

# Assessment of Body Image after Mastectomy among Women with Breast Cancer in Togo

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## Abstract

**Background:** Breast cancer is the most common malignancy among women worldwide. Mastectomy, while lifesaving, significantly impacts body image and psychosocial well-being. This study aimed to evaluate body image after mastectomy among women with breast cancer in Togo and to identify associated sociodemographic factors. **Methods:** A cross-sectional, descriptive, and analytical study was conducted from March to May 2024 at the Oncology Department of the Sylvanus Olympio University Teaching Hospital (CHU-SO) in Lomé. Body image was assessed using the Body Image Scale (BIS). Multiple linear regression was performed after logarithmic transformation of the BIS score to identify related factors. **Results:** Forty-two women who had undergone mastectomy participated. The average age was  $47 \pm 10$  years (range 26 - 67). Most participants were married (64.3%) and had at least a secondary education (95%). The BIS score ranged from 10 to 37, with a median of 18 (IQR 13 - 25). Older women ( $\geq 50$  years) had significantly lower BIS scores ( $\beta = -0.32$ ; 95% CI  $[-0.56, -0.08]$ ;  $p = 0.010$ ), indicating better body image acceptance. Marital status and educational level were not significantly linked to body image disturbance. **Conclusion:** Body image is considerably affected after mastectomy, especially among younger women. Incorporating psychological support and body image rehabilitation into breast cancer care is essential in Togo.

## Keywords

Breast Cancer, Mastectomy, Body Image, Body Image Scale, Togo

## 1. Introduction

Breast cancer remains the most common cancer among women worldwide, with

an estimated 2.3 million new cases and over 670,000 deaths in 2022, according to GLOBOCAN estimates [1]. In sub-Saharan Africa, breast cancer presents a significant public health challenge, characterized by a steadily rising incidence and frequent diagnoses at advanced stages due to limited access to screening programs, high treatment costs, and a lack of specialized oncology facilities [2]. In Togo, breast cancer is the leading cancer among women, with nearly 1000 new cases diagnosed in 2022, and it continues to be the primary cause of cancer-related death among women [1].

The management of breast cancer includes various treatment options. Among these, breast surgery and adjuvant therapies can significantly affect women's lives and cause significant physical changes, such as removing the breast, surgical scars, hair loss, weight changes, and lymphoedema [3] [4]. These changes can profoundly influence how women see and feel about their bodies.

Body image is a multidimensional construct that encompasses an individual's perceptions, thoughts, and feelings about their body. It has been described as the mental representation of the physical self, including appearance, health, wholeness, and sexuality [5], while other authors emphasize its affective, behavioral, and cognitive components, particularly in the context of illness and medical treatments [6]. These complementary perspectives indicate that body image among women treated for breast cancer encompasses both subjective self-evaluation and disease-related bodily changes. Body image is crucial to post-treatment quality of life and plays a key role in self-esteem, psychosocial adjustment, and social reintegration [7] [8].

The assessment of body image is usually conducted using validated tools like the Body Image Scale (BIS), which measures perceptions and attitudes toward one's body among women with breast cancer [6]. Many studies worldwide have shown that mastectomy is linked to lower body satisfaction, emotional distress, and disruptions in marital and sexual relationships [5] [9] [10]. Similarly, a recent systematic review of 34 studies by Harerimana *et al.* [11] emphasized that mastectomy negatively impacts women's quality of life, body image, psychological well-being, sexuality, and social relationships across African settings.

Multiple sociodemographic and cultural factors influence perceptions of body image [12]. Studies from Ghana and Ethiopia have shown that women who underwent total mastectomy reported significantly lower satisfaction with their physical appearance [13]. Similarly, in Türkiye, women who had a mastectomy expressed a more negative view of their body image [7]. In Palestine, younger age, place of residence, education level, and marital status were found to be significantly linked to perceptions of body image [14].

In Togo, where breast cancer is often diagnosed at an advanced stage, mastectomy remains the primary surgical option because breast-conserving and reconstructive techniques are rarely available. However, the psychosocial aspects of breast cancer, particularly women's perceptions of their bodies after mastectomy, are not sufficiently studied. Gaining a deeper understanding of these experiences

is essential for developing targeted psychological support, improving survivors' quality of life, and shaping national cancer care policies.

Therefore, this study aimed to assess body image among women who underwent a mastectomy for breast cancer in Togo and to identify sociodemographic factors associated with their perception of body image.

## 2. Methods

This was a cross-sectional, descriptive, and analytical study carried out in the Oncology Unit at Sylvanus Olympio University Teaching Hospital in Lomé, Togo. This hospital functions as the country's national referral center for breast cancer treatment. The study took place over three months, from March to May 2024.

### 2.1. Study Population

The target population included women who had undergone mastectomy for breast cancer and were either receiving treatment or attending follow-up visits at the oncology unit. All adult women (18 years or older) who had a total mastectomy for breast cancer, had been followed in the oncology unit for at least six months after surgery, could understand the questionnaire, and provided informed consent to participate were included in the study.

Exclusion criteria included: a) patients who underwent partial mastectomy; b) patients with progressive local or metastatic recurrence; c) patients with significant psychiatric disorders or cognitive impairments that hinder understanding of the questionnaire; d) incomplete clinical or sociodemographic data.

Sampling was purposive among patients attending pre-treatment or post-therapy control visits during the study period. This approach was chosen because the study focused on a specific, relatively small clinical population—women who had undergone total mastectomy and were receiving follow-up care at the national referral oncology center. It allowed inclusion of participants who met strict eligibility criteria and ensured collection of relevant, clinically meaningful data, while acknowledging the limited generalizability.

### 2.2. Data Collection

Data were collected using a structured French-language questionnaire, which was self-administered during routine visits. The questionnaire included three sections:

- 1) Sociodemographic and clinical characteristics: age, marital status, education level, occupation, and treatments received.
- 2) Therapeutic data: type of surgery and adjuvant treatments like chemotherapy, radiotherapy, and hormone therapy.
- 3) Body image assessment was conducted using the Body Image Scale (BIS), a validated tool created by Hopwood *et al.* [6]. This scale includes ten items designed to assess Body Image across three domains: affective, behavioral, and cognitive. Scores are recorded on a 4-point Likert scale, from 1, "not at all," to 4, "very

much,” resulting in a total score range of 10 to 40, with higher scores indicating more significant body image disturbance. In this study, we employed the validated French version, as described by Bredart *et al.* [15]. The BIS scale has been reported to have high internal consistency ( $\alpha = 0.93$ ) and solid clinical and discriminant validity.

### 2.3. Data Analysis

Data were entered into Microsoft Excel® and analyzed using R® version 4.5.1 (R Foundation for Statistical Computing, Vienna, Austria). Two levels of statistical analysis were conducted:

**Descriptive statistics:** Categorical variables were summarized by frequency (n) and percentage (%), while quantitative variables were presented as means  $\pm$  standard deviations or medians (interquartile range, Q1 - Q3), depending on their distribution.

**Analytical statistics:** The distribution of BIS scores was skewed, so a logarithmic transformation [ $\log(\text{BIS score} + 0.5)$ ] was applied to improve normality. A multiple linear regression model was used to identify sociodemographic factors associated with the transformed BIS score, including age, marital status, and education level as covariates. Results are reported as  $\beta$  coefficients with 95% confidence intervals (95% CI) and p-values. A p-value  $< 0.05$  was considered statistically significant.

**Missing data:** Records with incomplete BIS items were excluded from regression analyses.

### 2.4. Ethical Considerations

Ethical approval was obtained from the hospital’s ethics committee (Ref: CHUSO/CE/2024/15). Verbal informed consent was obtained from all participants before their inclusion. Data confidentiality and anonymity were carefully maintained throughout the study.

## 3. Results

### 3.1. Sociodemographic Characteristics

A total of 42 women who had undergone a total mastectomy for breast cancer participated in the study. The average age was  $47 \pm 10$  years, ranging from 26 to 67 years. The most common age group was 45 - 49 years (n = 11; 26.2%), while women aged 60 and older accounted for 7.1%. The majority of participants were married (n = 27; 64.3%). Over half had a secondary education level (n = 22; 52.4%), and 42.8% held a university degree.

The patients had diverse professions. The most common occupations were employees (n = 20; 47.6%), housewives (n = 10; 23.8%), and traders (n = 9; 21.4%), followed by retirees (n = 3; 7.1%). The sociodemographic details of the participants are summarized in **Table 1**.

**Table 1.** Socio-demographic characteristics of patients (N = 42).

Variable	n (%)
<b>Age (year)</b>	
Mean ± SD	47 ± 10 (range 26 - 67)
<b>Age group (year)</b>	
<30	1(2.4)
30 - 34	5(11.9)
35 - 39	4 (9.5)
40 - 44	6 (14.3)
45 - 49	11 (26.2)
50 - 54	6 (14.3)
55 - 59	6 (14.3)
≥60	3 (7.1)
<b>Marital status</b>	
Single	8 (19.1)
Divorced	4 (9.5)
Married	27 (64.3)
Widow	3 (7.1)
<b>Educational level</b>	
Primary	2 (4.8)
Secondary	22 (52.4)
University	18 (42.8)
<b>Employment status</b>	
Employed	20 (47.6)
Housewife	10 (23.8)
Traders	9 (21.5)
Retired	3 (7.1)

### 3.2. Therapeutic Management

All patients underwent mastectomy. Associated treatments included chemotherapy, radiotherapy, and hormone therapy. More than a quarter of the women received mastectomy combined with chemotherapy (n = 11; 26.2%). The treatment regimen, which included mastectomy, chemotherapy, radiotherapy, and hormone therapy, was observed in 21.4% of cases, while the combination of mastectomy + chemotherapy + radiotherapy was recorded in fourteen patients (33.3%) (Table 2).

**Table 2.** Patients' treatment modalities (N = 42).

Treatment	n (%)
Mastectomy	2 (4.8)
Mastectomy + Chemotherapy	11 (26.2)

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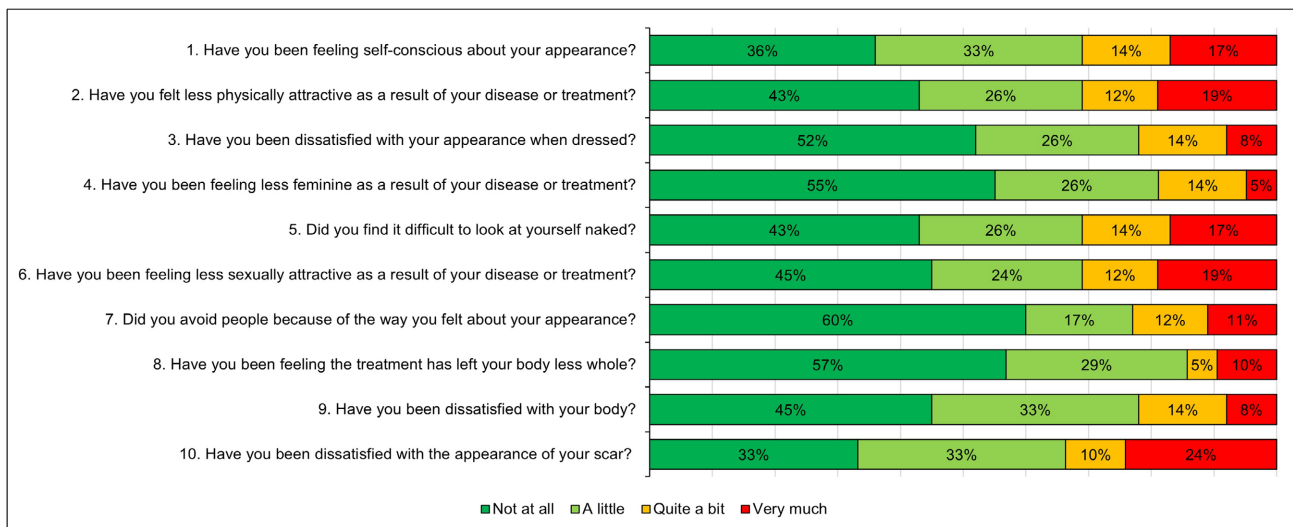
Mastectomy + Chemotherapy + Hormone therapy	5 (11.9)
Mastectomy + Chemotherapy + Radiotherapy	14 (33.3)
Mastectomy + Chemotherapy + Radiotherapy + Hormone therapy	9 (21.4)
Mastectomy + Hormone therapy	1 (2.4)

**3.3. Body Image Scale (BIS) Scores**

The total BIS score showed considerable variability, ranging from 10 to 37. The median score was 18 (Q1 - Q3: 13 - 25), with a mean of 19 ± 8.

Analysis of individual BIS items revealed that about one-third of participants (33%) felt somewhat self-conscious about their physical appearance. Nineteen percent felt much less attractive physically due to the disease or treatment. Over a quarter of respondents (26%) felt somewhat dissatisfied with their appearance when dressed, and a similar percentage felt somewhat less feminine due to illness or therapy.

Seventeen percent often found it very difficult to look at themselves without clothes, while 19% felt much less sexually attractive because of the disease or its treatment. Only 11% reported avoiding others much due to discomfort with their appearance. About 29% viewed the treatment as somewhat disfiguring or mutilating, and roughly one-third (33%) felt somewhat dissatisfied with their bodies. Nearly a quarter of patients (24%) were very dissatisfied with the appearance of their scars (**Figure 1**).



**Figure 1.** Distribution of patients according to the BIS Score items.

Overall, the distribution of BIS scores was right-skewed, with most patients reporting moderate scores, while a smaller subgroup had higher scores, indicating significant body image distress.

### 3.4. Factors associated with BIS Scores

In the multiple linear regression model using the transformed variable  $\log(\text{BIS} + 0.5)$ , age was significantly associated with body image perception. Women aged 50 years or older had a mean  $\log(\text{BIS} + 0.5)$  score that was 0.30 points lower (95% CI [-0.60; -0.10];  $p = 0.010$ ) than that of younger women, which corresponds to approximately a 25% lower BIS score on the original scale. This finding suggests that older women experience less intense body image distress.

In contrast, neither marital status (married versus single/divorced/widowed;  $\beta = -0.15$ ; 95% CI [-0.38; 0.09];  $p = 0.209$ ) nor educational level (university versus below university;  $\beta = -0.19$ ; 95% CI [-0.42; 0.05];  $p = 0.115$ ) showed a statistically significant association with BIS scores after adjustment. However, a trend toward lower BIS values was observed among participants with higher education levels compared to those with lower education ( $\beta = -0.19$ ; 95% CI [-0.40; 0.05]), but it does not reach statistical significance (**Table 3**).

**Table 3.** Factors associated with the BIS Score.

	Beta	95% CI	p value
<b>Age (year)</b>			0.010
<50	—	—	
50+	-0.32	-0.56 - -0.08	
<b>Marital status</b>			0.209
Single/divorced/widow	—	—	
Married	-0.15	-0.38 - 0.09	
<b>Educational level</b>			0.115
Primary/Secondary	—	—	
University	-0.19	-0.42 - 0.05	

95% CI: 95% Confidence Interval.

## 4. Discussion

To our knowledge, this is the first study conducted in Togo to examine body image among women who have undergone total mastectomy for breast cancer, using the validated Body Image Scale (BIS) and exploring related factors.

This study involved 42 participants with an average age of 47 years. Most were married (64.3%) and held a university degree (42.8%). The participants came from diverse professional backgrounds, reflecting the socioeconomic variety among women treated for breast cancer in Togo. All had undergone total mastectomy, usually combined with adjuvant therapies, emphasizing the common use of multimodal management in the study group.

The observed BIS scores (median = 18; IQR 13 - 25) suggest that many women experience significant body-related discomfort after mastectomy, often describing loss of femininity, social embarrassment, and disruption of body identity. Similar

findings have been reported in several low- and middle-income countries where mastectomy remains the standard surgical treatment due to limited access to breast-conserving or reconstructive surgery. In Togo, access to breast reconstruction remains extremely limited because of barriers such as high out-of-pocket costs, a lack of trained reconstructive surgeons, limited surgical infrastructure, and the absence of financial coverage for reconstructive procedures within the national health system. The visible and permanent nature of surgical sequelae, therefore, amplifies their psychological impact. For instance, in a recent Turkish study, Sançar *et al.* [16] reported that women who underwent total mastectomy had a significantly more negative body image than those who had breast-conserving surgery. Similarly, in Nigeria, a study conducted in Ibadan found that more than half of breast cancer survivors reported a negative perception of their body image, which was associated with lower overall quality of life [17]. In Palestine, 43.1% of women were not satisfied with their body image, and 58.8% felt unattractive following breast cancer treatment [14]. These findings align with our observations, in which a subset of participants exhibited high BIS scores, indicating severe body image distress.

Most women in our study received intensive treatment, including mastectomy, chemotherapy, radiotherapy, and hormone therapy. This level of treatment, often necessary due to late diagnosis, also impacts body image by highlighting visible stigmas (such as alopecia, chest scars, and skin changes from radiation), persistent symptoms (like pain, fatigue, and insomnia), and concerns about cancer recurrence [18].

We found that women aged 50 or older had significantly lower BIS scores—indicating better body image acceptance—compared to younger women, with a difference of about 25% after adjustment. This link between younger age and higher body image distress aligns with prior international research. Younger women often perceive mastectomy as a significant disruption to their identity, associating the breast with femininity, sexuality, and future motherhood. They also report more social anxiety and tend to avoid intimacy [5] [9] [19] [20]. In contrast, older women generally maintain a more positive body image [21]. This may explain why, in our study, women aged 50 or older showed better body image adaptation than their younger counterparts.

Beyond individual psychological effects, body image also influences social reintegration, intimate relationships, and sexual life. Several studies of women who have undergone mastectomies describe feeling incomplete and fearing sexual rejection, often tied to a perceived loss of femininity and spousal identity [7] [22] [23]. The partner's role, however, appears complex. Some studies report that marital support reduces body image distress and enhances emotional and sexual well-being [23] [24]. Conversely, others suggest that pressure related to physical attractiveness or sexual availability can worsen the feeling of lost femininity after mastectomy [5] [9]. In our study, marital status was not significantly associated with BIS scores after multivariable adjustment. This lack of a statistical relationship may reflect the dual nature of marriage, serving as both a source of emotional

support and a possible source of intimate tension.

Similarly, educational level was not strongly associated with BIS scores, although women with a university degree tended to report better body image. This non-significant association may reflect the influence of unmeasured mediating factors, such as health literacy, access to psychosocial information, coping strategies, or social support networks, which could attenuate the direct relationship between formal education and body image perception. Previous research has shown that education, access to medical information, and understanding of treatment options can positively influence body acceptance and overall quality of life after breast surgery [9] [14]. In a Korean study, Chang *et al.* [25] also found that higher education and socioeconomic status were associated with improved body image. These factors may help women obtain aesthetic solutions or psychosocial support, aiding their adjustment to bodily changes.

Our findings could have significant clinical and psychosocial implications for cancer care in Togo.

## 5. Implications for Practice and Policy

The findings of this study emphasize the importance of incorporating psychosocial and rehabilitative elements into breast cancer care in Togo. Cancer treatment mainly emphasizes medical and surgical procedures, while emotional and body image concerns are often overlooked. Early detection of women at risk for body image distress—especially younger patients—should be part of routine cancer follow-up, enabling prompt referral to psychological support.

Providing individual or group counseling, therapeutic education programs, and body image rehabilitation workshops (such as aesthetic support, physiotherapy, clothing, or prosthesis counseling) can enhance women's quality of life after mastectomy. Training healthcare providers, including oncologists, surgeons, nurses, psychologists, and social workers, in empathetic communication and managing body image concerns is also crucial.

Structurally, expanding access to breast-conserving and reconstructive surgeries, when technically and financially feasible, should be a priority. Developing regional collaborations, reconstructive surgery missions, and partial financial support for breast prostheses could significantly lessen the psychological burden of mastectomy. Finally, national cancer control policies should explicitly include psychosocial care and post-treatment rehabilitation as essential parts of quality cancer management and patient well-being.

Key stakeholders for implementing these recommendations include the Ministry of Health for policy integration, hospital administrators for structuring psychosocial services, oncology and surgical training institutions for capacity building in reconstructive techniques, and non-governmental organizations for patient education, counseling, and social support.

## 6. Study Limitations

This study has some limitations. The sample size was relatively small and recruited

from a single hospital, limiting the extent to which the findings can be generalized to the broader Togolese population. The cross-sectional design does not allow causal inference about associations between sociodemographic factors and changes in body image. Additionally, the self-administered questionnaire may have introduced social desirability bias. In the Togolese cultural context, discussions of body image, femininity, sexuality, and illness may be considered sensitive, potentially leading some participants to underreport emotional distress or dissatisfaction with their bodies. Despite these limitations, this research provides the first descriptive data on post-mastectomy body image among women in Togo. It offers new insights into an understudied psychosocial aspect of breast cancer survivorship in West Africa. This study paves the way for future multicenter prospective studies that include qualitative approaches to better understand women's bodies and sexual experiences after breast surgery.

## 7. Conclusions

Body image significantly affects the quality of life for breast cancer survivors. This study reveals that Togolese women often experience changes in body image after mastectomy, feeling less feminine and facing social discomfort. Younger women appear especially vulnerable, while older women tend to accept it more.

These findings emphasize the need for a comprehensive approach to breast cancer care in Togo—integrating psychological support, rehabilitation, and access to reconstructive options—to improve dignity, well-being, and social reintegration.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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