researchers declare that several demographic factors including age, educational levels, economic and social situation, sexual functions, and sexual satisfaction have predictive roles in determining body image levels [8-11]. Although just 7 percent of influenced patients in developed countries age less than 40 years old, in Iran, this raised to 22-24 percent [12]. Considering that breast cancer has notable prevalence in Mazandaran province [3] and scarcity of enough data on this issue in northern part of Iran, we aimed to assess the relationship between demographical factors and body image of patients with breast cancer.

Methods

This cross-sectional study was done in 2019 on women with breast cancer. The sample size was determined (200 patients) using G*Power$_{3.1.7}$ software and considering a significant level of <0.05 and power of 80%. Accordingly, 200 Patients with a diagnosis of breast cancer that were hospitalized in Shahid Rajai hospital (cancer treatment center in northern of Iran) and protection centers of cancer patients in Amol and Babol (Mazandaran, Iran) were selected via accessible sampling method. Inclusion criteria included definitive diagnosis of breast cancer (4 months after the diagnosis), no history of metastasis, and ages more than 18 years old. Besides, patients with psychological disasters (reported by patients and their doctors) during chemotherapy (because chemotherapy affects body image) and cognitive disorders were excluded from our study.

Questionnaires

In a demographic scale, some variables such as age, educational level, marital status, type of treatment, physical health, economical satisfaction, and quality of life were gathered from patients. The questions about physical health, economical satisfaction, and quality of life were prepared in 5-point Likert type ranging from very bad to very well.

Body Image after Breast Cancer Questionnaire (BIBCQ)

BIBCQ was designed by Baxter in 2006 to assess the body image in women with breast cancer after mastectomy or without mastectomy (two separate forms) [13]. This questionnaire included 53 items and was scored based on a 5-point Likert scale. Items 1-23 were scored as completely agree to completely disagree and items 24-53 as never to always. Items 1-23 and 29-50 were common in two groups (after mastectomy or without mastectomy), items 24 and 51 are specialized for mastectomy patients, and items 25-28 and 52-53 are designed for patients without mastectomy [13]. Rajabi et al. determined and proved validity and reliability of this questionnaire in case of Iranian breast cancer patients [14]. Also, in the present study, the reliability of BIBCQ was calculated (α=0.73).

Procedure

After getting permissions from the related research deputy and selected centers, we referred to the center wards and explained the aims of the study to the patients entering our study (met our criteria). After assuring the wards, the questionnaires were distributed. During completing the questionnaires, the researcher was available, and necessary information was explained to the patient (in case of ambiguity). Then, the questionnaires were checked to see whether they were completely filled out.

Ethical considerations

The present study is the result of an approved research project by the ethics committee of Mazandaran University of Medical Sciences (IR.MAZUMS.REC.1398.809). Before the study, the patients were briefed about the study objectives and signed informed consents. All participants were assured of the confidentiality of data.

Statistical Analysis

SPSS v.25 were used for data analysis. The

normality was determined uisng Kolmogorov-Smirnov test. Frequencies and percentages were assessed to quantify the categorical variables, and means and standard deviations [15] were calculated for continuous variables. Simple linear regression was used to determine the predictive factors of body image. Then, those variables that were significant in previous analysis were subjected to multivariate regression test. The p value of .05 was considered to be statistically significant.

Results
In this study, the mean age of participants was 48.43 (SD=10.53) years, and the mean of disease duration time was 5.86 (SD=7.46) years. In addition, 102 patients had a background of mastectomy surgery. More demographic information is described in Table 1.

Table 1: Characteristics of patients with breast cancer

Variables		Frequency(%)
Educational level	Under Dioloma	101(50.2)
	Diploma	57(28.4)
	Graduate	36(17.9)
Marital Status	Single	20(10)
	Married	180(89.6)
Type of Treatment	Chemotherapy	57(28.4)
	Radiotherapy	28(13.9)
	Chemotherapy and Radiotherapy	84(41.8)
	Hormontherapy	22(10.9)
Type of Surgery	Mastectomy	102(51)
	No Mastectomy	98(49)
Variables		**Mean**
Age		48/43(10.53)
Year of Cancer		5.86(9.46)

As Table 2 reveals, in mastectomy patients, body image could be predicted by some variables including type of treatment (p=0.002), physical health (B=-9.24, β=-0.49, p<0.001), economic situation (B=-9.73, β=-0.62, p<0.001), and quality of life (B=6.79, β=-0.41, p=0.003). In contrast, in patients without mastectomy, body image could be predicted by educational level (B=5.29, β=0.22, p=0.02) and physical health (B=-5.23, β=-0.25, p=0.01).
Variables including physical health, economic satisfaction, and quality of life were analyzed using multivariate regression model, which determined that the relationship between economic satisfaction and body image was significant (B = -7.84, β = 0.50, p < 0.001). Economic satisfaction could determine 43% of variance of body image in the women with mastectomy. Educational level (B = 5.91, β = 0.25, p = 0.01) and physical health (B = -5.95, β = 0.29, p = 0.003) were analyzed via multivariate regression model in the women without mastectomy. The results showed that educational level and physical health were significantly related to body image, and all of them could determine 11% of variance of body image

Table 2: The results of Simple and Multiple linear regression tests

Body Image	Socio Demographic Variables		Unadjusted				Adjusted			
			B	β	P value	CI 95%	B	β	P value	CI 95%
Body Image with Mastectomy	Age		-0.2	-0.11	0.41	-0.70 0.29	-	-	-	-
	Educational level		-2.52	-0.09	0.51	-10.2 5.15	-	-	-	-
	Marital Situation*		-	-	-	-	-	-	-	-
	Year of Cancer		-0.09	-0.08	0.57	-0.42 0.23	-	-	-	-
	Type of Surgery**		-	-	-	-	-	-	-	-
	Type of Treatment	Chemotherapy	1.23	0.04	0.79	-8.05 10.52	-	-	-	-
		Radiotherapy	-6.11	-0.21	0.14	-14.4 2.2	-	-	-	-
		Chemotherapy and Radiotherapy	-8.94	-0.23	0.10	-19.9 2.04	-	-	-	-
		Hormontherapy	2.34	0.02	0.87	-27.1 31.8	-	-	-	-
	Physical Health		-9.24	-0.49	<0.001	4.58 13.9	-5.14	-0.27	0.053	-0.06 10.36
	Economical Satisfaction		-9.73	-0.62	<0.001	6.23 13.23	-7.84	-0.50	<0.001	4.10 11.59
	Quality of life		-6.79	-0.41	0.003	2.43 11.14	-0.60	-0.03	0.79	-4.03 5.23
Body Image without Mastectomy	Age		-0.14	-0.08	0.41	-0.48 0.20	-	-	-	-
	Educational level		5.29	0.22	0.02	0.67 9.92	5.91	0.25	0.01	1.40 10.42
	Marital Situation*		-	-	0.49	-7.39 15.32	-	-	-	-
	Year of Cancer		-0.44	-0.10	0.32	-1.34 0.44	-	-	-	-
	Physical Health		-5.23	-0.25	0.01	1.23 9.24	-5.95	-0.29	0.003	2.04 9.87
	Economical Satisfaction		0.48	0.02	0.79	-3.25 4.21	-	-	-	-
	Quality of life		1.93	0.10	0.33	-2.00 5.86	-	-	-	-
	Type of Surgery**		-	-	0.61	-	-	-	-	-

*This variable was analyzed via Independent T-test
**This Variable was analyzed via ANCOVA test

Discussion

The results of the present study revealed that the effective factors of body image in women with breast cancer differed in accordance with the type of treatment. In patients with mastectomy, economic satisfaction was found to be effective, and in patients without mastectomy, educational level and physical health were effective factors of body image.

Our study showed a significant relationship between economic satisfaction and body image in breast cancer patients with mastectomy. Although breast cancer has high prevalence among various groups, mortality rate in these patients are related to low economic situation [16]. It seems that one of the reasons for high mortality in this group is related to delay in diagnosis and high levels of progress [17]. Chang et al., in study on cancer

patients, stated a positive relationship between economic situation and body image [18]. However, the point is that although economic situation was related to body image in patients with mastectomy, no significant association was founded between these two variables in patients without mastectomy. Various studies proved that after mastectomy, patients are weaker against their body image [19-22]. Chang explained that the reason of body image weakness in these women can be the act of rejection of their husbands [18]. It can be postulated that high economic level patients with mastectomy are able to undergo restorative surgery or use prosthesis, which can reduce the anxiety of body shape changes. These situations, however, are not possible for patients with low incomes.

In the present study, higher educational level was the predictive factor of body image in those patients. This relationship was not seen in patients with mastectomy. In the other words, negative effect of mastectomy was not related to higher education levels. Level of education in women can be a predictable factor for the capacity of those patients in disease and anxiety [18]. Some previous studies were in line with this result [18,23], while some others declared no significant relationship between these two variables [21,24,25]. This contradiction can be due to the conflicts of knowledge among participants.

In our study, one of the main and effective factors in the body image of breast cancer patients was physical health. Body image can treat the life and affect physical health [26]. In line with the present study, Gopie et al. (2012) found a significant relationship between physical health and positive body image in women with breast cancer [27].

Limitations and recommendations

I think it should be written BOLD one of the main limitations of this study was gathering information through questionnaires. It is possible that some patients did not complete the questionnaires accurately, and this may limit the generalizability of our results. Moreover, cultural conflicts among participants can be considered as an important limitation that could not controlled by the researchers. Hence, it is recommended that future research be done with larger sample sizes. Additionally, to reach more detailed results, researchers can design qualitative studies or randomized clinical trials to assess the effects of some other important variables on body image of these patients.

The results of this study showed that economic situation was the best predictor of body image in breast cancer patients with mastectomy. Furthermore, educational level and physical health were the best predictors of body image in breast cancer patients without mastectomy. Therefore, based on these results, the advancements in the economic status of various groups of society and the insuring systems can help to improve the body image of breast cancer patients.

Conflict of interest
The authors of this article declare that there is noconflict of interest in writing this article.

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