

## Original Research Article

### SOCIAL SUPPORT AND HRQOL AMONG BREAST CANCER PATIENTS IN PORT HARCOURT, NIGERIA

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#### ABSTRACT

**Background:** Social support has been linked with positive treatment outcomes for many chronic conditions including breast cancer, and it meaningfully reduces the stress originating from cancer diagnosis as well as improves emotional wellbeing. This study aims to assess the level of social support and HRQOL and its relationship among breast cancer patients over a period of 8 months in the two tertiary hospitals in Port Harcourt.

**Methods:** This was a descriptive longitudinal study that was conducted over a period of 8 months among 254 female patients with breast cancer in the two tertiary hospitals in Port Harcourt, South-South Nigeria. They were assessed at the time of diagnosis, 4 months and 8 months after using Multidimensional Scale of Perceived Social Support (MSPSS) and the European Organization for Research and Treatment of Cancer Core Cancer Quality of Life Questionnaire (EORTC QLQ-C30 and QLQ-BR23). Data were analysed using Statistical Package for Social Sciences (SPSS) version 20. Frequency tables were used to demonstrate the outcome. Means and

standard deviation for the continuous variables were calculated. In comparing differences in mean between evaluation times, Friedman ANOVA was used, Correlation co-efficient were used to determine correlation between HRQoL and Social support scores. Results considered statistically significant at  $P$  value  $< .05$ .

**Results:** The HRQoL and MSPSS scores were relatively high among the respondents. The respondents received high support through-out the evaluation time (62.5%). The high support was noticed more from family but they received the least support friends, this was statistically significant,  $P = .007$ . HRQoL was high through-out the evaluation time and it was statistically significant. Correlation between the HRQoL and MSPSS was positive (Pearson correlation co-efficient =  $<0.29$ ) and statistically significant  $P < .05$ .

**Conclusion:** Breast cancer women in Port Harcourt Nigeria had relatively good HRQoL and perceived social support was an important factor for the good HRQoL. It is important to pay close attention on events that enhance and maintain the social support system for breast cancer patients.

*Keywords:* Breast cancer, social support, QOL, HRQOL

## 1. INTRODUCTION

Breast cancer is the most common malignant disorder affecting women and the leading cause of death among them(1). The occurrence of breast cancer has progressively increased in many countries and it was one of the leading causes of cancer deaths Worldwide in 2020 with an estimated 2,261,419(11.7%) new cases and 684,996 (6.9%) death (2).The risk of breast cancer in Nigeria has also increased steadily from approximately

24.5 million in 1990 to approximately 40 million in 2010 and are projected to rise above 50 million in 2020 (3).

Breast cancer diagnosis along with its treatment can contribute to physical, social, and psychological stress. These challenges extend from the periods of diagnosis, to posttreatment and recovery period. The psychosocial concerns in breast cancer patients is related to the important of the breasts in a woman's body image or femininity, sexuality, and motherhood (4). Challenges also include the shock of a cancer diagnosis and fears about the future or the side effects of treatment, such as nausea and fatigue (5). Cancer patients with higher level of perceived social support have been found to have a better psychosocial adjustment to the illness and therefore improved or better health related quality of life (6). Social support is defined as "availability of support which refers to the degree to which interpersonal relationships serve a particular function" (7). It is an important predictor for coping with difficult situations and adjusting to the psychological as well as social demands placed on women who have been diagnosed with breast cancer (8). Studies have shown that perception of close supportive relationships with their spouse and family members is positively correlated with coping and adjustment by women diagnosed with breast cancer (9-11). Availability of social support such as the presence of supportive family, friends and social networks is positively associated with HRQOL(9). Instead of counting the number of individuals available to provide support, perceived social support takes into account personal impressions of the degree of usefulness of social support rather than just presence of support (8). Health-related quality of life is considered an important element in the management of breast cancer because it has shown that assessing quality of life in cancer patients could contribute to improved treatment and could be as prognostic to the patient's outcome(12). When confronted with challenges, having people to turn to or share problems with usually gives some sort of solace or succor to those affected. These sources of support can come in form of social aimed at giving readily available shoulders to lean on in times of distress. In the case of breast cancer, social support comes from interactions with people be they family, friends, co-workers or even the church community. This kind of support has been revealed to increase the quality of life and help promote recovery and patients who have some sort of social support have quicker recovery and better survival (13). In another study on the importance of social support in the management of breast cancer, it was revealed that such support had a significant effect on emotional adjustment of the patients after surgery as this often comes in form of family and friends who talk to and help the patients with personal problems (14). This can be explained by the fact that these patients from such relationships and interactions develop resilience against the diseases while nurturing the feeling that they are not alone in the fight. Yan et al in Shanghai China demonstrated that adequate social support significantly and independently improve QOL of Chinese women with breast cancer in each and every domain measured (15). This study was carried out to assess the level of social support and HRQOL and its relationship among breast cancer patients from the time of diagnosis till eight months of follow up visit.

## **2. MATERIAL AND METHODS / METHODOLOGY**

Breast cancer is the most common malignant disorder affecting women and the leading cause of death among them(1). The occurrence of breast cancer has progressively increased in many countries and it was one of the leading causes of cancer deaths World-wide in 2020 with an estimated 2,261,419(11.7%) new cases and 684,996 (6.9%) death (2).The risk of breast cancer in Nigeria has also increased steadily from approximately 24.5 million in 1990 to approximately 40 million in 2010 and are projected to rise above 50 million in 2020 (3).

Breast cancer diagnosis along with its treatment can contribute to physical, social, and psychological stress. These challenges extend from the periods of diagnosis, to posttreatment and recovery period. The psychosocial concerns in breast cancer patients is related to the important of the breasts in a woman's body image or femininity, sexuality, and motherhood (4). Challenges also include the shock of a cancer diagnosis and fears about the future or the side effects of treatment, such as nausea and fatigue (5). Cancer patients with higher level of perceived social support have been found to have a better psychosocial adjustment to the illness and therefore improved or better health related quality of life (6). Social support is defined as "availability of support which refers to the degree to which interpersonal relationships serve a particular function" (7). It is an important predictor for coping with difficult situations and adjusting to the psychological as well as social demands placed on women who have been diagnosed with breast cancer (8). Studies have shown that perception of close supportive relationships with their spouse and family members is positively correlated with coping and adjustment by women diagnosed with breast cancer (9-11). Availability of social support such as the presence of supportive family, friends and social networks is positively associated with HRQOL(9). Instead of counting the number of individuals available to provide support, perceived social support takes into account personal impressions of the degree of usefulness of social support rather than just presence of support (8). Health-related quality of life is considered an important element in the management of breast cancer because it has shown that assessing quality of life in cancer patients could contribute to improved treatment and could be as prognostic to the patient's outcome(12). When confronted with challenges, having people to turn to or share problems with usually gives some sort of solace or succor to those affected. These sources of support can come in form of social aimed at giving readily available shoulders to lean on in times of distress. In the case of breast cancer, social support comes from interactions with people be they family, friends, co-workers or even the church community. This kind of support has been revealed to increase the quality of life and help promote recovery and patients who have some sort of social support have quicker recovery and better survival (13). In another study on the importance of social support in the management of breast cancer, it was revealed that such support had a significant effect on emotional adjustment of the patients after surgery as this often comes in form of family and friends who talk to and help the patients with personal problems (14). This can be explained by the fact that these patients from such relationships and interactions develop resilience against the diseases while nurturing the feeling that they are not alone in the fight. Yan et al in Shanghai China demonstrated that adequate social support significantly and independently improve QOL of Chinese women with breast cancer in each and every domain measured (15). This study was carried out to assess the level of social support and HRQOL and its relationship among breast cancer patients from the time of diagnosis till eight months of follow up visit.

### **3. RESULTS AND DISCUSSION**

#### **RESULTS**

A total of 254 questionnaires were administered at the baseline and 4 months, all the questionnaires were consistent and completely filled, giving a response rate of 100%. However, only 247 questionnaires were reported at the 8 months resulting to a 97% response rate. **Table 1** shows the sociodemographic characteristics among the breast cancer patients, more than one third (105, 41.3%) of them were between the ages of 30 and 39, the mean age was 44.14 + 10.37 years. Majority were Christian (250, 98.4%), living with spouse and other family members (228, 89.8%). More than half (198, 78.0%) were married, had breast cancer diagnosis for less than a year (174, 68.5%) and with stage I breast cancer (139, 54.7%). only about half of the respondents reported that diagnosis affected sexual relationship with partner (109,42.9%). **Table 2:** Distribution of level of social support among breast cancer patients in tertiary hospitals in Port Harcourt shows that the respondents received high support throughout the evaluation times (62.5%). **Table 3** compares the mean

scores of levels of social support at different evaluation times which overall social support ( $P=.015$ ) and support from friends ( $P=.007$ ) show a statistically significant association at the 3 various time of evaluation. The highest level of overall social support was at 4 months with a mean score  $5.22\pm0.98$ . The family and significant others show the highest social support at the different evaluation times compared with the support from friends which was statistically significant. **Table 4** describes the summary scores of EORTC QLQ C-30 at different evaluation times. These include five functional scales, three symptom scales, a global health status / QoL scale, and six single items. There is improvement in the global health status/QoL at 8 months as compared to baseline with a slight reduction at 4 months. Among the five functioning scales, physical, cognitive and social functioning shows reduction at 8 months while role and emotional functioning improved at this time. The overall GHS and QOL was highest at the 8 months  **$72.84\pm6.96$** . The mean score for functional scales of role and emotional functioning reduced at 4 months compared to the baseline and then increased at the 8 months. However, cognitive and social functioning was similar for both baseline and at 4 months but reduced at the 8<sup>th</sup> month. While physical functioning gradually reduced from baseline till 8 months. Also, mean scores for the items for symptom scale increased at the 4<sup>th</sup> months and further increased at the 8<sup>th</sup> months. The other items showed varied mean scores which the financial difficulties have the highest mean score at 4 months  **$60.89\pm34.33$** . **Table 4** describes the summary scores of EORTC QLQ C-30 at different evaluation times. These include five functional scales, three symptom scales, a global health status / QoL scale, and six single items. There is improvement in the global health status/QoL at 8 months as compared to baseline with a slight reduction at 4 months. Among the five functioning scales, physical, cognitive and social functioning shows reduction at 8 months while role and emotional functioning improved at this time. The overall GHS and QOL was highest at the 8 months  **$72.84\pm6.96$** . The mean score for functional scales of role and emotional functioning reduced at 4 months compared to the baseline and then increased at the 8 months. However, cognitive and social functioning was similar for both baseline and at 4 months but reduced at the 8<sup>th</sup> month. While physical functioning gradually reduced from baseline till 8 months. Also, mean scores for the items for symptom scale increased at the 4<sup>th</sup> months and further increased at the 8<sup>th</sup> months. The other items showed varied mean scores which the financial difficulties have the highest mean score at 4 months  **$60.89\pm34.33$** . **Table 5** shows that the HRQOL improved over time and there is a statistical difference between HRQOL over time among breast cancer patients  $P=.00001$ . **Table 6**: shows that the overall HRQOL among respondents is good through-out the time period. There is a substantial improvement in the HRQOL among respondents, 247 (100%) of the respondent at 8 months rated overall HRQOL as good. **Table 7** describes the summary scores of EORTC QLQ BR-23 at different evaluation times. These include four functional scales, four symptom scales and overall QLQ-BR23. The overall QLQ 23 was highest at the 8 months  **$30.04\pm12.13$**

The mean score for functional scales of Body image, sexual functioning, sexual enjoyment and future perspective reduced at 4 months compared to the baseline and then increased at the 8 months. Also, mean scores of the items for symptom scale for therapy side effects, breast symptoms and arm symptoms increased at the 4<sup>th</sup> and 8<sup>th</sup> months while upset by hair loss reduced at the 4<sup>th</sup> and 8 months. **Table 8** shows that the overall QLQ-BR-23 which is depicting breast cancer symptoms was poor over time and this was not statistically significant. **Table 9** show a statistically significant association between the level of social support at baseline and 4 months with good HRQOL.  $P=.0001$ . **Table 10** shows that there is a statistically significant relationship between an increase in mean scores of social support and good HRQOL among breast cancer patients at baseline and 4 months of the study. **Table 11**: shows a positive correlation between overall mean social support score and HRQOL over time. As social support increases among the respondents, HRQOL increases. This was statistically significant. In addition, a statistically significant relationship was seen between support from significant other and family with HRQOL.

## DISCUSSION

This study showed that breast cancer patients in South south Nigeria had relatively high HRQoL at the time of diagnosis and over time. The correlation between HRQoL and perceived social support is positive and statistically significant. The level of perceived social support remained high throughout the 8 months period of study despite low support demonstrated from friends. This shows that majority of the people with life limiting illnesses such as breast cancer receive their comfort and strength from close family members and most important persons in their life. Social support, particularly from family, is an important factor in the adjustment to social environment, adaptation to the disease progress and domestic environment (6, 16). As such, social support is an important protective factor for the emotional and physical well-being of the cancer patients. This is probably due to the perceived stigma attached to cancer diagnosis. Friends tends to be unavailable when most important. Contrary to this current study, an Ethiopia study among breast cancer patients reported that there were no significant changes for the scores of the perceived social support from baseline at 6 months or 12 months. Even though the mean scores of perceived social support of the subjects were relatively high (16).

According to Wondimagegnehu and co-worker, the overall perceived social support among breast cancer patients in Ethiopia was found to be high ( $70 \pm 16.81$ ) as observed in the current study (17). This was said to be due to the strong sociocultural practices and social bonding in Ethiopia. From the three domains of the social support scale, the highest sub dimensional social support scale belongs to family, followed by significant others and the lowest was from friends. Their finding was consistent with the present study and previously conducted studies in Turkey (18). Similarly, perceived social support was higher among family support (96.2%) as compared to significant others (84.7%) and friend (71.8%) among breast cancer survivor in a study carried out in Malaysia (19). Social support especially from family is very important to build up the emotional strength of survivors. A study done in Ibadan Nigeria among cancer patient where about half of the respondents had breast cancer which is in consistent with the report of the commonest cancer in females. Their study revealed that most of the respondents (95.7%) testified that they received social support (ranging from financial, emotional, spiritual and assistance with tasks) in the treatment of their illness (20). It was observed that respondents received support from multiple sources although the majority of them received support from their families (91.3%). Other sources of support were friends (25.2%) while the significant others included: support from doctors and other medical caregivers (34.8%), non-governmental organizations (0.9%), religious bodies (7.8%) (20). This study demonstrated the bond and love among Nigerians especially when caring for survival of life is involved. QoL has become one of the main outcome measures in cancer treatment. QoL is a multi-dimensional measure of psychological, physical, role, cognitive and social well-being (21). It is shown to be closely related to the illness progress, cancer treatment, underlying psychological condition, coping strategies and social support (21, 22). Quality of life of the 254 subjects was measured using QLQ-C30 and QLQ-BR 23 at three time points; baseline, 4 months and 8 months. This present study revealed that the overall HRQOL among respondents was high over time. There is a substantial improvement in the HRQOL among respondents, 247 (100%) of the respondent at 8 months rated overall HRQOL as good. This implies that the overall health and the quality of life improved at the end of the time period. The improvement in the overall health and the quality of life of breast cancer in this present study was as a result of the good family support they received during their treatment and many of the respondents also affirmed that the health care providers in their care facility were kind to them and gave them a ray of hope to life. Also, the patients were expected to have recovered from the initial emotional reaction. In furtherance to this,

the importance of compassionate care in addition to the treatment given to breast cancer patients or any person suffering from a life limiting illness is very importance and should be applauded by the health managers.

This current study also demonstrated that GHS and the QOL of the breast cancer patients improved by the 8 months together with emotional functioning but the social and cognitive functioning reduced at this time. The other items showed varied mean scores which the financial difficulties have the highest mean score at 4 months. This outcome is similar to what was reported in Ethiopia among breast cancer patients that were followed up for over 12 months (16). The improvement in QoL was expected at 6 months to a year as most patients should have completed and recovered from initial surgery, hospitalization, chemotherapy or radiotherapy (23). In the same vein, there is a similarity in systematic search conducted to review the 20 studies that evaluated HRQOL among over 2000 breast cancer patients in African countries revealed that the general QOL of breast cancer patients in Africa was below EORTC reference values (24). Good scores were recorded at Kenya, Ethiopia and Nigeria and the lowest mean score was recorded among Egyptian breast cancer patients (28.38). Differences observed in HRQOL scores among these African breast cancer patients was related to differences in the time since diagnosis, disease stage, treatments they received and variation in socio-demographic characteristics of participants. On the other hand, the finding in this current study was lower than a systematic review and meta-analysis done in Eastern Mediterranean region in which the mean overall QOL was 60.5 (24, 25). This difference was due to the total sample size included in the study which was 6,034, better quality of care provided during the course of the disease and differences in socio-demographic characteristics between African and Eastern Mediterranean region participants. The correlation between global health status and perceived social support is positive and statistically across the evaluation times. The level of perceived social support remained high throughout the 8 months period of study. Patients seem to be more hopeful with better social support. This present result also pointed to the strong family ties demonstrated among Nigerians where different levels of support is given to their sick loved ones through-out the period of treatment. The correlation between global health status and perceived social support is positive and statistically across the evaluation times. The level of perceived social support remained high throughout the 8 months period of study. Patients seem to be more hopeful with better social support. This present result also pointed to the strong family ties demonstrated among Nigerians where different levels of support is given to their sick loved ones through-out the period of treatment. On the contrary, this report illustrates that despite high level of social support among the respondents the impact of the cancer diagnosis affected their psychological health. These findings strongly implicate that social support from family members and friends as well as other social connections plays an important role in coping with and recovering from breast cancer (15). Therefore, social support should play a key component in the management and care of breast cancer patients.

**Table 1: Socio-demographic characteristics of the respondents**

<b>Variables</b>	<b>Frequency(n=254)</b>	<b>Percentage (%)</b>
<b>Age category</b>		

<30 years	7	2.8
30 – 39 years	105	41.3
40 – 49 years	67	26.4
50 – 59 years	44	17.3
60 – 69 years	31	12.2

**Age range** 25 – 68 years

**Mean ± SD** 44.14±10.37years

**Marital status**

Single	29	11.4
Married	198	78.0
Separated	6	2.4
Widowed	21	8.2

**Living status**

Alone	26	10.2
Spouse and other family members	228	89.8

**Detection time for cancer diagnosis**

< 1 year	174	68.5
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≥1 years	80	31.5
<b>Sexual relationship with partner (n=204)</b>		
Affected	109	42.9
Not affected	95	37.4
<b>Stage of the breast cancer</b>		
Stage I	139	54.7
Stage II	83	32.7
Stage III	29	11.4
Stage IV	3	1.2

**Table 2: Distribution of level of social support among the respondents**

	Baseline	At 4 months	At 8 months
Evaluation times	n (%)	n (%)	n (%)
Low support (MSPSS <3)	0 (0.0)	0 (0.0)	0 (0.0)

Moderate support (MSPSS 3 – 5)	95 (37.4)	95 (37.4)	93 (37.7)
High support (MSPSS >5 – 7)	159 (62.6)	159 (62.6)	154 (62.3)
Total	254 (100.0)	254 (100.0)	247 (100.0)

**Table 3: Comparison of mean scores on domains of social support at different evaluation times among the respondents**

Domains of social support	Baseline Mean score ± SD	At 4 months Mean score ± SD	At 8 months Mean score ± SD	Friedman ANOVA	P-value
Significant other	5.56±1.25	5.54±1.23	5.54±1.23	4.800	.091
Family	5.60±1.11	5.60±1.10	5.60±1.10	5.200	.074
Friends	4.48±1.22	4.50±1.21	4.25±1.23	10.000	.007*
Overall	5.21±0.98	5.22±0.98	5.21±0.98	8.400	.015*

\*Statistically significant

SD – Standard deviation

**Table 4: Mean/median scores on domains of HRQOL at different evaluation times among the respondents**

Domains of HRQOL	Baseline (n = 254)		At 4 months (n = 254)		At 8 months (n = 247)	
	Mean ±	Median (range)	Mean ± SD	Median	Mean ±	Median (range)

	SD		(range)	SD		SD
<b>Functional scales</b>						
Physical functioning	76.48±25. 98	86.67 (6.67 – 100)	76.06±26.0 0	86.67 (6.67 – 100)	75.95±25. 83	86.67 (6.67 – 100)
Role functioning	80.38±25. 21	83.33 (16.67 - 100)	75.64±26.5 7	86.67 (6.67 – 100)	79.95±25. 23	83.33 (16.67 – 100)
Emotional functioning	67.06±26. 55	66.67 (8.33 – 100)	66.34±26.5 1	66.67 (8.33 – 100)	66.93±26. 73	66.67 (8.33 – 100)
Cognitive functioning	83.92±20. 17	83.33 (16.67 – 100)	83.92±20.1 7	83.33 (16.67 – 100)	83.33±20. 82	83.33 (16.67 – 100)
Social functioning	73.56±25. 91	83.33 (0 – 100)	73.56±25.9 1	83.33 (0 – 100)	73.21±26. 04	83.33 (0 – 100)
<b>Symptom scales</b>						
Fatigue	24.19±22. 73	22.22 (0 – 83.33)	24.76±23.0 9	22.22 (0 – 88.89)	24.56±22. 65	22.22 (0 – 88.89)
Nausea and vomiting	12.07±20.. 22	0 (0 – 83.33)	12.53±20.5 7	0 (0 – 83.33)	12.21±20. 17	0 (0 – 83.33)
Pain	27.23±27. 22	16.67 (0 – 100)	27.82±27.4 9	16.67 (0 – 100)	27.60±27. 08	16.67 (0 – 100)
<b>Single items</b>						
Dyspnoea	17.45±22. 51	0 (0 – 66.67)	18.11±22.8 6	0 (0 – 66.67)	18.35±22. 80	0 (0 – 66.67)
Insomnia	28.74±31. 24	33.33 (0 – 100)	29.53±31.3 4	33.33 (0 – 100)	29.42±31. 06	33.33 (0 – 100)

Appetite	21.13±28. 35	0 (0 – 100)	21.78±28.5 4	0 (0 – 100)	21.46±28. 08	0 (0 – 100)
Constipation	8.39±19.1 9	0 (0 – 100)	9.06±19.91	0 (0 – 100)	8.77±19.7 0	0 (0 – 100)
Diarrhoea	8.92±21.5 6	0 (0 – 100)	9.45±21.74	0 (0 – 100)	9.58±21.9 4	0 (0 – 100)
Financial difficulties	54.59±35. 85	66.67 (0 – 100)	60.89±34.3 3	66.67 (0 – 100)	54.66±36. 12	66.67 (0 – 100)
<b>GHS and QOL</b>	<b>57.05±12. 99</b>	<b>58.33 (25 – 83.33)</b>	<b>56.10±12.4 4</b>	<b>50 (25 – 83.33)</b>	<b>72.84±6.9 6</b>	<b>75 (58.33 – 83.33)</b>

**Table 5: Comparison of mean scores on HRQOL (GHS/QOL) across different evaluation times among the respondents**

Variable	Baseline Mean score ± SD	At 4 months Mean score ± SD	At 8 months Mean score ± SD	Friedman ANOVA	P -value
HRQOL (GHS/QOL)	57.05±12.99	56.10±12.44	72.84±6.96	343.277	.0001*

\*Statistically significant ( $p < 0.05$ )

SD – Standard deviation

**Table 6: Distribution of HRQOL (GHS/QOL) among the respondents**

HRQOL category	Baseline n (%)	At 4 months n (%)	At 8 months n (%)
Good	225 (58.0)	222 (87.4)	247 (97.2)
Poor	29 (11.4)	32 (12.6)	0 (0.0)

Total	254 (100.0)	254 (100.0)	247 (100.0)
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**Table 7: Mean/median scores on domains of QLQ-BR23 at different evaluation times among the respondents**

Domains of QLQ-BR23	Baseline (n = 254)		At 4 months (n = 254)		At 8 months (n = 247)	
	Mean ± SD	Median (range)	Mean ± SD	Median (range)	Mean ± SD	Median (range)
<b>Functional scales</b>						
Body image	76.67±20.71	83.33 (25 – 100)	76.15±20.64	75 (25 – 100)	76.62±20.50	83.33 (25 – 100)
Sexual functioning	25.13±28.76	33.33 (0 – 100)	25.00±28.49	33.33 (0 – 100)	25.30±28.47	33.33 (0 – 100)
Sexual enjoyment	47.04±33.74	33.33 (0 – 100)	46.77±33.45	33.33 (0 – 100)	45.90±33.56	33.33 (0 – 100)
Future perspective	30.84±27.92	33.33 (0 – 100)	30.18±27.46	33.33 (0 – 100)	30.63±27.74	33.33 (0 – 100)
<b>Symptom scale</b>						
Systemic therapy side effects	17.55±21.09	9.52 (0 – 80.95)	18.09±21.37	9.52 (0 – 80.95)	17.91±20.94	9.52 (0 – 80.95)
Breast symptoms	34.91±26.72	33.33 (0 – 1.67)	35.24±26.57	33.33 (0 – 91.67)	35.29±26.16	41.67 (0 – 91.67)
Arm symptoms	19.47±22.37	11.11 (0 – 88.89)	19.95±22.48	11.11 (0 – 88.89)	20.15±22.49	11.11 (0 – 88.89)
Upset by hair loss	71.67±34.21	100 (0 – 100)	70.45±33.11	66.67 (0 – 100)	69.05±34.05	66.67 (0 – 100)
<b>Overall QLQ-BR23</b>	<b>29.8±12.18</b>	<b>31.65 (12.50 – 59.28)</b>	<b>29.96±12.26</b>	<b>31.65 (12.50 – 59.28)</b>	<b>30.04±12.13</b>	<b>31.65 (12.50 – 59.28)</b>

**Table 8: Mean scores on Overall QLQ-BR23 across different evaluation times among the respondents**

Variable	Baseline	At 4 months	At 8 months	Friedman ANOVA	p-value
	Mean score ± SD	Mean score ± SD	Mean score ± SD		
Overall QLQ-BR23	29.85±12.18	29.96±12.26	30.04±12.13	1.313	.519

SD – Standard deviation

**Table 9: Relationship between level of social support and HRQOL (GHS/QOL) classification at different evaluation times among the respondents**

Time intervals	Variables	HRQOL (GHS/QOL)		Total n (%)	Chi Square	P-value
		Good (≥50)	Poor (score <50)			
		n (%)	n (%)			



Social support score (overall)	5.32±0.90	4.37±1.17	5.31±0.91	4.52±1.12	5.21±0.98	-
<i>t (P -value)</i>	5.146 (.0001*)		4.497(.0001*)		**	

\*Statistically significant ( $P < 0.05$ )      \*\*Statistical test not calculated because no patient had poor HRQOL (GHS/QOL) at 8 months

**Table 11: Correlation between HRQOL (GHS/QOL) at different valuation times versus other factors social support scores) among the respondents**

Variables	HRQOL (GHS/QOL) at Baseline		HRQOL (GHS/QOL) at 4 months		HRQOL (GHS/QOL) at 8 months	
	Pearson Correlation co-efficient (r)	P - value	Pearson Correlation co-efficient (r)	P -value	Pearson Correlation co-efficient (r)	P - value
Significant other	0.392	.0001*	0.374	.0001*	0.186	.003*
Family	0.242	.0001*	0.246	.0001*	0.079	.217
Friends	0.068	.278	0.084	.181	0.057	.373
Social support score (overall)	0.285	.0001*	0.284	.0001*	0.131	.039*

\*Statistically significant ( $p < 0.05$ )

#### 4. CONCLUSION

In conclusion, Nigerian breast cancer patients have relatively high levels of social support and good HRQOL for the first 8 months after the diagnosis. Cancer is becoming a major cause of morbidities and mortalities across the world. With the advancement in cancer treatment, there is increased attention in improving the survival rate and HRQOL among the cancer patients. The findings in the current study reflect the importance of improving the caregiver system for breast cancer patients. Care giver support group, educational program, and other activities that will enhance the social support system are likely to benefit the care giver and indirectly improve the HRQOL among breast cancer patients.

## CONSENT (WHERE EVER APPLICABLE)

Both authors declared that the objectives of the study were explained to the respondents before administering the questionnaires, and written informed consent was obtained from the participants for publication of this research work. A copy of the written informed consent is available for review by the editorial office/chief editor/editorial board members of this journal.

## ETHICAL APPROVAL

Ethical clearance was gotten from the Research and Ethic Committee of the two tertiary hospital in Port Harcourt. Participants were informed of the confidentiality of their responses that non-participation will be of no effect on the care they desired and withdraw from the study at any stage without loss of benefit. The questionnaires carried no personal identification; serial numbers were used.

## REFERENCES

1. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: a cancer journal for clinicians*. 2018;68(6):394-424.
2. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, et al. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: a cancer journal for clinicians*. 2021;71(3):209-49.
3. Olatunji T, Sowunmi A, Ketiku K, Campbell O. Sociodemographic correlates and management of breast cancer in Radiotherapy Department, Lagos University Teaching Hospital: A 10-year review. *Journal of Clinical Sciences*. 2019;16(4):111-9.
4. Giese-Davis J, Collie K, Rancourt KM, Neri E, Kraemer HC, Spiegel D. Decrease in depression symptoms is associated with longer survival in patients with metastatic breast cancer: a secondary analysis. *Journal of clinical oncology*. 2011;29(4):413.
5. Boatemaa Benson R, Cobbold B, Opoku Boamah E, Akuoko CP, Boateng D. Challenges, Coping Strategies, and Social Support among Breast Cancer Patients in Ghana. *Advances in Public Health*. 2020;2020:4817932.
6. Rizalar S, Ozbas A, Akyolcu N, Gungor B. Effect of perceived social support on psychosocial adjustment of Turkish patients with breast cancer. *Asian Pac J Cancer Prev*. 2014;15(8):3429-34.
7. Sherbourne CD, Stewart AL. The MOS social support survey. *Social science & medicine*. 1991;32(6):705-14.
8. Bloom JR. Social support, accommodation to stress and adjustment to breast cancer. *Social Science & Medicine*. 1982;16(14):1329-38.
9. Michael YL, Berkman LF, Colditz GA, Holmes MD, Kawachi I. Social networks and health-related quality of life in breast cancer survivors: a prospective study. *Journal of Psychosomatic research*. 2002;52(5):285-93.
10. Smith EM, Redman R, Burns TL, Sagert KM. Perceptions of social support among patients with recently diagnosed breast, endometrial, and ovarian cancer: An exploratory study. *Journal of Psychosocial Oncology*. 1985;3(3):65-81.
11. Lichtman RR, Taylor SE, Wood JV. Social support and marital adjustment after breast cancer. *Journal of psychosocial oncology*. 1987;5(3):47-74.
12. Montazeri A. Health-related quality of life in breast cancer patients: a bibliographic review of the literature from 1974 to 2007. *Journal of experimental & clinical cancer research*. 2008;27(1):1-31.

13. Kenechukwu NA. Social and Institutional Support in Breast Cancer Management among Elderly Women in Nigeria. In: Edlyne Eze A, Niyi A, editors. *Public Health in Developing Countries*. Rijeka: IntechOpen; 2019. p. Ch. 13.
14. Oyewusi CO, Oyewusi SO. Social support as emotional adjustment determinant of breast cancer patients after surgery in selected hospitals in Nigeria. *Cancer Research*. 2016;76(14\_Supplement):3457-.
15. Yan B, Yang L-M, Hao L-P, Yang C, Quan L, Wang L-H, et al. Determinants of quality of life for breast cancer patients in Shanghai, China. *PloS one*. 2016;11(4):e0153714.
16. Ng CG, Mohamed S, See MH, Harun F, Dahlui M, Sulaiman AH, et al. Anxiety, depression, perceived social support and quality of life in Malaysian breast cancer patients: a 1-year prospective study. *Health and quality of life outcomes*. 2015;13(1):205.
17. Wondimagegnehu A, Abebe W, Abraha A, Teferra S. Depression and social support among breast cancer patients in Addis Ababa, Ethiopia. *BMC cancer*. 2019;19(1):836.
18. Oztunc G, Yesil P, Paydas S, Erdogan S. Social support and hopelessness in patients with breast cancer. *Asian Pacific Journal of Cancer Prevention*. 2013;14(1):571-8.
19. Nurasyikin Z, Ihsani MM, Zulkifli SS, Azmi MN, Fuad I, Rohaizak M, et al. Depression, Anxiety, Stress and Perceived Social Support Among Breast Cancer Survivors in Tertiary Hospital in Malaysia. *KnE Life Sciences*. 2018:232–40—40.
20. Dairo M, Oladoyinbo O, Onimode Y. Perceived Social Support and Impact on Coping of People Living with Cancer Undergoing Care at A Tertiary Hospital Level in Ibadan, Nigeria. *Archives of Basic and Applied Medicine*. 2020;8(2):131-6.
21. So WK, Chow KM, Chan HY, Choi KC, Wan RW, Mak SS, et al. Quality of life and most prevalent unmet needs of Chinese breast cancer survivors at one year after cancer treatment. *European Journal of Oncology Nursing*. 2014;18(3):323-8.
22. Schleife H, Sachtleben C, Finck Barboza C, Singer S, Hinz A. Anxiety, depression, and quality of life in German ambulatory breast cancer patients. *Breast cancer*. 2014;21(2):208-13.
23. Härtl K, Schennach R, Müller M, Engel J, Reinecker H, Sommer H, et al. Quality of life, anxiety, and oncological factors: a follow-up study of breast cancer patients. *Psychosomatics*. 2010;51(2):112-23.
24. Bitew TD, Ayenew W, Baye T, Eshetu E. Health Related Quality of Life and Its Determinants Among Breast Cancer Patients in Africa: A Systematic Review and Meta-Analysis. 2021.
25. Hashemi SM, Rafiemanesh H, Aghamohammadi T, Badakhsh M, Amirshahi M, Sari M, et al. Prevalence of anxiety among breast cancer patients: a systematic review and meta-analysis. *Breast Cancer*. 2020;27(2):166-78.

## ABBREVIATIONS

EORTC QLQ-C30 and QLQ-BR23	European Organization for Research and Treatment of Cancer Core Cancer Quality of Life Questionnaire
GHS	Global health system
HRQOL	Health related quality of life
MSPSS	Multidimensional Scale of Perceived Social Support
QOL	Quality of life

UNDER PEER REVIEW