

# Awareness of External Breast Prosthesis, it's availability and affordability in Eastern Nigeria



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The major impact of mastectomy is on the self-image and the mental status of patients, which may negatively affect their quality of life. External breast prosthesis (EBP) gives the woman a better shape as it takes the shape of the lost breast. This improves her confidence, looks and general disposition. We assessed EBP awareness among mastectomy patients, its availability and affordability in the Eastern region of Nigeria. The survey was conducted among mastectomy patients attending clinics at University of Nigeria Teaching Hospital Enugu, Federal Medical Centre Owerri and Federal Medical Centre Umuahia, all in South East Nigeria. A total of 32 mastectomy patients filled out questionnaires designed to obtain relevant data on knowledge of existence, availability and affordability of EBP in three big cities in South Eastern Nigeria. Data were analysed using the Statistical Analysis Software Version 8.2. Result showed only half (50%) of the participants were aware of the existence of EBP. Out of 32 patients, 23 (71.9%) were not using EBP and only 9 (28.1%) were currently using EBP. The majority of the participants (85.7%) do not know where and how to get EBP and therefore do not have access to EBP, while 4.8% cannot afford EBP.

**Contribution:** There is poor awareness of the existence of EBP among breast cancer survivors. Consequently, there is poor usage of this device which otherwise, would help to restore self esteem in this population. The study exposed the need for awareness creation on the existence of EBP.

**Keywords:** breast cancer; mastectomy; breast prosthesis; self-esteem; awareness.

## Introduction

Cancer is an abnormal replication of cells in human body and is named based on the part of the body where the cell replication or growth is taking place. Abnormal growth of cells in the breast is termed breast cancer.<sup>1</sup> Breast cancer has been identified as the most common malignant disorder affecting women and the second leading cause of death among them after heart disease.<sup>2</sup> Developed countries have a higher incidence of breast cancer,<sup>3</sup> while developing countries are experiencing an increase in the incidence with poor treatment outcomes because of late presentation and diagnosis.<sup>3</sup> As early as 2008, the global estimate of breast cancer was as high as 1.38 million persons yearly<sup>4</sup> with the number escalating in developing countries.<sup>5,6,7</sup> By the year 2020, breast cancer cases world-wide hit an alarming number of 2.26 million.<sup>8</sup> While breast cancer exists around the globe, developed countries have a higher incidence rate and the incidence rate also varies by ethnicity and race.<sup>9</sup>

Breast cancer cases were historically low in Nigeria but are now increasing and has been identified as the major cause of death resulting from cancer.<sup>8</sup> Breast cancer is currently attributed to 23% of all cancer cases and approximately 18% of deaths in the country.<sup>8</sup>

The incidence of breast cancer is increasing in the developing world because of increased life expectancy, increased urbanisation, and adoption of western lifestyles. Although some risk reduction might be achieved with prevention, these strategies cannot eliminate the majority of breast cancers that develop in low- and middle-income countries where breast cancer is often diagnosed in very late stages. In Nigerian women, breast cancer tends to be diagnosed at an advanced stage and the chances of survival are low.<sup>10,11</sup> Women in the country are also more frequently diagnosed with triple-negative breast cancer than women of European ancestry,<sup>12</sup> with cases occurring at a much younger age.<sup>13</sup> As a result of the late presentation of the disease, the only options available are expensive treatments, which may be unaffordable for the average Nigerian woman. Therefore, early detection

in order to improve breast cancer outcome and survival remains the cornerstone of breast cancer control.<sup>8</sup>

Jetha et al. found that majority of women diagnosed with breast cancer typically need some form of surgical intervention alongside additional treatment modalities such as radiation therapy, chemotherapy, and hormone therapy.<sup>14</sup> Mastectomy is a common treatment modality for breast cancer in Nigeria. In certain cases, a mastectomy is performed to help prevent breast cancer in women who have a high risk of it. This includes women with hereditary genes commonly linked to breast cancer, such as the BRCA1, BRCA2 or PALB2 gene.

The alteration in breast appearance following mastectomy can significantly impact women's self-image, causing a diminished sense of femininity and heightened feelings of anxiety and depression. These emotional effects are profound enough to deter women from frequenting public spaces.<sup>15</sup>

There is a possibility that they might find out that getting a breast reconstruction or external breast prosthesis (EBP) might be helpful to get through these struggles. Most women who underwent mastectomy select breast reconstruction and symmetrisation through surgery or by the use of EBP.<sup>15</sup>

External breast prosthesis is an artificial breast that is worn under clothing to imitate the shape of the breast. It can assist in both cosmetic restoration and weight balance for women who undergo mastectomy without reconstruction. Research conducted in developed nations indicates that EBP aids in alleviating stress and enhancing women's self-esteem following mastectomy.<sup>16</sup> However, the applicability of this phenomenon in developing countries such as Nigeria has yet to be investigated. The aim of this study is to evaluate the knowledge of post-mastectomy women regarding the use of EBP and its accessibility and affordability in the Southeast region of Nigeria.

## Methods

This study uses a descriptive research design to assess the awareness, accessibility and affordability of the EBP by Nigerian women who had undergone mastectomy.

The participants were breast cancer survivors who had a mastectomy and who volunteered without any form of inducement, to participate in the study. The sampling technique was purposive and the study was conducted in three big cities in South Eastern Nigeria – Owerri, Enugu and Umuahia.

### Data collection procedure

Data collection was carried out using interviewer-administered questionnaires designed to obtain the relevant socio-demographic characteristics, knowledge, affordability and availability of the EBP among cancer survivors who had mastectomy. The questionnaire was developed by the

authors based on information needed to achieve the study aims and objectives. The questionnaire was piloted on 10 randomly selected women who had had a mastectomy. Following this, some questions were reframed and items that appeared ambiguous and sensitive were removed from the questionnaire. Relevant questions were kept that fulfilled the aim of the study. Except for the section of socio-demographic characteristics, most of the questions were designed to elicit 'yes' or 'no' answers to make it easy for participants to respond to the questions.

Socio-demographic information relating to age, marital status and breastfeeding status were collected in the first section of the questionnaire. In the second part, respondents were asked specific questions to elicit their awareness of the existence of the EBP, its availability and affordability.

The aims and objectives of the study were explained to participants and consent was obtained before questionnaires were administered. These were returned immediately on completion. Data analysis was carried out using the Statistical Analysis Software (SAS) of Information Technology Services of University Capitol Centre, IOWA City (Version 8.2) Each respondent was scored based on the number of correct answers in the six questions related to awareness, use, availability and affordability of the EBP, and scores calculated as percentage are presented in Tables 1 to 4 .

### Ethical considerations

The Research and Ethics Committee of the Department of Prosthetics and Orthotics, Federal University of Technology Owerri, approved the study protocol on 23 November 2021. Written informed consent was obtained from study participants prior to recruitment. Participants were recruited from the clinics where they usually go for their check up and treatment.

## Results

A total of 32 cancer survivors who had mastectomy were recruited for this study to assess the level of awareness of

**TABLE 1:** Socio-demographic characteristics of study participants.

Variable	n	%
<b>Age distribution (in years)</b>		
20–30	2	6.25
31–40	10	31.25
41–50	12	37.50
51–60	6	18.75
61–70	2	6.25
<b>Marital status</b>		
Single	4	12.50
Dating	2	6.25
Married	15	46.88
Divorced	2	6.25
Widowed	6	18.75
Missing values	3	9.38
<b>Breastfeeding</b>		
Yes	6	18.75
No	26	81.25

**TABLE 2:** Distribution of respondents according to mastectomy information.

Response	<i>n</i>	%
<b>Psychological support or counselling from a healthcare professional after the mastectomy was performed</b>		
Yes	17	53.1
No	12	37.5
Missing values	3	9.4
<b>Informed about external breast prosthesis?</b>		
Yes	16	50.0
No	15	46.9
Missing values	1	3.1
<b>If you answered yes to question above</b>		
Was it before the mastectomy	3	9.4
After the mastectomy	13	40.6
<b>Informed about breast reconstruction surgery?</b>		
Yes	10	31.3
No	20	62.5
Missing values	2	6.3

**TABLE 3:** Use of external breast prosthesis.

Response	<i>n</i>	%
<b>Valid</b>		
Yes	9	28.1
No	23	71.9

**TABLE 4:** Reason for non-use of external breast prosthesis.

Reason	Responses	
	<i>n</i>	%
<b>If no why</b>		
I cannot afford one (cost)	1	4.3
I don't know where and how to get it.	18	78.3
It is not convenient or it gives me discomfort	2	8.7
No response	2	8.7

women who have undergone mastectomy regarding the use of the EBP and its availability and affordability in the Eastern region of Nigeria.

### Socio-demographic characteristics of study participants

Table 1 shows the numbers and percentage of the age groups of participants in this study with majority (37.5%) falling within the age range of 41–50 years. The least were within the age range of 61–70 years forming only 6.25% of the respondents. With regard to the marital status of the participants, majority (46.9%) were married, 18.8% were widowed, 12.5% were single, while only 6.3% were either in a relationship or divorce. Also, majority (81.3%) of the participants were not lactating mother while 18.8% were.

### Information and knowledge about external breast prosthesis

Six questions with 'Yes' or 'No', responses were designed to assess participant's knowledge or experience in three key areas, including receiving psychological support, information about the EBP and breast reconstruction. Table 2 presents the participants' responses to selected questions. The responses demonstrated that majority of the participants (53.1%) received psychological support and counselling from

healthcare professionals after their mastectomy. Some (37.5%), however, did not receive any form of counselling or psychological support and had to bear the burden of their loss on their own.

Table 2 also shows that most of the participants were informed about EBP. Out of the 32 respondents, 16 (50%) were informed of EBP. Of this number that were informed of EBP, 3 (9.4%) were given the information before the surgery while 13 (40.6%) got the information after their surgery. Almost half of the participants (15) were not informed of EBP.

### Use of external breast prosthesis

The participants' use of EBP was also assessed and their responses are presented in Table 3. Out of the 32 respondents, majority of the participants (23, 71.9%) were not using EBP, while only 9 (28.1%) were currently using breast prostheses.

The reasons given for the use of or the lack of use of EBP are presented in Table 4. These responses indicate that the majority of the participants (85.7%, 18) do not know where and how to get the EBP, 9.5% (2) of the participants indicated that it is not convenient or that it gives them discomfort, while 4.8% (1) of the studied population indicated that they could not afford the EBP because of its cost.

### Discussion

This study examined the knowledge of women who have had mastectomy on the usage of EBP, including their availability and cost in the Eastern region of Nigeria. The study included women in the age ranging from 20 to 70 years, with the age group of 41–50 years old accounting for the largest proportion of participants (37.5%). These women had their surgery within the past 6 months to 2 years.

A lack of information is one of the contributing factors affecting the use of EBP among these women, as the study revealed that many of the women who participated were unaware of the existence of this very important medical product, which according to Jetha, et al.,<sup>14</sup> is important not only for cosmetic purposes but also for a balanced body posture, increased confidence, and improved socialisation.

Studies from different countries have also indicated that a significant barrier to the application of EBP is lack of information. Gallagher et al.<sup>17</sup> discovered that a lack of knowledge of existence of EBP affected its use and thus deprived breast cancer survivors the joy they would have otherwise enjoyed knowing there is a solution to their body image distortion created by their mastectomy.

A study conducted by Qiu et al.<sup>18</sup> similarly indicated a deficiency in information concerning the utilisation of EBP among Chinese patients, alongside a limited understanding among medical professionals regarding their usage.

The majority of the participants (85.7%) in the study did not know where or how to obtain EBP, and 4.8% said they could not afford EBP, highlighting a problem with accessibility and affordability. This study found that EBP is not widely available in Nigeria and that those who do use it import it, which further raises the cost. This is not unique to Nigeria and has been reported in previous studies from Ireland,<sup>17,19,20</sup> which revealed that the high cost of EBPs is a major challenge for women who use them. Likewise, in Canada, Fitch et al.<sup>20</sup> also reported that the cost and care of EBPs was the main concern of those women who were using them.

In high-income Western nations, following surgery, hospitals supply transitional breast prostheses to patients with breast cancer. A professional nurse counsels each patient individually regarding the best breast prosthesis based on their treatment plan and any underlying medical issues. This is performed to help women feel more confident and better about themselves, as well as to allow them to carry on with their regular daily activities. However, breast prosthesis is not covered by health insurance in poor nations such as China and Nigeria, and this puts financial strain on the patients.

## Conclusion and recommendation

From this study, we found out that most of the women who underwent mastectomy received psychological support before the procedure was performed. Mastectomy impacts not just a woman's physical well-being but also her mental health, leading to a reluctance to engage socially. The assistance of healthcare professionals is crucial for patients' families, especially when patients feel hesitant to openly seek information.

In terms of the information received before or after the mastectomy on the existence of the EBP, our result showed that majority of these breast cancer survivors, did not have any idea of its existence. Gallagher and colleagues<sup>18</sup> discovered that insufficient knowledge about resulted in discontentment. Women may experience enhanced self-contentment and self-assurance through receiving sufficient guidance from their healthcare providers before and after the surgery. In addition, the dissemination of precise information by healthcare providers will help patients in comprehending the advantages of EBP. Findings also revealed that the few of these women who knew about the existence of these EBP, either didn't know where to access it or either bought theirs abroad.

The study revealed that EBP is not easily accessible and available in Nigeria. Because of the lack of proper awareness of the existence of these EBP, most of the breast cancer treated patients were ignorant of its existence. Less than half of these patients who were aware of the existence of this device purchased theirs abroad because it is not available in the

country. While patients that knew of its existence didn't know where to purchase it from, proving further that it is not available, because if it is available, dealers will advertise them and people will get to know about them and their availability.

Healthcare organisations should create a platform to educate and create awareness of the existence and importance of these EBP for treated breast cancer patients. When these women are properly aware of the existence of these devices, it will make the demand of these devices higher in the market, thereby, making some organisations to look into manufacturing safe, durable and cosmetically pleasing EBP in Nigeria. The competition between these organisations will help to reduce prices of these devices, thereby making it affordable and accessible to these women.

Prosthetists and rehabilitation engineers should look at more cost effective methods and locally sourced materials to produce EBP locally, thereby making it affordable, available and accessible to breast cancer survivor in Nigeria.

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## Competing interests

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## Authors' contributions

Conceptualisation, manuscript writing and data analysis were carried out by J.A.D., D.C.O. and S.M.E. Data collection and documentation were carried out by A.C.N., O.I.O., L.S.D., U.M.N. Data analysis was performed by E.C.O., A.C.I. and G.C.A. Corrections and final manuscript vetting was done by all the authors.

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## Data availability

Data sharing is not applicable to this article, as no new data were created or analysed in this study.

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