

# Evaluation of Quality of life, Social Support and Coping Strategies and Illness Adjustment in patients with breast cancer: Across sectional study

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## Research

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# Abstract

**Background:** This study aimed to assess the quality of life (QOL), social support and coping strategies, and illness adjustment among breast cancer patients in general and on type of breast surgery.

**Methods:** We conducted a cross-sectional study at the Ali-Ebne-Abitaleb and Khatam-Al-Anbia hospitals in Zahedan, Iran, 2020. We recruited patients with breast cancer who underwent lumpectomy (n=44), mastectomy (n=64), and not any surgery (n=15) by census method. Data collection tools were the breast cancer-specific module (QLQ-BR 23), The adjustment to illness measurement inventory for Iranian women with breast cancer (AIMI- IBC), and the multidimensional scale of perceived social support (MSPSS) questionnaires. We performed statistical analysis by ANOVA, independent sample t-test, Kruskal-Wallis, Mann-Whitney U-test, and multiple linear regression analysis to adjust for covariates.

**Results:** We recruited a total of 120 patients with breast cancer in this survey. 53.3% of patients underwent a mastectomy, 34.2% lumpectomy, and 12.5% of patients had not been surgery. Patients in the functioning scale reported high scores for body image (mean=78.61, SD=26.69) and future perspective (mean=55.27, SD=26.71). Patients on the symptom scale had a high score upset by hair loss (mean= 49.16, SD=38.88). Generally, patients received a high social support level, especially from family members, and used a positive coping strategy to have high illness adjustment more than a negative coping strategy. Also, patients who underwent lumpectomy had a better sexual life and body image and more illness adjustment than the other two groups of patients.

**Conclusion:** Early detection of the disease, support for patients, and educational programs to use appropriate coping strategies can improve breast cancer women's quality of life and disease adaptation.

## Introduction

Breast cancer is one of the most common female malignancy worldwide and the principal cause of death among women in developed and developing countries (1). Breast cancer is common among Iranian women, and although the incidence is lower than in Western countries, it has sharply risen in recent years and has become a threat to women (2).

Early detection and combination treatment such as chemotherapy, radiotherapy, hormone therapy, and surgical procedure can cure breast cancer (3). Surgical procedures, including mastectomy and breast-conserving therapy (lumpectomy), are the most prominent treatment for breast cancer (4). The survival is not different in these two surgical procedures (5), but patients who underwent lumpectomy had a better body image and quality of life (6). Also, a high QOL level could verily lead to long-term survival (7, 8). Evidence showed that the type of surgery does not affect any part of QOL except sexual function and body image domains (9, 10).

Some women with breast cancer reported physical and psychological distress due to cancer diagnosis and its treatment process that impair the different aspects of cancer patient life, such as family and social life (11, 12). Therefore, patients use various strategies for coping with these stressful conditions. A previous study in Iran has shown that coping strategies such as religious beliefs, accepting the reality of disease, and positive or negative thinking about the disease are essential strategies used by Iranian women with breast cancer, and spirituality as the most common coping strategies (13).

The perceived social support is an essential determinant of patients' capacity with breast cancer to cope with their disease and procedures. It could improve the QOL and ease the adjustment into life after treatment (14, 15).

Previous studies have shown that Iranian cancer patients obtain high social support levels at all stages of disease (16, 17), and the most crucial source of this support are family members (18).

This study aimed to assess the influence of surgical type on QOL, coping strategies, illness adjustment, and social support in breast cancer patients in Zahedan, Southeastern Iran.

## Methods

In this cross-sectional study, we selected 120 female breast cancer patients using the census method from the Clinical Oncology Department of Khatam-Al-Anbia hospital and the Radiotherapy Department Ali-Ebne-Abitaleb hospital in Zahedan, Southeastern Iran, 2020. The inclusion criteria included a confirmed breast cancer diagnosis, being 18 years and older, and willingness to participate in this study. We used a self-administered questionnaire to collect socio-demographic information and clinical characteristics of patients. Also, we investigated the quality of life, social support, and adjustment to illness.

### Quality of Life (QLQ-BR23)

The QLQ-BR23 consists of 23 questions of four functional scales (body image and sexual functioning, sexual enjoyment, future perspective) and four symptom scales (arm symptoms, breast symptoms, systematic therapy side effects, and being upset by hair loss). We calculated item scores of the EORTC QLQ-BR23 according to the EORTC QLQ-C30 scoring manual (19). Each item had a five-point Likert score.

The range of scores for these questions is between 0 and 100. A high score for a functional domain represents a better functioning level, and a high score for a symptom domain represents a worse level of symptoms and more problems. This questionnaire is translated into Persian and validated in the previous study (20).

### Coping strategies and degree of adjustment (AIMI-IBC)

We assessed women's coping strategies with breast cancer and the degree of adjustment with illness using an adjustment to illness measurement inventory for Iranian women with breast cancer (AIMI-IBC). This instrument had three domains (emotional turmoil, reasonable efforts, and avoidance) with 49 items. Each item had a five-point Likert score, ranging from 1 to 5, and a higher score for each domain reflects frequent use of the coping manner. A cut-off for this scale is 122.5. A mean score of  $\geq 122.5$  indicates higher adjustment with the illness, and a mean score lower than 122.5 indicates not enough adjustment. The psychometric property of the AIMI-IBC questionnaire in Iranian women with breast cancer was confirmed (21).

### Multidimensional Scale of Perceived Social Support (MSPSS)

Zimet and colleagues developed the MSPSS to measure perceived social support from friends, family, and significant others. This questionnaire consists of 12-items, and each item has a 5-point Likert type response format (from 1= strongly disagree to 5= strongly agree). The score range is between 12 and 60, and higher scores reflect more perceived social support. The MSPSS had good validity and reliability in a previous study in Iran (22).

### Statistical analysis

The collected data were analyzed using SPSS software, version 19.0. We used the chi-squared analysis to determine the frequency type of surgery across demographic characteristics of patients. We assessed the mean score of quality of life, social support, coping strategy, and illness adjustment among the surgical type variable using the

ANOVA and Kruskal-Wallis tests. When one-way ANOVA and Kruskal-Wallis tests were significant, we made multiple comparisons with the least significant difference (LSD).

We performed multivariate linear regression to adjust for covariates to evaluate the surgical type's independent effects on QOL, coping strategy, illness adjustment, social support in the presence of potential confounders. A P-value <0.05 was considered significant.

## Results

One hundred and twenty patients consented to participate in this study. The mean age of patients was 47.35 (SD10.67) years, and the time since diagnosis was 23.69 (SD20.38) months. Around half of the patients were of Sistani ethnicity (52.8%), followed by Baluch (40.8%) and others (6.7%). Three-fourth of patients were married (75.8), and most were housewives (88.3%). 16.3% of patients had a family history of breast cancer. At the time of the survey, 40.8% of patients had been diagnosed with stage III breast cancer, followed by 34.2% stage IV, 22.5% stage II, 2.5% stage I. Most (90%) of patients had received chemotherapy, and 64.2% received radiotherapy. More than half of the patients underwent mastectomy (53.3%), followed by underwent lumpectomy (34.2%), and 12.5% had not been surgery (table1).

Based on the results of Chi-square analysis, patients who underwent lumpectomy more had received radiotherapy than patients who underwent a mastectomy and not surgical ( $\chi^2= 6.22, p=0.04$ ). Most patients who underwent mastectomy had stage III, stage VI of disease ( $\chi^2=15.62, p=0.004$ ).

### Quality of Life

In the functioning scale, the higher mean scores were for body image (78.61, SD=26.69) and future perspective (55.27, SD=26.81), respectively, while the lower mean scores were for sexual enjoyment (14.86, SD=16.84) and sexual functioning (14.16, SD=17.63). On the other hand, on the symptom scale, upset by hair loss (49.16, SD=38.88) and systematic therapy side effects (45, SD=17.42) scored the highest, followed by arm symptoms (30.83, SD=26.73) and breast symptoms (13.63, SD=18.58).

The significant difference across surgical groups was present in the functioning scales (body image, sexual functioning, and sexual enjoyment) and symptom scales (arm symptom). Patients who underwent lumpectomy had the best sexual function, sexual enjoyment, and body image. On the other hand, patients who underwent mastectomy had severe arm symptoms compared to patients who underwent a lumpectomy. After adjustment for the type of treatment (radiotherapy) and stage of the disease, this finding remained significant.

### Perceived Social Support (MPSS)

The mean score of total social support was 45.71 (SD=9.92). Patients reported that they received the highest level of support from their family (mean=18.02, SD=2.76), followed by significant other (mean=14.45, SD=4.27) and friends (mean=13.23, SD=5.21). The statistical analysis showed that perceived social support's mean score and its domains had no significant difference among surgical groups ( $p<0.05$ ). The finding was uninfluenced even after controlling covariates (table2).

### Coping Strategies and Illness Adjustment

Patients who participated in this study used reasonable efforts coping strategy (mean=4.07, SD=0.35) more than avoidance (mean=3.39, SD=0.55) and emotional turmoil coping strategies (mean=2.93, SD=0.55). Also, patients presented a high degree of adjustment with their illness (mean=150.91, SD=16.29). Patients who underwent lumpectomy used more reasonable effort coping strategies ( $p=0.009$ ) and had a higher adjustment with illness ( $p=0.01$ ) than patients who underwent a mastectomy. These differences were still significant after adjustment for the covariate. The degree of illness adjustment in patients who underwent lumpectomy than those who underwent a mastectomy was not different (table2).

**Table 1:** Demographic characteristics of patients: in general and by Type of Surgery

<b>Variables</b>	<b>Overall(N=120) N (%)</b>	<b>Lumpectomy(N=41) N (%)</b>	<b>Mastectomy(N=64) N (%)</b>	<b>No Surgical(N=15) N (%)</b>	<b>P- value</b>
<b>Age</b>					
mean ± SD	47.35 ±10.67	46.32 ± 10.55	48.08 ± 10.51	47.07 ± 12.09	0.71
≤50	75 (62.5)	28 (68.3)	37 (57.8)	10 (66.7)	0.52
> 50	45 (37.5)	13 (31.7)	27 (42.2)	5 (33.3)	
<b>Time of since diagnosis</b>					
mean ± SD	23.69 ± 20.38	19.15 ± 17.61	27.73 ± 21.72	18.87 ± 18.99	0.08
6 >	22(18.3)	8 (19.5)	10 (15.6)	4 (26.7)	0.33
6-12	43 (35.8)	17 (41.5)	20 (31.2)	6 (40)	
24-12	17 (14.2)	8 (19.5)	8 (12.5)	1 (6.7)	
24 <	38 (31.7)	8 (19.5)	26 (40.6)	4 (26.7)	
<b>Marital status</b>					
Married	113 (94.2)	40 (97.6)	60 (93.8)	13 (86.7)	0.29
Un married	7 (5.8)	1 (2.4)	4 (6.2)	2 (13.3)	
<b>Educational level</b>					
Primary or lower School	64 (53.3)	17 (41.5)	39 (60.9)	8 (53.3)	0.16
Secondary- High School	43 (35.8)	16 (39)	21 (32.8)	6 (40)	
College	13 (10.8)	8 (19.5)	4 (6.2)	1 (6.7)	
<b>Ethnicity</b>					
sistan	63 (52.5)	23 (56.1)	33 (51.6)	7 (46.7)	0.71
baluch	49 (40.8)	15 (36.6)	26 (40.6)	8 (53.3)	
other	8 (6.7)	3 (7.3)	5 (7.8)	0 (0)	
<b>Level of income</b>					
Equal to expenditures	33.3))40	19 (46.3)	17 (26.6)	4 (26.7)	0.09
Lower than expenditures	80 (66.7)	22 (53.7)	47 (73.4)	11 (73.3)	
<b>Place of residence</b>					
urban	93 (77.5)	33 (80.5)	47 (73.4)	13 (86.7)	0.46
rural	27 (22.5)	8 (19.5)	17 (26.6)	2 (13.3)	

<b>Employed status</b>					
housewife	106 (88.3)	33 (80.5)	60 (93.8)	13 (86.7)	0.11
Employed	14 (11.7)	8 (19.5)	4 (6.2)	2 (13.3)	
<b>Menopausal status</b>					
Pre menopause	73 (60.8)	15 (36.6)	26 (40.6)	6 (40)	0.91
Post menopause	47 (39.2)	26 (63.4)	38 (59.4)	9 (60)	
<b>Stage of disease</b>					
Stage I, Stage II	30 (25)	17 (41.5)	13 (20.3)	0 (0)	0.004
Stage III	49 (40.8)	17 (41.5)	26 (40.6)	6 (40)	
Stage IV	41 (34.2)	7 (17.1)	25 (39.1)	9 (60)	
<b>Family history of breast cancer</b>					
yes	(16.3) 16	6 (14.6)	10 (15.6)	0(0)	0.26
no	(86.7) 104	35 (85.4)	54 (84.4)	15 (100)	
<b>Type of treatment</b>					
<b>Chemotherapy</b>					
yes	113 (94.2)	37 (90.2)	61 (95.3)	15 (100)	0.32
no	7 (5.8)	4 (9.8)	3 (4.7)	0 (0)	
<b>Radiotherapy</b>					
yes	77 (64.2)	31 (75.6)	40 (62.5)	6 (40)	0.04
no	43 (35.8)	10 (24.4)	24 (37.5)	9 (60)	

**Table 2:** Average scores of Quality of Life, Perceived Social Support, Coping Strategies in the total patient and according to Type of Surgery

	Overall (N=120) (M ± SD)	Lumpectomy(N=41) (M ± SD)	Mastectomy(N=64) (M ± SD)	No Surgical(N=15) (M ± SD)	P- value	Adjusted P-value h
<b>BR23 functional scales <sup>c</sup></b>						
Body Image	78.61 ±26.69	91.05 ± 16.07	67.44 ± 28.97	92.22 ± 17.94	0.001 <sup>b</sup>	0.001
Sexual functioning	14.86 ±16.84	20.32 ± 17.28	11.97 ± 16.12	12.22 ± 16.01	0.03 <sup>b</sup>	0.006
Sexual enjoyment	14.16 ± 17.63	19.51 ± 18.22	11.97 ± 17.17	8.88 ± 15.25	0.04 <sup>b</sup>	0.04
Future perspective	55.27 ± 26.71	60.97 ± 25.71	50.52 ± 25.88	60 ± 31.37	0.11 <sup>b</sup>	0.16
<b>BR23 Symptom Scales <sup>d</sup></b>						
Systemic therapy side effects	45 ± 17.42	47.85 ± 15.64	45.16 ± 17.93	36.50 ± 18.23	0.08 <sup>b</sup>	0.18
Breast symptoms	13.68 ± 18.58	18.29 ± 19.82	11.45 ± 18.15	10.55 ± 15.25	0.05 <sup>b</sup>	0.1
Arm symptoms	30.83 ± 26.73	29.26 ± 27.41	35.24 ± 26.89	16.29 ± 18.71	0.03 <sup>b</sup>	0.007
Upset by hair loss	49.16 ± 38.88	47.15 ± 36.49	48.43 ± 40.25	57.77 ± 40.75	0.65 <sup>b</sup>	0.31
<b>MSPSS</b>						
Family	18.02 ± 2.76	18.48 ± 2.55	17.90 ± 2.22	17.26 ± 4.80	0.15 <sup>b</sup>	0.3
Friends	13.23 ± 5.21	14.60 ± 4.47	12.31 ± 5.31	13.40 ± 6.16	0.13 <sup>b</sup>	0.2
significant other	14.45 ± 4.27	15.07 ± 3.87	13.93 ± 4.41	15 ± 4.72	0.31 <sup>b</sup>	0.2
Total score of social support	± 9.9245.71	48.17 ± 8.53	44.15 ± 9.68	45.66 ± 13.31	0.12 <sup>a</sup>	0.3
<b>Coping Strategies</b>						
Emotional turmoil	2.93 ± 0.55	2.82 ± 0.52	3.03 ± 0.52	2.83 ± 0.72	0.13 <sup>a</sup>	0.11
Reasonable efforts	4.07± 0.35	4.19 ± 0.34	4 ± 0.28	4.02 ± 0.53	0.01 <sup>a</sup>	0.02
Avoidance	3.39 ± 0.55	3.40 ± 0.52	3.40 ± 0.53	3.34 ± 0.69	0.92 <sup>a</sup>	0.8

Illness Adjustment	150.91 ± 16.29	155.58 ± 2.56	147.40 ± 1.83	153.13 ± 5.12	0.03 <sup>b</sup>	0.1
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<sup>a</sup> P-value based on ANOVA tests. <sup>b</sup> P-value based on Kruskal Wallis tests. <sup>c</sup> For functional scales, higher scores indicate better functioning, <sup>d</sup> For symptom scales, higher scores indicate worse functioning, <sup>h</sup> p-value adjusted with radiotherapy and stage of the disease

## Discussion

In this study, we investigated the areas of quality of life, social support, coping strategy, and illness adjustment in 120 patients with breast cancer in Zahedan, southeastern Iran, in general, and based on mastectomy and lumpectomy or no surgery. Patients had the best score in body image and future perspective and the worst in sexual enjoyment and sexual function. The symptom index's highest mean score was related to the side effects of treatment and the discomfort caused by hair loss, consistent with other studies (23-25). Studies have shown that cancer patients' different life quality areas are not static and change in various stages of the disease, after diagnosis, before and after treatment, and indifferent treatment methods that need special attention (26). Surgery to protect patients' breasts (lumpectomy) is performed in the early stages of cancer, improving body image, and improving life quality (6). In this study, patients who underwent lumpectomy or did not have any surgery had a better body image and fewer worries about the future than patients who underwent a mastectomy. Previous studies reported that patients who underwent lumpectomy had a better body image than those who experienced a mastectomy (27)(28).

On the other hand, in this study, lumpectomy patients showed better sexual performance and enjoyment than other patients. A survey in Taiwan showed that the type of surgery affected only functional scores of BR23-FS and that patients undergoing lumpectomy reported better BR23-FS scores than patients undergoing mastectomy (29). A German study also found that patients with conservative breast treatment (BCT) had a better quality of life on most BR-23 scales (30). Cancer patients use various strategies to deal with the health and psychosocial issues associated with a cancer diagnosis. Evidence showed that most Iranian women use active methods to deal with breast cancer, such as acceptance, religious coping, and planning (31), positively affecting these patients' psychological health and health behaviors, leading women more adaptable to their disease (32). In this study, patients mostly used positive coping strategies such as coping with the disease, avoiding negative thoughts about the condition, and a high illness adjustment rate. Also, lumpectomy patients tried harder to cope with their illness than mastectomy patients and eventually became more adjustable to their illness. A previous study showed no significant difference in the total score of coping skills between the two groups of lumpectomy and mastectomy and the patients in the mastectomy group used the significantly more denial (33). Patients in this study had high social support, which received the most support from family members, consistent with other studies' (34, 35). A previous study showed that cancer survivors receive high social support and family members are the most crucial support source (18). In this study, patients received less support from friends, while other studies reported family and friends as the main sources of support for breast cancer survivors (35, 36). In the current study, women in the lumpectomy group received more social support than women in the mastectomy and non-surgical groups, but this difference was not statistically significant. Received social support may play an essential role in the type of response to surgery. A previous study showed that women who decided to reconstruct after mastectomy, social support from family, and other important people could play a role in satisfaction with body image after breast surgery (37).

## Conclusions

Early detection of the disease, support for patients, and educational programs to use appropriate coping strategies can improve breast cancer women's quality of life and disease adaptation. Providing emotional and social support from patients' family members and treatment team, informing and educating patients to use positive coping strategies can reduce some of the psychological stress resulting from breast cancer diagnosis and treatment.

## Declarations

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### Authors' contributions

HOA, SK, and AAM participated in designing the study.

SK and FSS participated in data collection.

MM and SK participated in data analysis.

HOA and SK participated in preparing the manuscript.

All authors have read and approved the final version of the manuscript.

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### Availability of data and materials

The datasets used are available on reasonable request.

### Ethics approval and consent to participate

The Ethics Committee of Zahedan University of Medical Sciences approved this study (IR.ZAUMS.REC.1399.010). The aim of the study was given to patients, and written informed consent was obtained from all participants.

### Consent for publication

Not applicable.

### Competing interests

The authors declare that there is no conflict of interest.

## Abbreviations

QOL= quality of life

AIMI- IBC= The adjustment to illness measurement inventory for Iranian women with breast cancer

MSPSS= Multidimensional Scale of Perceived Social Support

BCT= conservative breast treatment

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