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Psychosocial wellbeing of patients with breast cancer following surgical treatment in Northern Nigeria

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Abstract

Background Breast cancer is the most commonly diagnosed cancer and a leading cause of cancer-related deaths among women globally. The cases of breast cancer have continued to rise in Nigeria and surgery remains one of the commonest treatment modalities. However, little is known about the psychosocial wellbeing of patients with breast cancer following surgery in Sub-Saharan Africa. The study investigates the psychosocial well-being and its determinants among patients with breast cancer post-surgery.

Methods This cross-sectional study was conducted among 72 patients with breast cancer post-surgery in Northern Nigeria. A clinico-demographic questionnaire, the World Health Organization Quality of Life Brief (WHOQOL-BREF), and the 12-item General Health Questionnaire (GHQ-12) were administered to all participants to gather information on their background and psychosocial wellbeing.

Results The participants' mean (\pm SD) age was 45.94 (\pm 9.05) years. The prevalence of psychological distress was 36.1% based on GHQ-12. A three-factor analysis of the GHQ-12 showed participants' mean (\pm SD) scores for anxiety/ depression, social dysfunction, and loss of confidence were 9.25 (\pm 3.93), 14.17 (\pm 5.62) and 4.59 (\pm 1.97) respectively. About 15% (n = 11) of the participants reported their QoL as poor with mean total score of 50.91 (\pm 12.62), and social relationship 9.81 (\pm 5.09) was mostly affected across the four domains of WHOQOL-BREF. A lack of psychological counseling pre-surgery, unemployment, low level of education, post-surgical complications, and presence of psychological distress were associated with poor QoL. However, a lack of psychological counseling, post-surgical complications, and psychological distress were key predictors of poor QoL after controlling for cofounders.

Conclusion Evidence informed holistic care is indicated among individuals with surgical treatment for breast cancer. There is a need for resources, capacity development and training of healthcare professionals involved in the management of breast cancer to deliver holistic care to enhance their psychosocial wellbeing. Future prospective studies are needed to inform evidence-based psychosocial interventions.

Keywords Breast cancer, Mastectomy, Psychological distress, Quality of life, Surgery

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Introduction

Globally, breast cancer remains the most commonlydiagnosed cancer and leading cause of cancer-related deaths in women [1, 2]. In Nigeria, the breast cancer burden is increasing, with Nigerian women facing one of the highest age-standardized breast cancer mortality rates in the world [3]. Surgery, such as mastectomy or breastconservative surgery, is the standard recommendation for women with early and advanced breast cancer [4, 5]. Despite having documented benefits, many women delay or avoid surgical treatment due to socio-cultural issues, personal factors and fear of mastectomy and other surgeries [6]. Several psychosocial, context-specific and individuals factors influence this decision, including access to treatment, cost, changes to body image and sexual life, relationships with partners, ability to cope, and social support systems among others [7, 8]. As demonstrated by Odigie et al. [9], mastectomy has a significant effect on patients' physical, emotional, and social lives. This effect is reflected by the nearly two-thirds of patients with cancer who suffer from psychological distress related to surgery, characterized by anxiety and depression (sadness, loss of interest, hopelessness) [10, 11]. In sub-Saharan Africa, meta-analyses suggest that 45.6% of patients with breast cancer experience symptoms of depression [12] and have serious ramifications on treatment uptake, outcome and wellbeing [6, 7, 8, 9, 10, 11, 12].

The prevalence of mental health concerns amongst patients with breast cancer is compounded by detrimental changes to their quality of life (QoL) [13], herein defined as an individuals' perception of their position in life in the context of the culture and value systems in which they live, as well as to their goals, expectations, standards, and concerns [14]. Psychological distress is known to be inversely correlated with QoL for patients with cancer [13]; however, studies examining the impacts of various types of surgical treatment for breast cancer on outcomes and QoL among patients in Nigeria have been inconsistent and relatively scanty in northern regions of the country [15, 16]. Moreover, some studies suggest that the emotional effects of cancers and mastectomy are often neglected, with physical treatment and recovery being the focus of care [17, 18, 19, 20]. Notwithstanding, culturally sensitive therapy is recommended to help patients and their relatives cope with the life changes imposed by cancer treatment [9]. This is especially important in Nigeria, where nearly 50% of patients with breast cancer undergo surgery [21]. To improve postoperative outcomes for these patients, it is imperative that healthcare workers adopt an evidence-based therapeutic approach to address challenges to psychosocial wellbeing and quality of life. However, literature on the emotional burden of breast cancer among patients in Nigeria post-surgery remains scanty, especially in resourcerestricted and under-served regions in Northern Nigeria.

In light of the above, the present study aims to investigate the psychosocial wellbeing, as indexed by psychological distress and quality of life, of patients with breast cancer post-surgery in Northern Nigeria. It is expected that the results of the present study would help to address current research gaps, promote better integration of psychosocial services into oncology care and enhance evidence-informed holistic cancer care in Northern Nigeria. It is hypothesized that individuals with breast cancer who had surgery would experience a varied degree of impairment in psychosocial wellbeing and that their wellbeing would be associated with multiple clinico-demographic factors. The specific study objectives are to: (1) determine the prevalence of psychological distress, (2) describe the pattern and determinants of QoL, (3) investigate the relationships between psychological distress and QoL among women with breast cancer post-surgery, and (4) make appropriate recommendations to support evidence informed holistic care.

Materials and methods

Study design and location

This is a cross-sectional descriptive study completed at two tertiary hospitals located in the North-Western part of Nigeria. The two tertiary hospitals are Federal Medical Centre Birnin-Kebbi, and Usmanu Danfodiyo University Teaching Hospital, Sokoto. These health institutions are government-owned public hospitals that offer surgeries and other forms of cancer treatments, including chemotherapy, radiotherapy and targeted therapy to patients. Annually, a total number of about 2000 patients with cancers are seen at these hospitals and are mainly made up of patients with breast cancers. Cancer care at the hospitals is delivered by three clinical oncologists, residents (n = 6), radiotherapists (n = 2), radiotherapy technicians (n = 3), physicist (n = 1), nurses (n = 9), rehabilitation therapists (n=3), psychologist (n=1) and counsellors (n = 4). Payment for treatment is out of pocket as health insurance is not well developed. Hospitals in the region are catchment areas or referral centers for care for several northern states and neighboring countries of Niger and Benin Republic.

Study participants and data collection

All eligible patients with breast cancer post-surgery (mastectomy and breast conservative surgeries) who provided informed consent were consecutively recruited from follow up clinics of the hospitals over a 30-month study period. Eligible patients were females who had breast surgeries following a histological diagnosis of breast cancer with two months or longer since their surgery. We included adults aged 18 years or older with proficiency in English Language, who were clinically stable enough to engage in interview. We excluded those with other forms of surgery, and those who declined consent to participate. A total of 86 patients were approached for recruitment, however, only 72 patients consented to participate in the study (approximately 84% consent rate) and were recruited. Common reasons for declining to participate in the study include traveling long distance from hospital, multiple clinical appointments for same day, caregiver's conflicts, and a lack of perceived benefits of the research to current cancer care. The interview was conducted during follow up clinics by trained research assistants, made up of senior resident doctors with an average time burden of 30 min for the interview. All consented patients completed the assessments with support provided by the research assistants as needed.

Instruments

Clinico-demographic questionnaire

A study questionnaire was used for all participants to collect information on socio-demographic, clinical and illness-related variables, including age, marital status, family setting, number of children, level of education, employment status, religion, ethnicity, comorbidity, types of surgery, number of surgeries, counselling, length of time since surgery, and complications after surgery.

World health organization quality of life-BREF (WHOQOL-BREF)

The WHOQOL-BREF was developed in 1998 by the World Health Organization [22]. It assesses QoL and reflects how individuals perceive their current status in the context of their culture, value systems, personal goals, standards, and concerns. It is a multidimensional abbreviated (26-item) version of the 100-item WHOQOL-100 scale. It has four broad domains in addition to total score, including physical health, psychological health, social relationships and environmental health. Each domain is calculated using different items. For example, the physical health domain consists of questions related to pain, energy, sleep, mobility, activities, medication and work. The psychological health domain relates to positive feelings, thinking, esteem, negative feelings, and spirituality. The social domain addresses relationship, support, and sex. Finally, the environmental health domain talks about safety, home, finance, services, information, leisure, environment, and transport. Items 3, 4 and 26 are negatively framed, and all other items are positively framed with a range of 1-5. The first item asked about the overall quality of life while the second item asked about general health. After data collection, negatively framed questions were reversed into positive questions. The mean score in each domain was calculated as the raw scores. The raw scores were converted and transformed according to the procedure manual [22], with higher scores indicating better quality of life [22, 23]. The WHOQOL-BREF is a validated and widely used tool in Nigeria [24, 25, 26, 27, 28].

12-item general health questionnaire (GHQ-12)

The General Health Questionnaire (GHQ) is a tool initially developed by Goldberg and used to measure the current psychological distress of an individual [29]. The 12-item scale is reliable, validated, and widely used in Nigeria [30, 31, 32, 33, 34, 35]. Each item is rated on a four-point scoring scheme (0-0-1-1) to produce total scores that can range from 0 to 12. A higher score indicates greater severity of psychological distress. A cut-off score of two or is more indicative of the presence of psychological distress. GHQ-12 score can also be subjected to a three-factor analysis to yield scores for three domains including anxiety and depression, social dysfunction and loss of confidence [36, 37].

Statistical analyses

Data analyses was conducted with SPSS Version 22.0. Descriptive statistics, including frequencies, percentages, mean and standard deviation (for normally distributed continuous variables) and median with interquartile range (for skewed variable) were used to describe variables. Independent sample T-test was performed to compare the mean scores for QoL and psychological distress (GHQ-12) between groups for dichotomized sociodemographic variables. Pearson's correlation was used to test the relationship between QoL scores and other normally distributed continuous variables including the number of surgeries and multiple aspects of psychological distress (including GHQ-12 total and three- factor analysis sores). Spearman correlation was conducted to test the relationship between QoL and the length of time since surgery. Lastly, multiple regression analysis was conducted to test the relationship between independent variables (including multiple clinico-demographic factors and psychological distress) and QoL (dependent variable) to identify factors that are independently associated or predictive of psychosocial well-being indexed by the QoL measure, after controlling for cofounding factors. A significant p-value was set at 0.05 with a 95% confidence interval (CI).

Results

Socio-demographics and clinical characteristics of the participants

Table 1 presents the sociodemographic and clinical attributes of the 72 participants included in the study. Most of the participants were in their third to fourth decade of life and their mean age (SD) was 45.94 (SD = 9.05) years. Educational attainment was evenly distributed, with 51.4% having primary education or less, and 48.6%

 Table 1
 Socio-demographic characteristics of the study participants (n-72)

Variables	Frequency (n)	Percentage (%)
Age		
30 years or less	2	2.8
31–40 years	15	20.8
41-50 years	33	45.8
51 years and above	22	30.6
Education		
Primary or less	37	51.4
Secondary and post	35	48.6
Occupation		
Unemployed	54	75.0
Employed	18	25.0
Marital status		
Single	4	5.6
Married	42	58.3
Separated/divorced	3	4.2
Widowed	23	31.9
Religion		
Islam	58	80.6
Christianity	14	19.4
Ethnicity		
Hausa	48	66.7
Others	24	33.
Family setting		
Polygamous	38	52.8
Monogamous	34	47.2
Number of children		
1–4	41	56.9
More than 4	31	43.1
Living circumstances		
Living with husband	38	52.8
Living with parents/relatives	28	38.9
Living alone	6	8.3

having secondary or post-secondary education. Fifty-four (75%) participants reported that they were unemployed. Most were of the Islamic faith (80.8%) and married (58.3%), with 52.8% living in a polygamous family setting. Forty-one (56.9%) had 1–4 children, and most participants (52.8%) reported living with their husband.

The most common type of breast surgery among the subjects was mastectomy (n = 60, 83.3%), while the remaining 12 (16.7%) participants had lumpectomy. The median (interquartile range) of the length of time since surgery in weeks 13.50 (12.0–17.0) A larger proportion of participants (n = 67, 93.1%) had post-surgical complications (e.g., wound infection, delayed healing, flap necrosis, pain and abnormal fluid collection-seroma), while 5 (6.9%) did not. A substantial proportion of participants (n = 49,68.1%) did not receive psychological counseling before surgery. The clinical profile showed that 32 (44.4%) participants reported having chronic medical illness, but only 2 (2.8%) participants reported a previous diagnosis of mental illness (See Table 2).

Prevalence of psychological distress and three-factor analysis of GHQ-12

Among the study participants, 36.1% (n = 26) experienced psychological distress post mastectomy, and the mean of the GHQ-12 scores reported by participants was 3.25 (SD = 3.64). Following three factor analysis of GHQ-12, the mean (SD) scores of participants on the three dimensions of the GHQ-12 were anxiety and depression, 9.25 (SD = 3.93), social dysfunction, 14.17 (SD = 5.62), and loss of confidence, 4.59 (SD = 1.97).

n = number of subjects; % = percentage

Variables	Frequency (<i>n</i>)	Percentage (%)
Type of surgery		
Lumpectomy	12	16.7
Mastectomy	60	83.3
Surgical complications		
Yes	67	93.1
No	5	6.9
Presence of any chronic medical illness		
Yes	32	44.4
No	40	55.6
Previous diagnosis of mental illness		
Yes	2	2.8
No	70	97.2
Psychological counselling before surgery		
Yes	23	31.9
No	49	68.1

n = number of subjects; % = percentage

Pattern of QoL and distribution of scores across WHOQOL-BREF domains

Overall, 15.28% (n = 11) of the participants reported poor overall QoL. The mean scores (SD) of participants on the WHOQOL-BREF were as follows: total score, 77.43 (SD = 17.36), physical health, 21.69 (SD = 4.53), psychological health, 18.82 (SD = 5.31), social relationship, 9.81 (SD = 5.09) and environmental health, 27.11 (SD = 8.32).

Relationships of clinical-demographic variables with QoL and psychological distress

Tables 3 and 4 present the relationships between sociodemographics, QoL and distress. There was a statistically significant relationship between employment status and QoL such that employed individuals had significantly higher QoL (M = 88.28, SD = 7.92) than unemployed individuals (M = 73.80, SD = 18.17), t(70) = -3.26, p = .002.Those who received counselling before surgery reported significantly higher QoL (M = 89.04, SD = 9.30) than those who did not (M = 71.98, SD = 17.64), t(70) = 4.35, p = < 0.001. Patients with a level of education higher than secondary school experienced a higher QoL (M = 83.80, SD = 13.94) compared with those with primary school education or lower (M = 71.41, SD = 18.28), t(70) = -3.22, p=.002. Additionally, psychological distress was significantly associated with QoL, as those reporting distress had a lower QoL (M = 68.42, SD = 16.22) compared to those without (M = 85.52, SD = 15.99), t(70) = 3.57, p = .001.

Among socio-demographic variables, only occupation was statistically associated with psychological distress. Unemployed individuals reported lower GHQ-12 scores (M = 73.8, SD = 18.17) than employed individuals (M = 88.28, SD = 7.92), t(20) = -2.46, p =.023.

Correlations of QoL with number of surgeries, length of time since surgery, and psychological distress

As shown in Table 5, there was a significant negative correlation between overall QoL and psychological distress, (r = -.49, p = .020). All three dimensions of psychological distress were negatively correlated with QoL: anxiety and depression (r = -.52, p < .001), social dysfunction, (r = -.48, p < .001), and loss of confidence, (r = -.56, p < .001). Additionally, there was a negative correlation between the number of surgeries and QoL (r = -.27, p = .020), suggesting that an increase in the number of surgeries was associated with lower QoL. In the same vein, the length of time since surgery was positively correlated with better QoL (r = .23, p = .05).

Predictors of QoL among participants

The regression analysis tested the null hypothesis that there is no relationship between sociodemographic and psychological factors (independent variables) and QoL (dependent variable). However, the null hypothesis

								95% CI	
Variables	Mean (SD)	F	t	df	р	MD	SE	Lower	Upper
Age									
40 years or less	79.24 (18.48)	0.40	0.49	70	0.627	2.36	4.84	-7.30	12.02
41 years and above	76.87 (17.14)								
Type of surgery									
Lumpectomy	73.25 (19.38)	0.70	-0.91	70	0.364	-5.01	5.50	-15.98	5.94
Mastectomy	78.27 (16.98)								
Occupation									
Unemployed	73.80 (18.17)	15.21	-3.26	70	0.002	-14.46	4.43	-23.30	-5.62
Employed	88.28 (7.92)								
Complications*									
Yes	76.37 (17.54)	8.22	-1.93	70	0.05	-15.23	7.90	-30.00	0.53
No	91.60 (2.30)								
Counseling [#]									
Yes	89.04 (9.30)	13.45	4.35	70	< 0.001	17.06	4.01	9.25	24.19
No	71.98 (17.63)								
Education									
Primary or less	71.41 (18.28)	3.64	-3.22	70	0.002	-12.39	3.85	-20.07	-4.72
Secondary or more	83.80 (13.94)								
Psychological distress									
Yes	68.42 (16.22)								
No	82.52 (15.99)	0.54	3.57	70	0.001	14.10	3.94	6.23	21.99

Table 3 Relationship between clinico-demographic variables and QOL scores

Notes: 95% CI=95% confidence interval; df=degree of freedom; t=independent t- test; p-value=significant at p<.05; Mean=Mean score; SD=standard deviation; MD=Mean difference; SE=Standard error; Unemployed=Unemployed and petty trader; [#]Psychological counseling before surgery; *Surgical complications

Table 4	Relationship	between o	clinico-demo	ographic v	variable and	psycholoc	ical distress	GHQ-12 scores)
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								95% CI	
Variables	Mean (SD)	F	t	df	р	MD	SE	Lower	Upper
Age									
40 years or less	79.24 (18.48)	5.31	1.44	20	0.165	0.27	0.20	-0.13	0.69
41 years and above	76.87 (17.14)								
Type of surgery									
Lumpectomy	73.25 (19.38)	1.23	0.70	20	0.491	0.17	0.24	-0.03	0.65
Mastectomy	78.27 (16.98)								
Occupation									
Unemployed	73.8 (18.17)	5.31	-2.46	20	0.023	-0.482	0.20	-0.89	-0.07
Employed	88.28 (7.92)								
Complications*									
Yes	76.37 (17.54)	3.17	1.23	20	0.234	0.613		-0.53	2.03
No	91.60 (2.30)								
Counseling [#]									
Yes	89.04 (9.30)	0.50	0.43	20	0.673	0.11	0.25	-0.41	0.62
No	71.98 (17.63)								
Education									
Primary or less	71.41 (18.28)	8.11	-1.29	20	0.121	-0.33	0.26	-0.86	0.20
Secondary or more	83.80 (13.94)								

Notes: 95% CI=95% confidence interval; df=degree of freedom; t=independent t- test; p-value=significant at p <.05; Mean=Mean score; SD=Standard Deviation; MD=Mean Difference; SE=Standard Error; Unemployed = Unemployed and petty trader; [#]Psychological counselling before surgery; *Surgical complications

Table 5Correlation of QoL with number of surgeries, length oftime since surgery, psychological distress and multiple aspects ofGHQ-12

Variables	r	<i>p</i> =value
Number of breast surgeries	-0.27	0.020
Length of time since surgery [#]	0.23	0.050
Distress (total GHQ-12 score)	-0.49	<0.001
Anxiety and depression*	-0.52	<0.001
Social Dysfunction*	-0.48	<0.001
Loss of confidence*	-0.56	<0.001
n value is significant at $n < 05$; $r = 0$	Paarson correlation	oofficiant: *thro

p-value is significant at p<.05; $\textbf{\textit{r}}=\text{Pearson}$ correlation coefficient; *three domains

from-factor analysis of GHQ-12; # tested with spearman correlation

was rejected in this circumstance. As shown in Table 6, post-surgical complications (β = 3.61, *p* =.030), lack of counselling before surgery (β = -18.76, *p* =.031), and psychological distress (β = -0.51, *p* =.002) were significant predictors of QoL. This model explained 70% of the variance in QoL.

Discussion

The impacts of cancer on quality of life are well demonstrated, especially amongst young female patients. Of all the cancers impacting this population, breast cancer research has received the most attention; however, there is a need for studies examining the quality of life of patients who received surgical intervention, especially those in underserved regions. To address this gap in the

Table 6 Predictors of quality of life among particip	pants
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						95% CI	
Variables	В	SE	Beta	t	р	Lower	Upper
QoL (WHOQOL-BREF) [DV]							
Age	-0.21	0.23	-0.11	-0.09	0.358	-0.66	0.24
Marital status	1.88	2.07	0.11	0.91	0.366	-2.25	6.01
Type of surgery	-0.18	5.53	0.00	-0.03	0.975	-11.23	10.88
Length of time since surgery	0.11	0.10	0.13	1.11	0.272	-0.09	0.32
Surgical complications	3.61	1.62	0.27	2.22	0.030	0.37	6.85
*Counseling before surgery	-18.76	8.02	-0.35	-2.34	0.031	-35.60	-1.92
Psychological distress (GHQ-12)	-0.51	0.02	0.95	-3543	0.002	0.92	0.98
(Constant)	86.24	16.48		5.23	< 0.001	53.32	119.16

Notes: 95% CI = 95% confidence interval; B = unstandardized regression coefficient; Beta = standardized regression coefficient;

WHOQoL=WHO quality of life-Brief Scale; p-value=significant at p<.05; SE=standard error; T=Mean Square;

IV = independent variable; *Psychological counseling

literature, this cross-sectional study assessed the psychosocial wellbeing amongst post-surgical breast cancer patients in Northern Nigeria, an underserved region with limited resources for cancer management. Several important findings are highlighted in the study, offering insight into the well-being of women with breast cancer after surgical treatment.

Clinico-demographic attributes of the participants

Participant demographics, including a preponderance of female sex and mean age in the fourth decade of life, were largely consistent with existing literature [38, 39, 40]. Discrepancies, however, were observed in educational attainment and employment status compared to previous studies, with about half of participants having completed primary education or less. The unemployment rate was notably high, with three-quarters reporting unemployment. These findings contrast with those of Fatiregun et al., who documented higher employment rates and greater educational attainment among Nigerian cancer patients in South-Western Nigeria, suggesting potential regional disparities in educational resources and socioeconomic status [40].

The predominance of mastectomy as the surgical intervention aligns with clinical guidelines that prioritize this approach for managing breast cancer [21]. Our study recorded a post-surgical complication in about nine out of ten participants. In contrast, Ogundiran et al. reported a low post-mastectomy complication rate of 14.5% in a study conducted in Ibadan, Nigeria [41]. This substantial disparity, in Nigeria and elsewhere, may be attributed to variations in follow-up periods, access to services and the scope of complications reported. For example, Ogundiran et al. implemented follow-up durations of 30 days compared to our observation of a longer follow up duration. Again, the present study reported pain as a common complication which was not highlighted by Ogundiran et al. Further investigation into this discrepancy is warranted, as it may have implications for the findings on psychosocial wellbeing indexed by quality of life and psychological distress in this study.

Psychosocial welling of participants – indexed by psychological distress and pattern of QoL

Approximately one third of the patients reported psychological distress. Psychological distress was a significant predictor of QoL among post-mastectomy breast cancer patients, manifesting across three aspects of mental health assessed by GHQ-12 (anxiety and depression, loss of confidence, and social dysfunction) [12]. The social dysfunction domain was observed to be mostly affected, followed by the anxiety and depressive domain based on the three-factor analysis of GHQ-12. These findings conform to studies on the psychology of patients with breast cancer, which have consistently reported the rates of psychological dysfunction that ranged from of 30–47 per cent [42]. Also, anxiety, depression, and dysfunctional illness perception were found to be strongly correlated with emotional and social dysfunction in patients with breast cancer during treatment [43]. While social function and participation may improve over time [44], factors such as poor family support, loss of self-confidence, and low self-esteem associated with breast surgery may affect social function and interaction. It is important for healthcare professionals and other caregivers to be cognizant of this, so as to provide support and psychosocial education to patients on the importance of social engagement to enhance the process of recovery [45].

It is unsurprising that psychological distress correlated negatively with QoL. This finding is consistent with previously established literature linking poor mental health with impaired quality of life outcomes [42]. However, these results should be interpreted within the broader context. Breast cancer patients in resource-restricted settings often face the burden of high treatment costs and symptom management, resulting in substantial out-ofpocket expenses due to inadequate health insurance coverage. The significant correlation between employment status and both psychological distress and QoL further underscores the socio-economic challenges that amplify emotional distress in this population.

Although recent studies have expressed variability in the prevalence of psychological distress among women with breast cancer [38, 46], most studies have focused on perioperative patients. The rate in our study is lower than the rates in some of the cited studies [38, 46], likely due to the therapeutic use of surgery as an intervention. This procedure is the most common surgical intervention for the treatment of breast cancer with favorable treatment outcomes [47] and may have contributed to better rates of post-surgical distress. Notwithstanding, over onethird of the women interviewed in this study experienced psychological distress, and about 15% reported poor QoL. This finding is consistent with a previous study of a similar population [15] and mirrors findings in previous research that reported negative associations between mastectomy, quality of life, and post-operative satisfaction compared to patients receiving breast-conserving procedures, such as lumpectomy [48, 49]. Similar findings on the psychosocial burden of breast cancer and its treatments have been reported in other comparable resource restricted settings, including Morocco Indian, Vietnam, and Lebanon among others, albeit certain subtle context and cultural variations were highlighted [50, 51, 52, 53, 54].

The present study suggests that a significant proportion reported a good overall quality of life. The good subjective wellbeing observed in this study may be attributed to the timepoint post-surgery when the study was conducted, with participants reporting better quality of life as time passes after undergoing surgical treatment. It is possible that mental health may be positively correlated with time since surgery, potentially due to the development of coping methods and the waning of emotional effects of breast cancer treatments over time. This is supported by the findings of Muzatti et al., which suggest that the mental function of breast cancer patients one-year post-mastectomy was comparable to women without breast cancer. Further, Muzatti et al. report that women assessed soon after their surgery had poorer mental function compared to one-year post-surgery [13].

The World Health Organization Quality of Life Brief Version (WHOQOL-BREF) was used to assess the quality of life in this study [22]. The WHOQOL-BREF consists of four domains: physical health, psychological health, social relationships, and environmental health. In Nigeria, studies have reported varied mean scores across all the domains of WHOQOL-BREF in different population [28, 55, 56, 57, 58]. Though all domains of quality of life were affected in those who reported poor QoL, our findings suggest that the social domain is most impacted by breast cancer surgery. This decrease in social quality of life is consistent with our understanding of the alterations to patients' identity and social lives post-surgery, with associations between breasts and womanhood being important for African women. Furthermore, the loss of one's breasts may increase concerns surrounding sexuality and body image disturbance increasing psychosocial distress [18, 59, 60, 61].

Predictors of psychosocial wellbeing

Age may be related to psychological distress in females with breast cancer before and after surgery, with younger women reporting significantly greater distress than older women [39, 62, 63], albeit age was not a significant predictor in our study. Approximately four out of five breast cancer surgeries performed in the sampled population were complete mastectomies. Further, over two-thirds of patients undergoing surgery were not provided psychological counseling prior to their operation. A previous study from Nigeria highlighted short contact time with patient due to high volume, poor manpower, patientcaregiver's reluctance, and mental health stigma as common hindrances to counseling among surgical patients [64]. The literature supports the benefits of counseling and psychological support during pre-operative care [65, 66]. Counseling sessions can provide an opportunity to address crucial issues in a supportive environment, including acceptance and coping with the cancer diagnosis, concerns about surgery, surgical outcomes like complications, belief systems, and psycho-education on the prognosis of treatment outcomes among others. The impact of surgery without counseling may be reflected by the experience of psychological distress in about one third of participants in this study.

Education level, unemployment, post-surgical complications, and lack of pre-surgical psychological counseling were significantly associated with impairment in subjective wellbeing, with complications after surgery and lack of counseling being key predictors of poor quality of life. This is consistent with previous psycho-oncological studies, with the provision of psychological support early-on in the treatment of cancer improving both psychological health and treatment outcomes [65]. Delivering this psychological support, however, may be impeded by the severity of a patient's cancer upon presentation, hospital patient volumes, and the availability of healthcare professionals trained to provide psychological interventions. The latter is especially important, with previous studies highlighting a need for more mental health professionals [17, 18, 19, 20, 67]. Taken together, these factors may explain why cancer patients suffer from a lack of psychological support both pre- and post-surgery.

The Principles and Guidance for Prehabilitation within the Management and Support of people with Cancer recommends a triage system involving universal, targeted, and specialized psycho-social support [68]. Firstly, the document emphasizes that psychological interventions provided by healthcare professionals should be suitable for all patients with cancer. Further, such interventions should consider the acute, chronic, and latent effects of cancer and its associated treatments. Lastly, this guideline suggests that psychological interventions be relevant to patients with complex needs by supporting problemsolving and solution-focused therapies, as well as specialized support provided by psychologists, specialist nurses, and other relevant allied health workers. The goal of these guidelines is to provide optimal cancer care to affected patients; however, numerous economic, organizational, and infrastructure-related challenges hinder the implementation of the guidance. To combat these challenges, we recommend that evidence-based, accessible, and tailored educational programs be provided to health professionals at all levels so as to increase providers' confidence in delivering appropriate interventions and improve patient care. Public health education and active engagement of patient-caregivers support groups are needed to improve awareness on breast cancer, its multi-disciplinary treatment, and address mental health stigma/myths about breast cancer and its treatments.

Study limitations

Despite the significance of this study, several limitations were identified. As a hospital-based study, the findings may not accurately reflect the characteristics of the general population of patients with breast cancer or survivors. Furthermore, the cross-sectional study design, consecutive recruitment, and a relatively small sample size are important shortcomings that restrict inferences on causal relationships, and necessitating caution when extrapolating these results to post-mastectomy breast cancer patients in other contexts, particularly those with greater resources. Future research should address these shortcomings by utilizing a prospective and longitudinal study designs to track the psychosocial experiences of patients from the time of diagnosis. A longitudinal study design can provide better insight and help improve the understanding of the complex relationship between QoL and psychological distress in patients with breast cancer since diagnosis and post-operatively, especially in resource-restricted settings. In this regard, there is need for a nation-wide study and grant funds to support large scale studies is crucial.

Conclusion

In conclusion, the findings of this study suggest that psychological distress is an important post-surgical outcome for women undergoing mastectomies for breast cancer. Although overall quality of life improved after surgical treatment, the majority of women reported that surgery negatively impacted their social lives (QoL, Social Domain). The findings of this study are consistent with previous articles assessing the impact of mastectomy and pre/post-surgical psychological counseling on the psychosocial wellbeing of women with breast cancer. Given that limited access to psychological support was the key predictive factor for poor quality of life for these women, we advocate for the implementation of evidence-based, professional psychosocial training for healthcare workers to improve patient experiences and long-term outcomes.

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Author contributions

AAB, JDJ-T and ATO were involved in conceptualizing the research idea. AAB, JDJ-T and ATO were vital in the data collection. AAB, JDJ-T, HP, BL, AK, FOS and ATO were involved in the data analysis process and interpretation. AAB, JDJ-T, HP, BL, AK, and ATO drafted the initial manuscript and FOS, OFK, OEO, OBK provided substantial intellectual contribution in the subsequent revisions. AAB, JDJ-T, HP, BL, AK, FOS, OFK, OEO, OBK, oEO, OBK, and ATO were involved in the visualization of the current manuscript. ATO supervised all the various stages of the project. All authors gave final approval of the version to be published and agreed to be accountable for all aspects of the work.

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Data availability

The dataset used and analyzed during the present study are available from the corresponding author on reasonable request.

Declarations

Ethical approval and consent to participate

Ethical approval was granted by the institutional ethical committees (ethics number: BK/HP/045/P/517/VOLV/043). Written informed consent was obtained from all participants and this study adhered to the ethical standards of the institution-national research committee and with the 1964 Helsinki Declaration and its recent amendments regarding all procedures involving human participants. The information collected was treated with strict confidentiality.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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