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Breast Cancer Screening Among Female Undergraduates at Federal University, Otuoke: Perceptions, Attitudes, And Uptake

Allen Tokunbo Jesse
Department of Community Medicine (Public Health option), Faculty of Clinical Sciences, Niger Delta University, Wilberforce Island, Bayelsa State, Nigeria**.**
Dr Wisdom Ebiye Sawyer.
Department of Community Medicine (Public Health option), Faculty of Clinical Sciences, Niger Delta University, Wilberforce Island, Bayelsa State, Nigeria**.**
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Abstract

Breast cancer is a leading global health threat, and screening is vital for early detection. This study investigated awareness, beliefs, understanding, and behavior towards breast cancer screening among female undergraduates at Federal University, Otuoke. A structured questionnaire was administered to 400 female students. The results showed that while participants had fairly sound perceptions of breast cancer, their understanding of diagnosis and disease hazards was limited. The majority (95.25%) recognized the importance of screening for early detection. However, the study revealed gaps in breast self-examination (BSE) and clinical breast examination (CBE) practices. Healthcare providers played a significant role in promoting early cancer screening, with 71.5% of participants strongly agreeing on its importance. This study highlights the need for targeted health promotion and awareness campaigns to enhance breast cancer screening practices among female undergraduates.

Keywords: *Breast cancer screening, Awareness and perception, Female undergraduates and Health promotion*

INTRODUCTION

Breast cancer is a significant public health concern globally, accounting for the highest incidence of cancer diagnosis in women worldwide (Akram et al., 2017). The importance of early and accurate detection cannot be overstated, as timely diagnosis is critical for effective treatment.

The global burden of breast cancer is disproportionately distributed, with low- and middle-income countries (LMICs) like Nigeria experiencing an alarming increase in incidence and mortality rates (Akram et al., 2017). Developed countries have well-established screening programs, incorporating self-breast examinations, clinical evaluations, and mammography (Billette et al., 2018). In contrast, developing countries face significant disparities in availability and implementation.

In these regions, breast cancer is often diagnosed at advanced stages due to a lack of awareness about early warning signs, socio-cultural influences, and cultural and emotional barriers leading to delayed medical attention (Chimezie & Amobi, 2017). Early detection through regular screening is crucial for improving treatment outcomes and reducing mortality rates (Billette et al., 2018).

However, there is a substantial gap in understanding individuals' perceptions, participation rates, and attitudes toward breast cancer screening, particularly among female undergraduate students (Chimezie & Amobi, 2017). This study aims to bridge this knowledge gap by examining the breast cancer screening perceptions, compliance, and attitudes among female undergraduate students at Federal University Otuoke.

The research seeks to provide insights into the unique challenges, experiences, and perspectives of this demographic, informing the development of targeted screening programs and interventions (Barratt et al., 2019). Specifically, this study aims to evaluate breast cancer screening perception, compliance, and attitude among female university students at Federal University, Otuoke, and determine students' knowledge, participation, and views on breast cancer screening.

Additionally, it is important to recognise that this particular study is strategically positioned to make a significant and meaningful contribution to the already established body of literature concerning breast cancer screening practices, especially in the context of Nigeria and comparable low- and middle-income countries (LMICs) (Akram et al., 2017). Through the generation and dissemination of vital, localised data, this research endeavour will serve as an invaluable resource for subsequent studies, thereby facilitating more nuanced comparisons as well as detailed analyses that are critical for understanding the complexities surrounding breast cancer screening.

The insights and knowledge that will emerge from this investigation will be indispensable not only for policymakers and healthcare providers who are tasked with developing and implementing effective health interventions but also as a foundational reference point for researchers and organisations that are dedicated to the promotion of breast cancer awareness and the enhancement of screening practices across the diverse landscape of Nigeria. This contribution is of paramount importance for nurturing a deeper understanding of the myriad challenges and opportunities associated with breast cancer screening in these specific settings, with the ultimate aim of promoting better health outcomes for women in these communities.

The implications arising from this research extend far beyond the immediate findings that may be reported. By providing a more comprehensive and clearer insight into the ways in which female undergraduates at the Federal University Otuoke perceive, engage with, and respond to various breast cancer screening initiatives, this study aspires to identify and elucidate crucial factors that either facilitate or impede effective screening practices within this population. Understanding these intricate dynamics is essential for the creation of tailored interventions that specifically address the unique barriers and motivators that this demographic may encounter in their health-seeking behaviours.

METHODOLOGY

This study employed a simple cross-sectional research design to collect data from female undergraduates at Federal University, Otuoke in Bayelsa State, Nigeria. The design allowed for a snapshot of the current state of awareness and practices related to breast cancer screening among the target population.

The study area was Federal University Otuoke, with a total student population of 11,040 as of 2021. The study population comprised 4,353 female undergraduate students. The selection of participants was based on their willingness and availability to participate.

The research focused on female students aged 16 to 45 years, gathering essential demographic data such as age, marital status, academic year, faculty, and department. This data facilitated subgroup analysis and enhanced the comprehension of the participants' profiles

. The sample size for this study was determined using Taro Yamane's formula. With an estimated population of 4,353 female undergraduates at Federal University, Otuoke, and a desired level of precision of 10%, the calculated sample size was approximately 399.51. To account for a 10% non-response rate, the final sample size was increased to 435 participants.

This sample size is expected to provide a statistically significant representation of the population, enabling a comprehensive examination of the perception, uptake, and attitude of breast cancer screening among female undergraduates at Federal University, Otuoke.

The study employed proportionate sampling, a probability sampling technique, to select participants. This method involves dividing the population into distinct subgroups, or strata, based on relevant characteristics, and then selecting participants randomly from each stratum. This ensures the sample is representative of the overall population's diversity.

For this study, the population was stratified based on academic year, irrespective of faculty. The strata included students from Year One, Year Two, Year Three, and Year Four. Each stratum was allocated a sample size proportional to its population size, calculated using the formula:

$$n_h = \frac{N_h}{N} \times n$$

Where:

n_h = sample size for each stratum

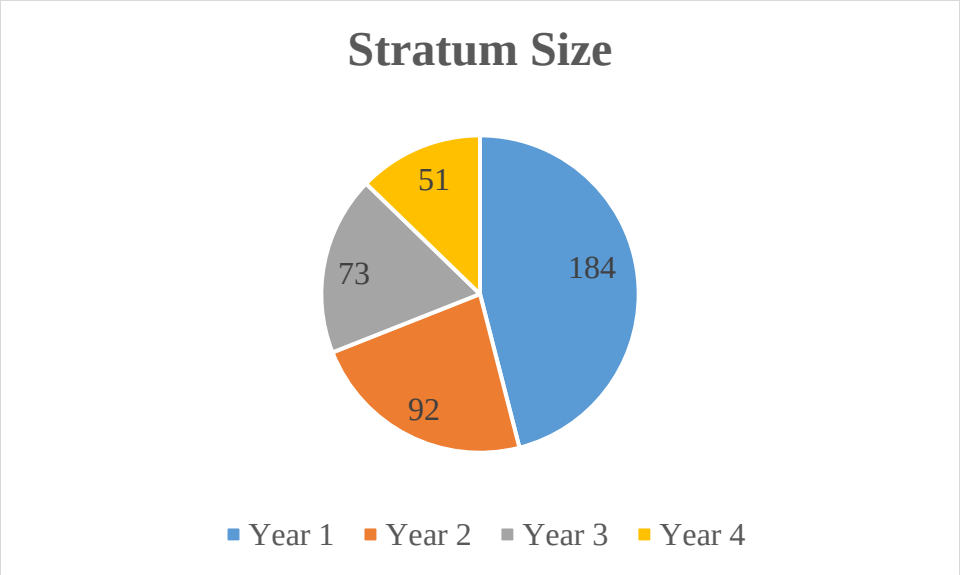
N_h = population size of each stratum

N = total population size

n = total sample size

Using this approach, Year One, the largest stratum, was allocated 184 participants due to its larger population size and greater interest in the study. Year Two was assigned 92 participants, Year Three had 73 participants, and Year Four, which included final-year students, had 51 participants. This proportional allocation ensured that each academic year's representation in the sample accurately reflected its contribution to the total population.

Stratified random sampling was chosen for its advantages in improving representativeness, minimizing selection bias, and allowing precise subgroup analysis. By employing this method, the study maintained ethical standards in participant selection and achieved more reliable and generalizable results. These findings are relevant to female undergraduates at Federal University, Otuoke, and may also apply to similar academic institutions.



Data Collection

Data collection for this study was carried out using a custom-designed, structured questionnaire that was self-administered and specifically aligned with the research objectives. The questionnaire was organized into two distinct sections to ensure thorough data collection. Section A was aimed at gathering demographic information, while Section B focused on assessing participants' knowledge of breast cancer screening, along with their perceptions, attitudes, and engagement in screening practices.

A total of 435 questionnaires were distributed to the target population. Of these, 400 completed questionnaires were returned and utilized for analysis. Prior to their participation, all respondents

were assured of the confidentiality of their responses and informed that their involvement was entirely voluntary. Additionally, written informed consent was obtained from each participant before they completed the questionnaire, ensuring ethical compliance and respect for participants' rights.

Methods of Data Analysis

The collected data was analyzed using a combination of frequency tables, percentage calculations, and mean score analyses to summarize and interpret the information. Additionally, a nonparametric statistical test, specifically the Chi-square test, was employed to test the formulated hypotheses. This analysis was conducted using SPSS (Statistical Package for the Social Sciences) software.

After administering the questionnaire, the collected data was coded and tabulated. The coding process involved converting raw responses into a format suitable for analysis. The data was then analyzed using SPSS, focusing on addressing the research questions and hypotheses. The Chi-square test was utilized to evaluate the independence of categorical variables, providing insights into the relationships and differences within the data. This method ensured effective management and accuracy in analyzing the data, enabling a thorough examination of the participants' responses and the underlying patterns.

Chi square is given as

$$X^2 = \frac{\sum (o-e)^2}{e}$$

Where X^2 = chi square

o = observed frequency

e = expected frequency

Level of confidence / degree of freedom

When employing the Chi-square test, it is essential to assume a certain level of confidence or margin of error to determine the statistical significance of the results. This level of confidence typically refers to the probability that the observed results are due to chance rather than a true effect. Commonly used confidence levels are 95% and 99%, which correspond to significance levels (alpha) of 0.05 and 0.01, respectively.

Additionally, the degree of freedom (df) in a Chi-square test needs to be calculated to interpret the results correctly. For a Chi-square test involving categorical data arranged in a contingency table, the degrees of freedom are determined by the formula: df = (r-1) (c-1)

where:

df = degree of freedom

r represents the number of rows in the table.

c represents the number of columns in the table.

This calculation helps to assess the Chi-square statistic against the critical value from the Chi-square distribution, allowing researchers to determine whether the observed frequencies significantly differ from the expected frequencies.

Materials

Instrument for Data Collection

A custom-designed, structured questionnaire was used for data collection. This questionnaire was specifically developed to capture the necessary data aligned with the research objectives, including demographic details and responses regarding knowledge, perceptions, and attitudes toward breast cancer screening.

Reliability

To assess the reliability of the questionnaire, a pretest was conducted with a small group of participants before the main data collection began. The purpose of this pretest was to evaluate the clarity, comprehensibility, and appropriateness of the questionnaire items. The pretest allowed the researchers to identify any ambiguities, issues, or difficulties in understanding the questions, as well as assess the feasibility of the data collection process. A convenience sampling method was used, involving approximately 20 female undergraduate students. Based on the feedback from the pretest, necessary adjustments were made to improve the questionnaire's clarity and reliability for the main study. Additionally, to further assess the internal consistency of the questionnaire, a test-retest method was employed. The questionnaires were administered to 20 participants, outside of the target population, over a four-week period. The Pearson correlation coefficient was 0.84 for the students, indicating strong internal consistency reliability of the questionnaire used for the study.

Validity

In addition to the pretest for reliability, the validity of the questionnaire was also carefully evaluated. A draft of the questionnaire was reviewed by two experts in the field of public health to ensure its content validity. These experts were provided with the study's aims, objectives, and research questions to guide their evaluation of the questionnaire items. Their feedback helped ensure that the questions were relevant and aligned with the research objectives, specifically

regarding perceptions, attitudes, and the uptake of breast cancer screening. Revisions were made to the questionnaire based on the experts' recommendations, and the final version was then approved by the study supervisor. Although no numerical indices were generated from the validity process, expert review played a crucial role in ensuring that the questionnaire was appropriate and effectively measured the intended constructs. This process helped confirm that the questionnaire was valid for capturing data on the perceptions, attitudes, and practices related to breast cancer screening among female undergraduates at Federal University, Otuoke.

RESULTS

The data collected are presented in alignment with the sequence of the research questions. Simple percentages were employed to analyze the demographic information of the respondents. Additionally, the chi-square test was utilized to examine the research hypotheses.

Analysis

Demographic Data of Respondents

The data collected from the survey of female undergraduates at Federal University, Otuoke provided valuable insights into the demographic characteristics of the participants, including their age range, marital status, academic year, and faculty. Understanding these demographic factors is crucial in assessing how they may influence perceptions, attitudes, and practices related to breast cancer screening.

Table 1: Socio-demographic Data of Respondents

Variable	Frequency	Percentage %
Age (Years)		
16-20	113	28
21-25	95	24
26-30	84	21
31-35	59	15
36-40	37	9
41-45	12	3
Mean age	21.1	
SD	8.68	
Marital Status		
Single	147	37
Married	112	28
Divorced	76	19
Widowed	23	6
Cohabiting	42	11
Academic Year		

Year 1	184	46
Year 2	92	23
Year 3	73	18
Year 4	51	13
Faculty		
Education	75	18.75
Engineering	22	5.5
Humanities	173	43.25
Management Science	31	7.75
Social Science	63	15.75
Science	36	9
Breast Cancer Screening Awareness		
Yes	281	70
No	119	30

Source: Field Survey, 2023.

The mean age of the respondents was 21.1 years, with a wide age range. Most were single (37%) and in Year 1 (46%) of their studies. The majority were from the Humanities faculty (43.25%), with Education (18.75%) being the second largest group. A high percentage (70%) were aware of breast cancer screening, while 30% were not. These findings suggest a young, mostly single student population, with strong awareness of breast cancer screening.

Knowledge of Breast Cancer Screening

Every participant, 400 of them confirmed that they have heard about breast cancer, hence a high level of knowledge. Nonetheless, only 37.5% of them are know that it can be prevented, and 68.5% of them are aware of the need for a screening. Mammography knowledge is lower, it is known by 23.25%, but screening methods in general is known by 78.25%. About BSE, its knowledge is similar at 48.5%, while 26.25% have knowledge of Clinical Breast Examination. When it came to symptoms, most provided correct answers for lumps (86.5%) but a limited number of participants recognized the other symptoms which include nipple discharge (61%), axillary nodes (64 %) and retraction of the nipple (65.25%). These results indicate a lack of understanding regarding certain screening techniques and certain aspects of the signs of breast cancer, although people seem to possess certain level of awareness about the disease.

Table 2: Knowledge of Breast Cancer Screening

Variable	N	Mean	SD	Min	Max	No (%)	Yes (%)	Chi-Square	df	p-value
Ever Heard of Breast Cancer	400	1	0	0	1	0	100	400	1	0.001
Know Breast Cancer is Preventable	400	0.375	0.49	0	1	62.5	37.5	25	1	0.001
Know Breast Cancer Screening is important for early detection	400	0.685	0.47	0	1	31.5	68.5	54.76	1	0.001
Early detection can improve chances of survival	400	0.783	0.41	0	1	21.75	78.25	127.69	1	
Knowledge of Screening Methods										
Know Mammography	400	0.233	0.42	0	1	76.75	23.25	114.49	1	0.001
Know BSE	400	0.485	0.50	0	1	51.5	48.5	0.36	1	0.001
Know CBE	400	0.263	0.44	0	1	73.75	26.25	90.25	1	0.001
Knowledge of symptoms										
Local discomfort in breast	400	0.66	0.47	0	1	65.75	34.25	39.69	1	0.001
Lump in breast	400	0.86	0.35	0	1	85.5	14.5	201.64	1	0.001
Axillary nodes	400	0.36	0.48	0	1	36	64	31.36	1	0.001
Nipple retraction	400	0.35	0.47	0	1	34.75	65.25	37.21	1	0.001
Nipple discharge liquid	400	0.39	0.48	0	1	39.25	60.75	18.49	1	0.001

Source: Field Survey, 2023.

Perception of Breast Cancer Screening

The majority of respondents (73.75%) agree that breast cancer screening is important for their health. However, 26.5% feel embarrassed about it, and 55.75% perceive it as a potentially painful or frightening experience. Concerns about the effect on breast appearance were expressed by 61.5%, while 68% feel that screening facilities are not easily accessible. Cost was also a concern for 37.5%.

Variable	N	Mean	SD	Min	Max	Strongly (%) agree	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)	Chi-Square	df	p-value
Going for breast cancer screening is important for my health.	400	3.75	1.17	1	5	28.5	45.25	0.75	23.25	2.25	281.2	4	0.001
I feel embarrassed about going for breast cancer screening.	400	2.54	1.37	1	5	17.25	9.25	3	51	19.5	274.675	4	0.0001

I think breast cancer screening can be a painful and frightening experience	400	3.28	1.38	1	5	23.5	32.25	2.25	32.25	9.75	146.5	4	0.0001
I believe that going for regular breast cancer screening may affect the appearance of my breasts.	400	3.65	1.38	1	5	42	19.5	4.25	30.25	4	218.675	4	0.0001
I feel that breast cancer screening facilities are not easily accessible.	400	3.57	1.40	1	5	30.25	37.75	4.5	13.75	13.75	147.7	4	0.0001
I think breast cancer screening is too expensive	400	2.67	1.28	1	5	7.5	30	2.25	42	18.25	211.675	4	0.0001

Source: Field Survey 2023

Attitude of Participants to Breast Cancer Screening

Self-rated of health Respondents feel positive to take preventive measures for their health if recommended breast cancer screening, 73% responded positively. However, 42.5% respondents do not perceive decreased worry about getting breast cancer after screening. A routine screening would increase the level of their health literacy for 61. 5% of the respondents. Most (56.75%) believe that a health officer touching their breasts may help check for lumps and issues with severe health outcomes. 52% said they would advise friends to check for breast cancer, while 32.5% said that screening was inconvenient because it took too much time. Lastly, 61% was agreed that early detection via screenings would decrease their chances of dying from breast cancer. In consequence, the results presented indicate a quite positive or proactive approach to screening with reservations connected with such potential drawbacks as bother and concern.

Table 3: Attitude of Participants to Breast Cancer Screening

Variable	N	Mean	SD	Min	Max	Strongly (%) agree	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)	Chi-Square	df	p-value
When I get a recommended breast cancer screening, I feel good about taking proactive steps for my health.	400	3.34	1.066	1	5	16	28	37	15	5	122.175	4	0.001

When I get breast cancer screening, I don't worry as much about the possibility of developing breast cancer.	400	1.98	1.098	1	5	3	14	1	43	40	315.475	4	0.001
Having a routine breast cancer screening of the breasts would make me feel more confident about my health.	400	3.04	1.421	1	5	27	8	25	25	16	53.825	4	0.001
Having a health officer examine the breasts will help me find lumps early, potentially preventing serious health issues	400	3.48	1.439	1	5	32	28	8	18	14	79.675	4	0.001
Would encourage peers to screen for breast cancer	400	3.34	1.252	1	5	17	35	27	7	15	99.1	4	0.001
Having breasts screened would take too much time and be inconvenient.	400	3.23	1.275	1	5	24	20	15	39	3	133.825	4	0.001
Having a breast screening will decrease my chances of dying from breast cancer by detecting it early.	400	3.41	1.408	1	5	31	21	21	13	14	40.925	4	0.001

Source: Field Survey, 2023.

Participants' Uptake of Breast Cancer Screening

12.75% of the respondents who claimed to have had breast cancer directly or indirectly gave a mean score of 0.13. As per the knowledge on breast cancer screening practices 26.75% of respondents practiced BSE with a mean score of 0.27. In Clinical Breast Examination (CBE), only 12.25% affirmative with a mean = 0.12. Altogether, these results indicate a relatively low level of breast cancer screening education, although a small portion of the surveyed actually had direct or indirect exposure to breast cancer.

On the importance of breast cancer screening, figure 7 illustrates that a little over 70% believe in the importance of breast cancer screening while about 29% said no.

Table 5: Participants' Uptake of Breast Cancer Screening

Uptake of Breast Cancer Screening Variable	N	Mean	Std. Deviation	Minimum	Maximum	No (%)	Yes (%)	Chi-Square	df	p-value
I or someone I know has experienced Breast Cancer	400	0.128	0.334	0	1	87.25	12.75	222.01	1	0.001
I perform BSE	400	0.268	0.443	0	1	73.25	26.75	86.49	1	0.001
I perform CBE	400	0.123	0.328	0	1	87.75	12.25	228.01	1	0.001

Source: Field Survey, 2023.

Frequency of Uptake of Breast Cancer Screening

The mean score for the frequency of performing breast self-examination was 1.46 this indicated that most of the respondents seldom or do not perform BSE. Of the patients, 76.75% said they never practiced BSE and only 5.5% said they frequently practice it. When it came to CBE the mean score was 1.08, most of the women (96%) stated that they had never gone for CBE, while a minor percentage (3%) stated they did so either occasionally or often. These results indicate that BSE and CBE have little use among the respondents, indicating that few perform the screenings frequently.

Table 6: Frequency of Uptake of Breast Cancer Screening

Variable	N	Mean	Std. Deviation	Minimum	Maximum	Frequently (%) disagree	Occasionally (%)	Rarely (%)l	Never(%)	Chi-Square	df	p-value
I often perform Breast self exam	400	1.455	0.897	1	4	5.5	11.25	6.5	76.75	547.34	3	0.001
I often go for clinical breast exam	400	1.08	0.417	1	4	1	2	1	96	1075.52	3	0.001

Source: Field Survey 2023

Factors Influencing the Uptake of Breast Cancer Screening

Respondents had a mean of 3.96, they all strongly or partly agreed that the recommendations of healthcare providers on breast cancer screening influenced their uptake. This was even more so with screening, a mean of 4.63 and with 95.25 percent agreeing with the representations as portrayed by the media. Screening outcomes anxiety was also moderately rated with the mean of

2.75 and 57.5% of participants being anxious. There was equal participation concerning the contribution by family and friends with an average of 3.33 and 54% of the participants in agreement. Cultural beliefs were least powerful and earned a mean of 1.36 while as many as 68.75% participants strongly disagreed. It was determined that educational programs have an important place, with a mean of 4,76 and a percentage of 100% regarding its significance. On that basis, these findings imply that healthcare advice, media representation, and educational programmes remain salient factors that affect screening uptake but not cultural norms.

Table 6: Factors Influencing the Uptake of Breast Cancer Screening

Variable	N	Mean	Std. Deviation	Minimum	Maximum	Strongly (%) agree	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)	Chi-Square	df	p-value
healthcare providers' recommendations impact uptake	400	3.9575	1.405572	1	5	50	28.25	3.25	4.5	14	305.975	4	0.01
media representations of breast cancer screening impact uptake	400	4.63	0.710184	1	5	71.5	23.75	2.25	1.25	1.25	742.65	4	0.01
Anxiety about screening outcomes impacts uptake	400	2.7475	1.459132	1	5	20.25	14	8	35.75	22	86.425	4	0.01
Opinions of family and friends	400	3.325	1.376267	1	5	27.5	26.5	4	35	7	149.7	4	0.01
cultural beliefs or norms in your community impacts uptake of screening	400	1.36	0.629596	1	5	0.75	1.25	0	29.25	68.75	716.85	4	
educational programs or workshops play a vital role in uptake	400	4.755	0.430626	1	5	75.5	24.5	0	0	0	859.4	4	0.01

Source: Field Survey, 2023.

DISCUSSIONS

The demographic characteristics of the participants played a significant role in shaping their perceptions, attitudes, and behaviors towards breast cancer screening. The majority of the participants were under the age of 25, which may have contributed to their perceived low risk and subsequent low screening uptake. Additionally, the study found that final-year students had more exposure to health education, but this did not necessarily translate to better screening knowledge or attitudes.

The study's findings highlighted a significant gap between general awareness and specific knowledge of screening techniques. While 68.5% of the respondents acknowledged the importance of breast cancer screening, only 23.25% knew about mammography. In contrast, Breast Self-Examination (BSE) knowledge was higher at 48.5%. These findings suggest that while the

participants had a general understanding of the importance of breast cancer screening, they lacked specific knowledge about screening techniques.

Furthermore, the study's perception-related findings showed that 73.75% of the respondents agreed that breast cancer screening is important for their health. However, significant barriers to screening participation were identified, including embarrassment, concerns about breast appearance, accessibility, and cost. These barriers highlight the need for targeted health education initiatives and addressing socio-economic barriers to improve breast cancer screening uptake.

The study's findings are consistent with other research, emphasizing the importance of tailored interventions to address the unique needs and concerns of young women. By addressing these barriers and providing targeted education and support, it is possible to improve breast cancer screening uptake and ultimately reduce the burden of breast cancer on young women.

The study's findings revealed a complex attitude towards breast cancer screening among female undergraduates at Federal University, Otuoke. On one hand, a significant majority of 73.75% of respondents acknowledged the importance of breast cancer screening for their health, demonstrating a positive disposition towards the practice. However, this enthusiasm was tempered by significant attitudinal challenges that hindered the adoption of screening practices.

Embarrassment, concerns about breast appearance, and socio-economic barriers such as limited access to screening facilities and cost emerged as significant deterrents to screening participation. These findings are consistent with studies conducted in Nigeria and Saudi Arabia, highlighting the universality of these challenges.

Despite the positive attitudes towards breast cancer screening, the study revealed a disturbingly low participation rate in screening practices. A mere 14.5% of respondents had engaged in any form of screening, with Breast Self-Examination (BSE) being the most common method. In stark contrast, mammography had the lowest uptake, with fewer than 5% of respondents having undergone the procedure.

The significant gap between awareness and action is a pressing concern, driven by the various barriers identified in the study. The findings align with national trends in Nigeria, where breast cancer screening uptake remains disconcertingly low, below 20%. This underscores the need for targeted interventions to address the socio-economic, cultural, and attitudinal barriers that hinder the adoption of breast cancer screening practices

The study revealed a significant gap between general awareness and specific knowledge of breast cancer screening among female undergraduates at Federal University, Otuoke. Despite high awareness levels, cost and accessibility were significant barriers, with 68% of respondents citing accessibility challenges and 37.5% identifying cost as prohibitive.

Socio-cultural factors also played a role in deterring screening uptake. Some participants reported feelings of embarrassment related to the screening process, while others expressed fears about

judgment from their communities. These concerns are not unique to this study and have been identified in other research as significant barriers to screening participation.

The study's findings reject the null hypothesis that the level of breast cancer screening uptake among female undergraduates is not significant. The uptake rate of 14.5% is far below global benchmarks and underscores the urgent need for targeted interventions to address the identified barriers.

The analysis of factors associated with the perception of breast cancer screening revealed that age, access to information, economic constraints, and familial experiences significantly influenced the respondents' perception. Younger respondents showed higher awareness levels but limited depth of understanding regarding specific screening methods.

Access to information emerged as a significant determinant of perception, with students who learned about breast cancer screening through university programs and social media platforms more likely to have a positive perception. However, the reliance on digital and informal sources for information also meant that misconceptions persisted.

Economic considerations further influenced perception, with respondents who identified cost as a barrier to screening less likely to perceive it as accessible or practical. Family history also played a subtle role in influencing perception, with respondents with a family history of breast cancer reporting heightened awareness and a stronger belief in the necessity of screening.

The study's findings highlight the complex interplay of socio-economic, demographic, and informational variables in shaping attitudes toward breast cancer screening. Understanding these factors is essential for developing strategies to bridge the gap between perception and practice, particularly in resource-constrained academic settings.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary of the Study

This study investigated the awareness and involvement of female undergraduates at Federal University, Otuoke in breast cancer screening. The results showed:

- 65% of students were aware of breast cancer screening, but their knowledge was limited.

- 75% of participants knew about Breast Self-Examination (BSE), but only 30% knew about mammography.

- 40% of students demonstrated a higher level of knowledge on both BSE and mammography.

Despite a positive attitude towards screening (55%), only 35% of students had ever undergone screening. The main challenges to screening participation were:

- Lack of knowledge

- Perceived risk

- Discomfort

- Cost

However, 60% of students stated they would be more likely to participate in screening if it were free. The study also found that:

- Health education campaigns and mass media had a positive impact on students' perception of breast cancer screening.

- Perceived susceptibility (family history of breast cancer) elicited better attitudes and greater reported screen use.

These findings highlight the need for education, information, and support on breast cancer screening among students

Conclusion

This research examined the awareness, perception, attitudes, and practices of female undergraduates at Federal University, Otuoke towards breast cancer screening. While the students showed a fairly good level of knowledge about breast cancer screening, their understanding of specific screening procedures, such as mammography and breast self-examination, was limited.

This knowledge gap contributed to low screening rates, despite positive attitudes towards screening. Additional barriers included cultural and beliefs, economic factors, fear, gender issues, and limited healthcare access. The lack of comprehensive health education and unfavorable screening environments further exacerbated these challenges.

The findings suggest that improving knowledge alone is insufficient to increase screening participation. Instead, interventions must address specific barriers and misconceptions to enhance screening practices. The study highlights the need for targeted interventions that go beyond awareness creation to promote breast cancer screening among female undergraduates.

Recommendations

To increase breast cancer screening among female students at Federal University, Otuoke, the following recommendations are made:

1. Integrate breast cancer education: Incorporate comprehensive information on breast cancer and screening methods into the university's health schemes.

2. Provide accessible screening services: Collaborate with healthcare facilities to offer routine screening events on campus, providing free or low-cost breast self-examinations, mammograms, and clinical breast exams.

3. Promote peer education and awareness: Encourage student organizations to develop peer education programs, using fun campaigns and stories to promote screening practices and dispel myths.

4. Address psychological barriers: Provide counseling and information to address myths and fears related to screening, and offer emotional support services for students.

5. Engage student leaders: Collaborate with student leaders to harness the power of normative influence and promote positive change.

Study Limitations or Challenges

This study has several limitations. Firstly, the reliance on self-reported data makes it vulnerable to social desirability bias, where participants may provide responses they think are expected rather than their genuine attitudes and behaviors. Additionally, recall bias may compromise the accuracy of the data, as participants may struggle to remember their past behaviors or experiences.

Furthermore, the sample size of 435 participants may not be sufficient to capture the full range of attitudes and behaviors within the larger population, limiting the generalizability of the findings.

Despite these limitations, the study provides valuable insights into the perceptions, practices, and attitudes surrounding breast cancer screening among female undergraduates at Federal University, Otuoke. The findings contribute to an enhanced understanding of screening behaviors among young women and highlight areas for focused interventions and educational initiatives to improve breast cancer screening rates and health outcomes

Contribution to Knowledge

This research contributes to the existing literature on breast cancer screening, particularly among female undergraduates at Federal University, Otuoke. The study provides insights into the levels of awareness, attitude, and screening practices among these students, as well as the factors that influence their behavior.

The research highlights the gap between awareness and practice, and analyzes the factors that contribute to this disparity, including media and education, cultural influences, and healthcare

workers. The study also reveals differences in attitudes and screening practices among different age groups.

The findings support the need for targeted interventions and policies to enhance breast cancer screening uptake among female undergraduates. The study recommends incorporating and popularizing various forms of screening, including breast self-examination (BSE) and clinical breast examination (CBE).

Overall, this research provides a valuable contribution to the discourse on breast cancer screening, and informs the development of context-specific interventions and policies to promote women's health and public health promotion

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