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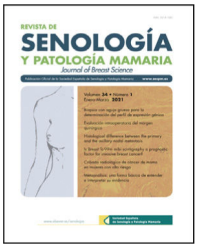

ORIGINAL ARTICLE

# Knowledge, attitude and acceptance of bilateral prophylactic mastectomy among female staff in a private university in Nigeria

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**KEYWORDS**
Knowledge;
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**Abstract**
*Introduction:* The decision to remove both breasts through preventive bilateral mastectomy among high-risk individuals in developing countries would transcend social, cultural and even spiritual boundaries. The purpose of this study is to determine the knowledge, attitude and acceptance of faculty members of a private university towards bilateral prophylactic mastectomy (BPM).
*Methods:* The study utilized a descriptive cross-sectional design. Respondents were selected using multistage sampling technique. Questionnaires were given to female staff in all the different colleges of the University. Data was analyzed using descriptive statistics and inferential statistics with level of significance set at ($p < 0.05$).
*Results:* More than half (56.9%) of the female staff were administrative staff of the university and 43.1% were lecturers. Further findings revealed that 56.4% of the respondents had poor knowledge about BPM, majority (65.1%) of the respondents had negative attitude towards BPM and the acceptance was low, as 62.6% of the respondents less accepted BPM while 37.4% much accepted it. The major reasons for not accepting BPM were coping with the shame of losing their breast and that removal of breast might affect their self-esteem. A significant association was found between lecturers and administrative staff in respect to their knowledge of BPM ($p < 0.05$) and also knowledge about BPM was significantly associated with acceptance of BPM among respondents ($p < 0.05$).
*Conclusion:* Knowledge about BPM among respondents is average and attitude is negative with acceptance still very low among faculty members of a private university.


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**PALABRAS CLAVE**
Conocimiento;
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Nigeria

**Conocimiento, actitud y aceptación de la mastectomía profiláctica bilateral entre el personal femenino de una universidad privada de Nigeria**

**Resumen**
*Introducción:* La decisión de extirpar ambos senos mediante mastectomía bilateral preventiva entre personas de alto riesgo en países en desarrollo trascendería las fronteras sociales, culturales e incluso espirituales. El propósito de este estudio es determinar el conocimiento, la actitud y la aceptación de los profesores de una Universidad Privada hacia la Mastectomía Profiláctica Bilateral (BPM).
*Métodos:* El estudio utilizó un diseño descriptivo transversal. Los encuestados se seleccionaron mediante una técnica de muestreo de varias etapas. Se entregaron cuestionarios al personal femenino en todas las diferentes facultades de la Universidad. Los datos se analizaron utilizando estadística descriptiva y estadística inferencial con un nivel de significancia establecido en ($p < 0.05$).
*Resultados:* Más de la mitad (56,9%) del personal femenino eran personal administrativo de la universidad y el 43,1% eran profesores. Otros hallazgos revelaron que el 56,4% de los encuestados tenía poco conocimiento sobre la mastectomía profiláctica bilateral, la mayoría (65,1%) de los encuestados tenía una actitud negativa hacia la mastectomía profiláctica bilateral y la aceptación fue baja, ya que el 62,6% de los encuestados aceptaba menos la mastectomía profiláctica bilateral mientras El 37,4% lo aceptó mucho. Las principales razones para no aceptar la mastectomía profiláctica bilateral fueron sobrellevar la vergüenza de perder la mama y que la extirpación de la mama podría afectar su autoestima. Se encontró una asociación significativa entre los profesores y el personal administrativo con respecto a su conocimiento de BPM ($p < 0.05$) y también el conocimiento sobre BPM se asoció significativamente con la aceptación de BPM entre los encuestados ($p < 0.05$).
*Conclusión:* El conocimiento sobre la mastectomía profiláctica bilateral entre los encuestados es promedio y la actitud es negativa con una aceptación aún muy baja entre los miembros del cuerpo docente de una Universidad Privada.


## Introduction

Breast cancer is the most common cancer in women with highest mortality in developing countries due to late presentation.[1] There were over 2 million new cases in 2018.[2] Africa currently had the highest age-standardized breast cancer mortality rate globally, with the highest incidence rates being recorded within the sub-Saharan African sub-region.[2] The high incidence and recurrence rate of breast cancer has influenced multiple strategies to reduce the risk of breast cancer occurrence, and recurrence, these interventions include lifestyle modification, early detection with imaging, chemoprevention and surgical intervention.[3]

A woman can be at very high risk of developing breast cancer if she has a strong family history of breast and/or ovarian cancer, a deleterious (disease-causing) mutation in the BRCA1 gene or the BRCA2 gene, or a high-penetrance mutation in one of several other genes associated with breast cancer risk, such as TP53 or PTEN.[4]

The most common risk-reducing surgery is bilateral prophylactic mastectomy (BPM, also called bilateral risk-reducing mastectomy). BPM may involve complete removal of both breasts, including the nipples (total mastectomy), or it may involve removal of as much breast tissue as possible while leaving the nipples intact (subcutaneous or nipple-sparing mastectomy). Subcutaneous mastectomies preserve the nipple and allow for more natural-looking breasts if a woman chooses to have breast reconstruction surgery afterward. However, total mastectomy provides the greatest breast cancer risk reduction because more breast tissue is removed in this procedure than in a subcutaneous mastectomy.[4]

Prophylactic mastectomy is one of the growing strategies for breast cancer risk reduction that is of a special importance for breast cancer gene mutation carriers.[5] Careful risk estimation is necessary to wisely select individuals who will benefit from preventing breast cancer.[6] There is a clear indication for prophylactic mastectomy in healthy women with a pathogenic BRCA1 as BPM has been associated with lower mortality. However, in healthy women with a BRCA2 mutation, no clear survival benefit of BPM over breast cancer surveillance has been reported.[7] With the refinements in surgical procedures, especially free flaps, and the development of supportive materials, the number of breast reconstructions is increasing in many countries.[8] Existing data suggests that preventive mastectomy may significantly reduce the risk of breast cancer close to 100% in moderate-risk women and 90—95% in high-risk women.[6] There is always a risk associated with the presence of residual glandular tissue or breast ectopic tissue.[25] These figures far exceed reduction achieved by other preventive

measures such as clinical breast examination which reduce the risk by 40–45% and mammography by 45–67%.[1]

In addition, the surgical procedure can have many complications, including ischemia of the skin, hematomas, infections, implant failures and partial/total autologous flap loss.[25] Globally, about 25% and 15% of all new cancer cases and cancer deaths respectively among females were due to breast cancer.[9] The incidence in the African region is rising, with its age-standardized mortality rate ranked highest globally in the sub-Saharan African region with Nigeria, the most populous African nation, having the highest mortality rate.[9]

The decision to remove both breasts through preventive bilateral mastectomy among high-risk individuals in developing countries would transcend social, cultural and even spiritual boundaries.[1] There is a growing realization that early diagnosis and prompt treatment does not significantly reduce mortality attributed to breast cancer[1]; therefore, there is an urgent need for appraisal of the potential benefits of bilateral preventive mastectomy.

In sub-Saharan African countries like Nigeria where sociocultural beliefs and practices like fear of mastectomy and other factors inhibit early diagnosis and management of breast cancer,[10,11] it is imperative to assess the willingness to accept this prophylactic option of management especially within the literate community.

Hence, this study seeks to assess the knowledge, attitude and acceptance of faculty members of a private university towards BPM.

## Methods

### Study design

The study employed a descriptive cross-sectional design using quantitative approach to assess the knowledge, attitude and acceptance of prophylactic bilateral mastectomy among female staff of a private university in Nigeria.

### Study setting

The study was conducted in Afe Babalola University Ado-Ekiti, Ekiti state. It is a Federal Government licensed Private University founded by Aare Afe Babalola in 2009. It is located at km 8.5, Afe Babalola way, Ado-Ikare road, Ado- Ekiti in Ekiti State, Nigeria. It is an academic community with a population of about 10,000 people, according to statistics and this population is made up of about 8500 students and 2500 staff. The academic program run five colleges which are college of medicine and health sciences, college of law, college of sciences, college of social and management sciences and college of engineering. There are 352 female staff, 125 academic staff and 227 non-academic staff.

### Study participants and sampling procedure

The study was a quantitative descriptive cross-sectional study involving 206 female staffs of the university. Sample size was determined using Taro Yamane formula:

$$n = \frac{N}{1 + N(e)^2}$$

Where $n$ is the minimum sample size required, $N$ is the total population = 352 for female staff in ABUAD and $e$ is the sample error = 0.05. Inputting these values in the above formula, yielded a sample size of 187. In order to compensate for non-response or poorly filled questionnaire, an additional 10% was added to make the sample size 206. A multistage sampling technique was used to select respondents from the various colleges of the university. A cluster sampling was employed to select all the five colleges (Sciences, Law, Social and Management Sciences, Engineering, and Medicine and Health Sciences) in the first stage. A stratified random sampling was then used to select the departments to be sampled from a list of the departments in the five clusters (colleges). Nine departments were selected, and a proportionate allocation was done according to the size of each department. A total of 206 staff were sampled in all. The questionnaire were administered to the respondents in their respective offices.

## Data collection and analysis

Data was collected from February to April, 2021. The instrument for data collection was a semi-structured self-administered pretested questionnaire. The questionnaire contained five sections. Section A contained the demographic characteristics of the participant, section B contained questions on the parity status and family history of cancer, section C assessed participant's knowledge of BPM, section D contained questions to assess participant's attitude towards BPM, section E contained questions to assess the acceptance of BPM among female staff of Afe Babalola University. Face and content validity of the questionnaire was assessed by experts in the College of Medicine and Health Sciences of the University. Written informed consent was obtained from respondents before questionnaire administration.

The data collected were first checked for errors, cleaned and then analyzed using Statistical Package for Social Sciences (SPSS) version 25. Results were presented in descriptive statistics using tables, frequency, charts and percentages. Bivariate analysis was done using chi-squared and Fisher's exact tests with the level of significance was set at $p$-value $<0.05$.

## Ethical consideration

Ethical clearance was obtained from the Ethics and Research Committee of the university where the study took place. Respondents were informed about the objectives of the study and participation were made voluntary. Written informed consent was obtained from respondents before questionnaire administration. They were also informed of their rights to withdraw at any time. Information provided by the participants during the data collection were not divulged to others without permission. No identification was required on the questionnaire to ensure confidentiality, thus

provided information were used for only research purposes. Privacy and anonymity were ensured and the identities of the respondents were not exposed.

## Results

Two hundred and six female staff of the University were recruited for the study, however, only 195 questionnaires were retrieved yielding a response rate of 94.6%. The mean age of the respondents was 39.3 years with above average (55.9%) within the range of 31–40 years. Most of the respondents (83.1%) were married and were mainly (89.2%) Christians. Most of the women (56.9%) were administrative workers while others (43.1%) were lecturers. Most of the women (95.4%) have at least BSc or HND level of education and almost half (47.2%) have 5–10 years of work experience in ABUAD. Most of the respondents (69.2%) have 1–3 children with just only 3.1% had experienced cancer. Only 11.8% have family member who has cancer history, who were mostly (56%) their extended family members (Table 1).

Table 2 reveals the results of respondent's knowledge of BPM. Majority (90.8%) of the respondents are aware of breast cancer. Majority (93.3%) of the respondents know one means or the other which breast cancer can be detected. Most (81.5%) of the women are aware that BPM involves cutting off of the two breasts to prevent breast cancer. A good number of them (70.3%) knew that mastectomy greatly reduces the risk of breast cancer. More than half of the women (64.6%) believe that BPM is the best preventive measure compared to other preventive measures for breast cancer. Most (82.1%) of the women believe that BPM will alter the body image of the woman; however, more than half of them (65.6%) agreed that BPM is a good option for people who are at high risk of having breast cancer. Significant portion (60.5%) of them don't believe that both men and women can go for bilateral prophylactics mastectomy. The overall summary index of knowledge level of respondents on BPM revealed that more than half (56.4%) of the respondents have poor knowledge about BPM while less than half (43.6%) have good knowledge about it.

Results on attitude of respondents towards BPM is presented in Table 3. More than half (60.5%) of the female staff of the university disagreed that women should not remove their breast to prevent any disease. Though 61.6% of the women agreed that removing the breast is an effective way to prevent difficult diseases related to the breast; most of them (70.8%) felt that BPM is an extreme measure for breast cancer prevention. Of the total respondents, 71.2% of them disagreed that removing the breast to prevent diseases is barbaric; also, 60% disagreed that the fact that it involves surgery makes it an unsuitable option to prevent breast cancer.

A little above half of the respondents (52.3%) disagreed that they do not support removing the breast because the breast is a woman's pride; meanwhile 72.8% agreed that removing the breast should not be done without breast reconstruction. Most of the respondents (93.9%) however, strongly agreed that there should be more enlightenment on bilateral prophylactics mastectomy (Table 3). Overall, 65.1% of the respondents have a negative attitude towards BPM while the others (35%) have a positive attitude towards it.

**Table 1** Sociodemographic characteristics and family history of cancer of respondents.

| Variables | Responses | Freq. (n = 195) | Percent (%) |
|---|---|---|---|
| Age in years | 20–30 | 23 | 11.8 |
| | 31–40 | 109 | 55.9 |
| | 41–50 | 40 | 20.5 |
| | 51 and Above | 23 | 11.8 |
| Marital status | Single | 33 | 16.9 |
| | Married | 162 | 83.1 |
| Religion | Christianity | 174 | 89.2 |
| | Islam | 21 | 10.7 |
| Occupation distribution | Lecturer | 84 | 43.1 |
| | Administration | 111 | 56.9 |
| College | MHS | 50 | 25.6 |
| | Sciences | 43 | 22.1 |
| | Engineering | 24 | 12.3 |
| | Law | 19 | 9.7 |
| | SMS | 30 | 15.4 |
| | Others | 29 | 14.8 |
| Highest academic qualification | Ph.D | 41 | 21.0 |
| | M.Sc | 60 | 30.8 |
| | B.Sc | 39 | 20.0 |
| | HND | 46 | 23.6 |
| | OND | 8 | 4.1 |
| | Others | 1 | 0.5 |
| Years of work experience | <5 years | 32 | 16.4 |
| | 5–10 years | 92 | 47.2 |
| | 11–15 years | 46 | 23.6 |
| | 16–20 years | 10 | 0.1 |
| | 21 years and above | 15 | 7.7 |
| Number of children | 0 | 37 | 19.0 |
| | 1–3 | 135 | 69.2 |
| | 4–6 | 23 | 11.8 |
| Experienced cancer | YES | 6 | 3.1 |
| | NO | 189 | 96.9 |
| Family member and cancer history | YES | 23 | 11.8 |
| | NO | 172 | 88.2 |
| Relationship with the family member (*n = 25*) | Sibling | 11 | 44.0 |
| | Extended Relative | 14 | 56.0 |

Table 4 presents acceptance of BPM among respondents. Most of the respondents (66.1%) were not ready to alter their body shape for any reason and most cannot cope with the shame of losing their breast (70.7%) as most of the respondents (71.3%) believed that that removing their breast might affect their self-esteem; although most of the women (70.8%) disagreed that they have nothing left as women if their breasts is removed and 82.6% disagreed that they'll rather live with the cancer than remove the breasts. More than half (69.2%) of the women are not scared of surgery and 68.7% are not scared of pain after the surgery; and thus, cannot prevent them from going for the procedure. About half of the women (50.2%) said

**Table 2** Respondent's knowledge about bilateral prophylactic mastectomy (*n = 195)*.

| Variables | Responses | Freq. | Percent (%) |
|---|---|---|---|
| Awareness of breast cancer | Aware | 177 | 90.8 |
| | Unaware | 18 | 9.2 |
| | All of the above | 133 | 68.2 |
| | Breast self-examination | 35 | 18.0 |
| Knowledge about how to Detect Breast Cancer | Mammography | 9 | 4.6 |
| | Clinical breast examination | 4 | 2.1 |
| | None of the above | 13 | 6.7 |
| Awareness that bilateral prophylactic | TRUE | 159 | 81.5 |
| Mastectomy involves cutting off of the two breasts | FALSE | 36 | 18.4 |
| Mastectomy greatly reduces the risk of breast cancer | TRUE | 137 | 70.3 |
| | FALSE | 58 | 29.7 |
| BPM compared to other preventive measure for breast cancer is the best preventive measure | TRUE | 126 | 64.6 |
| | FALSE | 69 | 35.4 |
| BPM does not alter the body image of the woman | TRUE | 35 | 17.9 |
| | FALSE | 160 | 82.1 |
| BPM is a good option for people who are high at risk of having breast cancer | TRUE | 128 | 65.6 |
| | FALSE | 67 | 34.4 |
| Both men and women can go for BPM | TRUE | 77 | 39.5 |
| | FALSE | 118 | 60.5 |

that if they cannot afford breast reconstructive surgery after the procedure, then they cannot remove their breast to prevent breast cancer. Almost half of the respondents (49.2%) agreed that they would rather take other options for breast cancer prevention, than BPM. Most of the respondents disagreed that culture (83.6%), religion (86.1%) or husband (71.8%) prevent them from removing their breast to prevent sickness. The overall summary index for acceptance revealed that, 62.6% of the respondents less accepted BPM while only 37.4% accepted it.

Bivariate analysis testing association between knowledge of BPM, staff cadre/rank and acceptance of BPM is presented in Table 5. More of the teaching staffs (lecturers) were noted to have good knowledge about BPM when compared to the administrative staffs. This was statistically significant (p = 0.011). Those who had good knowledge about BPM were noted to most likely accept this procedure while those with poor knowledge were less likely to accept BPM. This was statistically significant (p = 0.002).

## Discussion

Risk-reducing surgery as a primary prevention strategy has proved to be a reasonable procedure in healthy women with a definitely elevated risk of developing cancer, with individualized counseling based on BRCA mutation type.[7] The emergence of preventive bilateral mastectomy as a primary prevention measure in the overall reduction of developing breast cancer is now attracting widespread consideration as an option for the reduction of breast cancer morbidity.[12] Studies suggest that BPM is associated with a 90% reduction

**Table 3** Respondents' attitude about bilateral prophylactic mastectomy (*n = 195)*.

| Questions | Strongly agree f (%) | Agree f (%) | Disagree f (%) | Strongly disagree f (%) |
|---|---|---|---|---|
| Women should not remove their breast to prevent any disease | 20 (10.3) | 57 (29.2) | 72 (36.9) | 46 (23.6) |
| Removing the breast is an effective way to prevent difficult diseases related to the breast | 28 (14.4) | 92 (47.2) | 60 (30.8) | 15 (7.7) |
| Bilateral prophylactic mastectomy is an extreme measure for breast cancer prevention | 83 (42.6) | 55 (28.2) | 44 (22.6) | 13 (6.7) |
| Removing the breast to prevent diseases is barbaric | 16 (8.2) | 40 (20.5) | 103 (52.8) | 36 (18.4) |
| The fact that it involves surgery makes it an unsuitable option to prevent breast cancer. | 19 (9.7) | 59 (30.3) | 89 (45.6) | 28 (14.3) |
| I do not support removing the breast because the breast is a woman's pride. | 32 (16.4) | 61 (31.3) | 76 (39.0) | 26 (13.3) |
| Removing the breast should not be done without breast reconstruction | 45 (23.1) | 97 (49.7) | 40 (20.5) | 13 (6.7) |
| There should be more enlightenment on bilateral prophylactic mastectomy. | 101 (51.8) | 82 (42.1) | 12 (6.2) | 0 (0.0) |

**Table 4** Respondents acceptance of bilateral prophylactic mastectomy (*n = 195)*.

| Questions | Strongly agree f (%) | Agree f (%) | Disagree f (%) | Strongly disagree f (%) |
|---|---|---|---|---|
| I cannot alter my body shape for any reason. | 35(17.9) | 94 (48.2) | 54(27.7) | 12 (6.2) |
| I cannot cope with the shame of losing my breast. | 23(11.8) | 111 (58.9) | 48(24.6) | 13 (6.7) |
| Removing my breast might affect my self-esteem. | 52(26.7) | 87 (44.6) | 41(21.0) | 15 (7.7) |
| I have nothing left as a woman if I remove my breasts | 15(7.7) | 41 (21.0) | 114(58.5) | 25 (12.8) |
| I'll rather live with the cancer than remove my breasts | 5 (2.6) | 29 (14.9) | 112(57.4) | 49 (25.2) |
| I am scared of surgery; therefore, I cannot remove my breast to prevent any disease. | 21(10.8) | 39 (20.0) | 101(51.8) | 34 (17.4) |
| I am scared of pain after the surgery; therefore, I cannot go for the procedure. | 17(8.7) | 44 (22.6) | 102(52.3) | 32 (16.4) |
| If I cannot afford breast reconstructive surgery after the procedure, then I cannot remove my breast to prevent breast cancer. | 27(13.8) | 71 (36.4) | 76(39.0) | 21 (10.8) |
| I would rather take other options for breast cancer prevention, than bilateral prophylactic mastectomy. | 46 (23.6) | 50 (25.6) | 83(42.6) | 16 (8.2) |
| My culture does not permit me to remove my breast to prevent any sickness. | 4 (2.1) | 28 (14.4) | 121(62.1) | 42 (21.5) |
| My religion forbids me from removing my breast to prevent any disease. | 4 (2.1) | 23 (11.8) | 120(61.5) | 48 (24.6) |
| My husband will not agree to remove my breasts to prevent any disease. | 17(8.7) | 38 (19.5) | 99(50.8) | 41 (21.0) |

in breast cancer incidence and mortality in women at high risk of breast cancer.[13]

In this study, most (90.8%) of the women are aware of breast cancer. This is similar to findings from a study conducted among patients and relations attending a surgical outpatient clinic in Southwestern Nigeria where they also found that most of their respondents (96.4%) were aware of cancer of the breast.[14] Though this study demonstrated good awareness, more than half of the women (56.4%) have poor knowledge about BPM. Lack of good knowledge about breast cancer and breast cancer risk may lead to inaccurate perceptions of the disease and a lack of utilization of early detection techniques. Low levels of knowledge and a lack of perceived risk coupled with the inundation of breast cancer information that focuses on older women reinforces the belief that young women are not at risk and do not need to be aware of breast cancer.[15]

Though 61.6% of the women in this study agreed that removing the breast is an effective way to prevent difficult diseases related to the breast, most of them (70.8%) felt that BPM is an extreme measure for breast cancer prevention. Almost half of the women in this study (49.2%) agreed that they would rather take other options for breast cancer prevention, than BPM.

Meiser et al. in 2000[16] carried out one of the studies in this regard where they measured the willingness of 333 healthy women with high risks for hereditary breast cancer though to undergo preventive mastectomy. Only 19% of the participants considered mastectomy to be acceptable while 47% of them did not consider it to be acceptable, even if their genetic testing finds mutations in breast cancer genes.[16]

In Australia, a similar study was conducted by the same group among over 371 participants in 2003. Of the participants, 16% considered preventive mastectomy acceptable, 33% considered preventive ooforectomy acceptable and 23% considered taking prevention drugs acceptable, if drugs are proven to be effective.

Results of another multicenter study, which was conducted in France, Britain and Canada,[17] showed that mammography screening and the preventive medication had the highest acceptance with 87% and 58%, respectively. However, the preventive ooforectomy and mastectomy were acceptable to only 19% and 16% of the study participants.

Another study about women's viewpoint towards the subject was carried out over 102 Singaporean women in 2005. With regard to preventive surgery, 41.3% of the participants did not consider it, 13% considered it and

**Table 5** Cross tabulation of cadre of staff and acceptance with the level of knowledge of BPM among respondents.

| | Good knowledge | Poor knowledge | Chi square | p-value |
|---|---|---|---|---|
| Staff | | | 5.979 | 0.011 |
| Lecturer | 45 (23.1%) | 39 (20%) | | |
| Admin | 40 (20.5%) | 71 (36.4%) | | |
| Acceptance | | | 9.227 | 0.002 |
| Much accepted | 42 (21.5%) | 31 (15.9%) | | |
| Less accepted | 43 (22.1%) | 79 (40.5%) | | |

45.7% did not consider the preventive surgery at the time study was carried out but said they may consider it in the future. With regard to prevent medication, 57% considered it while 26.9% did not.[18]

In Southwestern Nigeria, a 2015 study[1] noted that 38.8% and 49.1% of women in rural and urban areas respectively were willing to accept bilateral mastectomy, connoting that 4 in 10 of women who reside in rural areas and 5 in 10 of those who reside in urban areas were willing to accept preventive bilateral mastectomy as a risk reducing strategy if found to be at high risk. Also, a study conducted in 2012 in similar population[14] documented that only 25.6% of the respondents would agree to accept prophylactic mastectomy if found necessary.

The decision to remove the breast through preventive bilateral mastectomy among the high-risk individuals has cosmetic, social, cultural and spiritual implications because it is a unique organ by virtue of its anatomical location, physiological role, role in sexuality, sociocultural and even spiritual function.[19,20] Women who have had removal of both breasts experienced varying degrees of psychological effects and consequences due to the attendant consequences of the procedure on their feminine personality despite the benefit of preventive bilateral mastectomy.[21–23.]

It becomes important to put mechanisms in place to improve information on breast cancer, its risk factors and this primary prevention strategy – BPM to improve the health seeking behavior and thus encouraging early presentation of patient with breast cancer and those with high risk.

Women in this study will not agree for the removal of their breasts because of fear of surgery (30.8%), pain after the surgery, (31.3%) and inability to afford breast reconstructive surgery after the procedure (49.8%). Multiple studies,[21,22,24] have reiterated the role of body image on acceptance, satisfaction and psychological adjustment following mastectomy. Other reasons proffered were fear of surgery, husband opposition to such a procedure and lack of understanding of the benefits of the surgery. In addition, it was noted among Australian women[16] that body image related factors were a stronger determinant of intention to undergo prophylactic mastectomy.

In this study, having good knowledge about BPM was demonstrated to be related to the likelihood of accepting this procedure. Therefore, improved knowledge is an important motivator for protective health-related behaviors and improved risk prevention practices among women, thereby ultimately reducing morbidity and mortality attributed to breast cancer.

## Conclusion

There was good awareness about breast cancer however the knowledge, attitude and acceptance of prophylactic mastectomy was poor. The major reasons for not accepting BPM were fear of surgery, pain after the surgery, inability to afford breast reconstructive surgery, coping with the shame of losing their breast and that removal of breast could cause low self-esteem. In reducing the morbidity and possibly the mortality from breast cancer, improving the knowledge base of women about breast cancer and its preventive measures including BPM becomes paramount.

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## Ethical Disclosure

Ethical clearance was obtained from the Ethics and Research Committee of Afe Babalola University, Ado-Ekiti (Protocol number: AB/EC/ZI/02/120). Informed Consent was also obtained from study participants before commencement of the study.

## Authors' contributions

D.T.E. and M.O.I. designed the study. D.T.E. and M.O.I, implemented the research. D.T.E., O.A.A, M.O.I, C.R analyzed and interpreted the data. O.A.A, D.T.E and C.R wrote the manuscript. D.T.E and O.A.A arranged to journal specifications. All authors read and approved the manuscript for submission.

## Declaration of competing interest

The authors declare that they have no conflict of interest.

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