Psychosocial impact of mastectomy and quality of life in women treated at the Oncology Department of Maputo Central Hospital (Mozambique)

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Abstract

Breast cancer is the most common cancer in women worldwide, with 2.31 million new cases in 2022. The study provides significant insights into the physical, emotional, social and economic challenges these women face in the Mozambican context. The objective of this study is to assess the psychosocial impact and quality of life after mastectomy in women aged between 25 and 65, treated on an outpatient basis at the Oncology Department of Maputo Central Hospital. The study employed an exploratory, descriptive, cross-sectional, and retrospective design, utilizing both qualitative and quantitative approaches. Sampling was non-probabilistic, for convenience. The patients perceived a moderate overall quality of life. The results were obtained using the QLQ-C30 and QLQ-BR23 instruments. The QLQ-C30 instrument ranged from 16.7 to 83.3, with a mean of 52.8 (SD = 14.8), significantly lower ($p < 0.05$) than that considered desirable by European Organization for Research and Treatment of Cancer (M = 61.8; SD = 24.6) and with regard to the QLQ-BR23 instrument, the results of the study showed that “Sexual pleasure” (28.8 ± 34.3), “Future prospects” (17.5 ± 28.0) and “Sexual function” (15.2 ± 21.2) were the functional scales most affected. Patients had a moderate prevalence of depressive symptoms (46.6%). They had high levels of social support (57.1 ± 8.9) and used two coping styles (fighting spirit and anxious worry), being neither fully adapted nor fully maladapted. To improve women's quality of life, special attention should be paid to the domains of women's physical and sexual functioning.

Keywords: Breast cancer. Psychosocial impact. Mastectomy. Quality of life

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INTRODUCTION

Breast cancer is a huge challenge for women, with a very significant impact, interfering with self-esteem, relationships, and quality of life. Women feel threatened

by its magnitude and its psychosocial representations, which are altered due to the expectation of death, fear, rejection, anxiety, anguish, suffering, and recurrence of the disease (Lorenz, Lohmann, & Pissaia 2019).

In 2020, breast cancer was the most diagnosed type of cancer in the world, with more than 2.26 million new cases of breast cancer. In 2022, it had an estimated increase to more than 2.31 million new cases (WHO, 2022).

In Africa, breast cancer is the biggest cause of cancer death, responsible for one in four cancers diagnosed, causing one in five deaths in African women (Vanderpuye et al., 2017).

In Mozambique, it is estimated that there have been 2.048 (12.5%) new cases of cancer and a mortality rate of 1.207 (10.4%) (WHO, 2022).

Breast cancer treatments, regardless of the therapeutic approach chosen, can have an impact on women's health in terms of functionality, quality of life, and psychosocial aspects, and can influence self-image, confidence, and how each woman perceives her health (Cardoso, Baumgratz, & Vaz 2021).

Mozambique has gaps in scientific knowledge about how the impact of Mastectomy manifests itself in the socio-cultural context. Therefore, studying this topic will broaden the knowledge base, bringing a perspective that has been little explored in the scientific literature, contributing to the development of more effective interventions and rehabilitation programs, as well as to the formulation of public health policies that consider physical, emotional, and social needs.

The general objective of this study is to assess the psychosocial impact and quality of life after mastectomy in women aged between 25 and 65, treated on an outpatient basis at the Oncology Department of Maputo Central Hospital. The specific objectives are to Identify the depressive symptoms experienced by women undergoing surgical treatment for breast cancer; Describe the quality of life of women undergoing surgical treatment for breast cancer; and Determine the perceived social support, mental adaptation, and health beliefs used by women undergoing surgical treatment for breast cancer; To determine the relationship between sociodemographic and clinical factors, social support, mental adjustment and health beliefs with the quality of life of women undergoing breast cancer surgery; and finally to propose preventive measures at community level to mitigate the effects of depressive syndromes in mastectomized women.

Psychosocial aspects in women undergoing surgical treatment for breast cancer

Surgery causes profound psychological impacts and when it is associated with chemotherapy, this impact increases due to side effects, such as changes to the body characterized by vulvovaginal atrophy, dyspareunia, vaginal irritation, dryness, inhibition of desire or arousal, premature menopause, nausea, and vomiting. The negative responses are reflected by fear, depression, anguish, sadness, and body image disturbance, thus compromising physical, emotional, and social function (Lorenz, Lohmann, & Pissaia 2019).

Social support is a psychosocial factor that has a strong impact on women's

adjustment to the oncological disease, cooperating in reducing the aggressive conditions of breast cancer, facilitating psychological adjustment, and preserving quality of life (Cardoso, Baumgratz, & Vaz 2021). And the coping strategies used by women consist of a social support network integrated by faith, to cope with the disease in a less painful way (Oliveira, 2017).

RESEARCH METHODOLOGIES

This is an exploratory, descriptive, cross-sectional, retrospective study with a mixed qualitative and quantitative approach. Data was collected using questionnaires and interviews. The study was carried out at the Oncology Service, located at Maputo Central Hospital, from October 2023 to November 2024. The study population was made up of women who had undergone breast surgery within the 5-year survival period, aged 25-65 years.

Sampling

Sampling was non-probabilistic by convenience. Recruitment took place by identifying women who regularly attended the Maputo Central Hospital oncology service and who met the study's inclusion criteria.

$$X = \frac{1{,}96^2 . 0{,}5(1-0{,}5)}{(0{,}05)^2} = 384{,}16$$

$$n = \frac{N.X}{X+N-1} \text{ x} \frac{z^2.p(1-p)x^2}{c^2} \quad n = \frac{140.384{,}16}{384{,}16+140-1} = 102{,}80 \approx 103$$

The universe of the sample population was finite, corresponding to 140 women. The degree of confidence used was 95% and the degree of error was 5%. according to the formula above (Krejcie & Morgan 1970) Our sample was calculated to be 103 women.

In the qualitative component, participants were selected on the basis of convenience, taking into account accessibility, availability, and adherence to the study's inclusion criteria. The interviews were conducted until saturation was reached.

Bioethical aspects

The project was submitted to the Institutional Bioethics Committee for Health of the Faculty of Medicine for approval (CIBS FM& HCM-02/2024) and the participants signed the informed consent.

Measuring the results

The results were measured using non-parametric tests, supported by SPSS version 21 statistical packages, to analyze the quantitative data. The qualitative data was analyzed using Bardin's content analysis method.

Study procedures

Quality of life was assessed by applying the European Organization for the

Research and Treatment of Cancer (EORTC QLQ-C30) and its breast cancer-specific module (EORTC QLQ-BR23) questionnaires, the Beck Depression Inventory (BDI-II), the Social Support Satisfaction Scale (ESSS), the Mental Adaptation to Cancer Scale - reduced (Mini-MAC), the Health Beliefs Scale and, finally, an interview script.

QUANTITATIVE DATA PRESENTATION, ANALYSIS, AND PROCESSING

Descriptive frequencies were used to describe the patients' sociodemographic and clinical characteristics. Pearson's correlation was applied to assess the association between the variables. Student's one-sample t-test was used to compare quality of life with the EORTC reference values.

Results

Sociodemographic characteristics

The sample was (n = 103). With regard to age, most of the patients were between 56 and 65 years old. The average age of the sample was 49.1 years and the standard deviation (SD) was 10.1.

Clinical characteristics

Among the 103 patients, (90.3%, n=93) were undergoing their first diagnosis. The majority (30.1%, n=31) had undergone mastectomy surgery one year previously. The majority had undergone a modified radical mastectomy (76.7%, n=79). Among the patients (38.8%, n=40) had hypertension, (11.7%, n=12) had hypertension and HIV, (10.7%, n=11) had HIV, (3.9%, n=4) had both hypertension and diabetes and (2.9%, n=7.8) had diabetes and HIV. Some (62.1%, n=64) patients underwent chemotherapy, while (37.9%, n=39) underwent a mixture of chemotherapy and radiotherapy. With regard to the stage of the disease, the majority of patients (34.0%, n=35) had Stage IIA.

Beck Depression Inventory

Based on the overall BDI scores, (53.4%, n=55) of patients reported no or minimal depressive symptoms, (21.4%, n=22) reported mild depressive symptoms, (17.5%, n=18) reported moderate depressive symptoms and (7.8%, n=8) reported severe depressive symptoms (Table 1).

Table 1 Distribution of participants according to their scores on the Beck Depression Inventory

Variables	Groups	Classification	Frequency	Percentage (%)
The total score on the Beck BDI-II Inventory	Minimal depressive symptomatology	0 a 13	55	53,4
	Mild depressive symptoms	14 a 19	22	**21,4**
	Moderate depressive symptoms	20 a 28	18	**17,5**
	Severe depressive symptoms	29 a 66	8	**7,8**
	Total		**103**	**100,00**

Social Support Satisfaction Scale (ESSS)

We calculated the range, mean, and standard deviation in the different domains proposed and in the overall scale, as shown in Table 2.

The average obtained for the total scale shows a tendency towards high social support (70.5%, Mean = 52,9; SD = 13,5), with participants perceiving themselves as being highly supported by their social environment. The four subscales also tend to have high averages (Patients consider that family support gives them the most satisfaction (Mean = 12.8; SD = 3.4). They feel reasonably satisfied with the support they receive from friends (Mean = 18.1; SD = 6.9) and with intimacy (Mean = 12.8; SD = 3.4), while on the other hand they are not very satisfied with social activities (Mean = 14.5; SD = 3.3).

Table 2 Data on social support (ESSS) of women with breast cancer

Dimensions and Global Scale	N.º of Items	Amplitude	This study		Ribeiro (1999)		P
			Average	SD	Average	SD	
Satisfaction with friends (SF)	5	5 – 25	18,1	6,9	19,8	4,0	0,012
Intimacy (IN)	4	4 – 20	14,5	3,3	15,4	3,4	0,007
Satisfaction with the family (SF)	3	3 – 15	12,8	3,4	13,0	2,5	0,523
Social activities	3	3 – 15	7,5	3,6	9,0	3,0	<0,001
Global Scale (ESSS)	**15**	**20 – 75**	**52,9**	**13,5**	**57,1**	**8,9**	**0,002**

Mental Adaptation to Cancer Scale (Mini-MAC)

The most frequently used mental states for adapting to the disease were Fighting spirit, Cognitive avoidance, and Anxious worry. Although the participants demonstrated the use of active coping strategies Fighting spirit (Mean = 19,1, SD = 2,1), and Cognitive avoidance (Mean = 13,3, SD = 5,7), they also demonstrated the use of passive coping strategies Anxious worry (Mean = 15,9, SD = 5,3), and Fatalism (M = 12,4, DP = 2,6) (table 3).

Table 3 Data on coping strategies for women with breast cancer

Dimensions EDF	**N.º of Items**	**Amplitude**	**Average**	**SD**
Discouragement/weakness (DW)	7	7 – 28	11,6	5,3
Anxious concern (AC)	**6**	**5 – 24**	**15,9**	**5,3**
Spirit of struggle (EL)	**5**	**5 – 20**	**19,1**	**2,1**
Cognitive avoidance (CA)	**5**	**5 – 20**	**13,3**	**5,7**
Fatalism (FA)	5	5 – 20	12,4	2,6

Health Belief Scale (HBS)

The range, mean, and standard deviation were calculated for the different domains of the Health Belief Scale (HBS), as shown in Table 4.

The subscale with the highest mean is Perceived benefits (92.6 %, Mean=13.9, SD=1.6) and the subscale with the lowest mean is Perceived severity (59.5%, Mean=23.8, SD=7.6). This shows that the patients under study have a high belief that if they act in accordance with the treatments they can reduce the risks, susceptibility, and consequences of the disease, but they have a moderate belief in the severity of the consequences of the disease.

Table 4 Data on the health beliefs scale in breast cancer patients

Dimensions ECS	**N.º of Items**	**Amplitude**	**Average**	**SD**
Perceived susceptibility (PS)	3,0	3 – 15	9,4	3,4
Perceived Gravity (PG)	**8,0**	**8 – 40**	**23,8**	**7,6**
Perceived benefits (BEP)	**3,0**	**3 – 15**	**13,9**	**1,6**
Perceived barriers (BAP)	3,0	3 – 15	10,9	2,2
Motivation for health (MS)	6,0	6 – 30	19,5	3,8

Quality of life in breast cancer patients

The scores obtained for 'Social function' (Mean = 88.2; SD = 21.8), 'Occupational function' (Mean = 77.2; SD = 32.5) and 'Emotional function' (M = 73.1; SD = 29.1) were higher than the reference values provided by the EORTC ($p < 0.001$, $p = 0.052$ $p = 0.117$, respectively). In contrast, the scores obtained for 'Physical function' (Mean = 73.5; SD = 18.5) and 'Cognitive function' (Mean = 80.4; SD = 23.5) were slightly lower than the reference values provided by the EORTC ($p = 0.008$ and $p = 0.642$, respectively).

The scores for 'Body image' (Mean = 73.7; SD = 29.0) are higher than the scores for 'Sexual pleasure' (Mean = 28.8; SD = 34.3), 'Sexual function' (Mean = 15.2; SD = 21.2) and 'Future prospects' (Mean = 17.5; SD = 28.0). In general, when considering the overall results of the QLQ-C30 and QLQ-BR23 instruments, it can be said that the overall quality of life of the breast cancer patients in the sample is moderate (table 5).

Table 5 Quality of life data for women with breast cancer (QLQ-C 30; QLQ-BR23)

Variables	**This study (N = 103)**		**EORTC (N = 535)**		**P***
	Average	**SD**	**Average**	**SD**	
Global quality of life (QLQ-C30)	**52,8**	**14,8**	**61,8**	**24,6**	**<0,001**
Functional state					
Physical function	**73,5**	18,5	78,4	21,3	0,008
Occupational function	**77,2**	32,5	70,9	29,9	0,052
Emotional function	**73,1**	29,1	68,6	23,8	0,117
Cognitive function	**80,4**	23,5	81,5	23,8	0,642
Social function	**88,2**	21,8	77	21,8	<0,001
Symptoms and simple items					
Fatigue	16,6	23,8	33,3	26,2	0,002
Nausea and vomiting	7,4	22,7	7,7	17,3	0,006
Pain	28,2	28,8	28,7	28,7	0,158
Dyspnea	5,2	14,6	18,1	26,8	0,214
Insomnia	19,7	30,8	29,8	31,6	0,411
Loss of appetite	12,0	27,2	18,5	28,9	0,446
Constipation	9,1	21,5	17,4	27,2	0,927
Diarrhea	7,8	22,5	5,9	15,4	0,001
Financial difficulties	**50,2**	40,9	18,3	27,8	<0,001

Functional state *					
Body image	73,7	29,0	82,7	22,9	0,002
Future perspectives	**17,5**	28,0	53,1	27,1	<0,001
Sexual function	**15,2**	21,2	19,5	22,8	0,042
Sexual pleasure	**28,8**	34,3	47,3	33,7	<0,001
Symptoms and simple items **					
Systemic side effects of therapy	13,3	14,3	15,5	13,5	0,115
Inconvenienced by hair loss	19,4	30,8	5,00	18,2	<0,001
Symptoms in the arm	17,2	23,5	18,7	20,5	0,505
Symptoms in the breast	7,0	15,9	16,2	16,8	<0,001

* Higher scores on these scales indicate better quality of life; ** Higher scores indicate worse quality of life.

Predictors of Quality of Life

The level of education is the only predictor of quality of life in breast cancer patients, the odds of patients with completed primary and secondary education having a higher global quality of life score (ORadj = 0.362; 95%IC = 0.199-0.657) and (ORadj = 0.557; 95%IC = 0.309-1.003) times lower compared to patients who have completed higher education, respectively.

The time since mastectomy and the presence of chronic diseases are predictors of quality of life. Patients who underwent surgery less than 6 months ago were 1.355 times more likely (95%IC = 0.557-3.303) to have a higher quality of life score compared to patients who underwent surgery 5 years ago. Patients with hypertension alone were less likely to have a better quality of life than those with hypertension and HIV simultaneously (ORadj = 0.369; 95%IC= 0.178-0.762).

Social support and depressive symptomatology can predict the quality of life. Higher depressive symptomatology predicts lower quality of life scores ($\beta = -0.087$; $p < 0.001$, 95%IC=0.877-0.959). Patients with a higher perception of having social support were 1.041 times more likely to have high quality of life scores than those with a lower perception of social support (ORadj = 1.041; 95%IC = 1.013-1.069).

The mental adaptation strategies to cancer “Anxious Worry” ($\beta = -0.086$; $p = 0.041$) and “Cognitive Avoidance” ($\beta = -0.078$; $p = 0.021$) and “Perceived Severity” ($\beta = -0.059$; $p = 0.007$) predict lower overall quality of life scores. The higher the “Perceived benefits” subscale, the higher the patients' overall quality of life scores (ORadj = 1.083; 95%CI = 0.839-1.398).

PRESENTATION, ANALYSIS, AND PROCESSING OF QUALITATIVE DATA

Bardin's content analysis was used to process the qualitative data. The data was processed in the following stages: pre-analysis (Reading and selection of material), exploration of the material (Coding and categorizing content), treatment of the results

(organization and systematization of data into themes), inference (analysis to identify meanings and patterns), and finally interpretation. The sample consisted of 13 women, with an average age of 49.15 years.

The content was coded manually and the following final categories were generated: resilience and sustainability. Each category was represented by the participants' statements.

"P5.M": "comply with medical advice, follow what they tell you to do in full. Many people think it's the end, but it's not. Accept it and accept it. I won, but I had chemotherapy and radiotherapy and I'm here".

"P10.AV": "I pray, I go to church, I have faith and I do treatment".

DISCUSSION

In this study, most of the patients had stage II breast cancer. And most of them had undergone a modified radical mastectomy. Similar results were obtained in the study by (Qiu, 2022; Marques, 2019).

Depression among breast cancer patients obtained in this study is within the range reported in sub-Saharan African countries of 45.6% (30 a 61%) (Mohammed et al., 2019).

Patients generally manifest high levels of perceived social support. These propensities have been recognised in previous studies and attributed to social desirability (Santos, 2023; Silva, 2015).

Regarding Mental Adaptation Strategies, the results indicate that although participants employed active coping strategies, such as Fighting Spirit and Cognitive Avoidance, they also utilized passive coping strategies, including Anxious Worry and Fatalism. It can therefore be seen that in the case of the sample under study, the patients use both coping styles, i.e., they are neither totally adapted nor maladapted. Identical results have been found in other studies (Mendes, 2015; Patoo, 2018; Tsai, 2021).

The scores obtained on the subscales of the Health Beliefs Model indicated that the subscale where the patients had the highest average was the Perceived benefits about breast cancer subscale. The subscale with the lowest average was the Perceived severity subscale, which is in line with the data from the study (Kissal et al., 2018).

he overall quality of life obtained in the EORTC QLQ-C30 questionnaire score (52.8 ± 14.8) is lower than the reference values (61.8 ± 24.6) recommended by the EORTC (17), which could be explained by the fact that the majority had undergone chemotherapy, which is aggressive and causes multiple side effects.

About the quality of life values in the functioning scales of the EORTC QLQ C30 questionnaire, the results of the study showed that ‘Social function’, ‘Occupational function’ and ‘Emotional function’ had significantly higher values than the reference values, which according to the EORTC reference values manual, can be considered very good (Scott, 2008). However, ‘Physical function’ and ‘Cognitive function’ scored lower than the reference values. Similar results have been reported in other studies (Eberhardt, 2014; Ośmiałowska et al., 2022).

‘Emotional function’ was the scale with the lowest scores of all the functional scales. This was also observed in studies by (Rashid at al., 2023; Eberhardt, 2014). ‘Social function’, on the other hand, was the functional scale with the highest average score, which may reflect the high social support received by the patients.

About the symptom scales of the QLQ-C30, it was observed that all the symptoms analyzed scored below the values recommended by the EORTC, except the single item ‘Financial difficulties’. Contrary to what was observed in this study, financial difficulty was the least disturbing item among breast cancer patients from Saudi Arabia (Imran et al, 2019), Sweden (Høyer et al., 2011), and Brazil (Lôbo et al., 2014. The difference can be explained by the difference in the economic status of the countries, as the Mozambican population is classified as one of the poorest in the world, with a GDP per capita of 608.4 US dollars (USD). So, in addition to the usual household expenses, medical expenses could have added to the financial difficulties.

About the QLQ-BR23 instrument, the results of the study showed that ‘Sexual pleasure’, ‘Prospects’, and ‘Sexual function’ were the functional scales most affected. This result is in line with studies carried out in Portugal (Eberhardt, 2014), Iraq (Rashid et al., 2021, and Saudi Arabia (Høyer, 2011).

In general, when considering the overall results of the QLQ-C30 and QLQ-BR23 instruments, it can be said that the overall quality of life of the breast cancer patients in the sample is moderate. Women's sexuality, prospects, and financial difficulties need to be monitored by medical staff.

The level of education and religion were the strongest predictors of quality of life. In general, these results allow us to infer that the variables related to the woman's sociodemographic context make a modest contribution to understanding the quality of life of women with breast cancer, which is consistent with the results found in previous studies (Finck et al., 2017; Silva et al., 2011).

Only time since mastectomy (2 and 3 years) and the presence of comorbidities (hypertension and HIV) were significant predictors of quality of life. The data show that the likelihood of having a high score on the global quality of life scale in patients who underwent mastectomy 2 years ago is 1.5 times lower than in patients who underwent it 3 years ago.

Social support and depressive symptoms predict quality of life. Higher depressive symptomatology predicts lower quality of life. Higher social support scale and the respective subscales, the better quality of life is predicted, although the global ESSS is significant (Aberaraw et al., 2020; Kroenke et al., 2012; Woldeamanuel et al., 2013).

Both mental adaptation to illness and illness beliefs are significant predictors of quality of life. The both high scores on the anxious worry dimension and perceived severity lead to worse levels of quality of life. In the study by (Eberhardt, 2014), passive coping strategies such as anxious worry, discouragement-weakness, and fatalism were significantly associated with quality of life and its functions and symptoms.

The content analysis reinforces that adherence to medical treatment is crucial for coping with breast cancer; the practice of spiritual faith and religiosity helps to achieve a balance, bringing hope, tranquility, and peace, and enabling women to cope positively with the disease. Social support, especially family support, as well as socialization and the quest to maintain autonomy, are elements that are present in women's lives and are considered fundamental, so these strategies reflect the importance of a multidimensional approach to better coping with cancer, promoting an improvement in quality of life.

CONCLUSIONS

In general, the patients perceived a moderate overall quality of life, high functioning scales, and low symptoms.

The majority of patients in the study generally had a moderate prevalence of depressive symptoms (46.6%). They showed high levels of social support (57.1 ± 8.9). The patients use two coping styles (fighting spirit and anxious worry), i.e. they are neither totally adapted nor maladapted. It was found that the patients have a high level of belief that if they act by the recommendations and treatments, they can reduce the risks, susceptibility, and consequences of the disease.

The results of the study show a relationship between some characteristics of the disease and the socio-demographic and clinical characteristics of quality of life and its functional scales, symptoms, and simple items, thus acting as predictive factors of quality of life. Level of education, time since mastectomy, chronic illnesses, social support, presence of depression, dimensions of mental adaptation (anxious preoccupation and cognitive avoidance) and the perceived severity subscale were predictive of quality of life.

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