

Knowledge, Attitude and Practice of Breast Self-Examination Among Female Students of the Faculty of Management Sciences in University of Benin, Benin City

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Abstract: Cancer is a major global health threat, ranking as the second most common cause of death in developed countries and the third in developing nations. Globally, breast cancer accounts for 18.4% of female cancers, and its mortality rate is escalating in Nigeria. Since there is no known cause or primary prevention, efforts to control mortality hinge entirely on early detection through secondary measures like Breast Self-Examination (BSE). Crucially, despite modern screening methods, more than 90% of breast cancer cases are detected by women themselves, stressing the importance of BSE. This study determined the level of awareness, attitude, and practice of BSE among female undergraduate students in the Faculty of Management Sciences, University of Benin, Benin City. A one-year cross-sectional study was employed. Respondents (N=260) were selected using a multistage sampling technique from the faculty (mean age 22.3 ± 5.2 years). Data were collected using a semi-structured self-administered questionnaire. Knowledge of breast cancer was universal. Awareness of BSE was high (96.2%), and 80.0% reported actively practicing it. Weekly examination was the most frequent reported practice (28.6%). Despite high practice rates, only 61.2% stated they could confidently perform the examination. A significant association was observed between age and the practice of BSE ($p < 0.05$), and between knowing how to perform BSE and performing it confidently ($p < 0.05$). Although knowledge was high, the overall attitude of respondents towards breast cancer screening was assessed as only fair and was not fully commensurate with their awareness. Knowledge played a significant role in motivating BSE practice. Findings strongly suggest that institutional educational programs are necessary to enhance knowledge translation and improve the confidence and consistent performance of BSE among female undergraduates.

Keywords: Breast Self-Examination (BSE), Knowledge, Practice, Early Detection.

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I. INTRODUCTION

Cancer currently represents a substantial global health challenge; currently it is ranked as the second leading causes of death in the developed countries, only ranked below those of cardiovascular causes (Kocarnik et al., 2022) and actually now the leading causes of death at the globe scale and the only thing still higher in terms of cause of death in poor countries are people dying from infectious causes at a great extend and up to 70% of the cancer related death from the world occurs in poor and middle-class countries (WHO, 2025). Nigeria was also estimated to have had up to 78,889 cancer related deaths, up to 34,200 among them were men, while 44,699 were women (Ogunniyi et al., 2025). Breast Cancer has no known cause or prevention and so, the

mortality from it should really be combated through early-stage detection which needs secondary prevention methods; such as Breast self-examination (BSE) (Kaklamani & Arteaga, 2024). As suggested by Fancher in Essiben et al. (2017); BSE, like annual mammography and clinical Breast Exam, has been found by The National cancer institute and The American cancer society to be valuable in an early screening method for cancer. This BSE is practical and a useful method for patients: "Breast self-examination is not harmful, easy, safe, comfortable and requires only one minute to perform... and can be taught with no or little money (Udeze et al., 2020). When women participate in BSE, they gain more opportunity of breast early detection, more opportunity of getting treatment and high survival chances (Johnson 2019). Medical advances affirm that early diagnosis

influences patient prognosis, alleviating the disease process and increasing life quality (WHO, 2025). “Actually it is the patient and not the doctors or nurses that mostly discover their cancer... Over 90% of woman discovering their breast disease themselves discover it themselves as they themselves discovers more than 90%” (Gabriel in Gupta et al., 2020). Although the use of modern screening procedures has taken place, it is of important still finding BSE is far from uniform (Hussein et al., 2024). Therefore, in order to cope with the rise in breast cancer incidence and mortality, especially considering the simplicity and accessibility of performing BSE; there exists a disinclination where actualization of correct practice of such an essential self-care aspect of female health and management seems elusive (Hamed et al., 2022). Breast, an exterior superficial anatomical feature, means the early screening does not even present difficulty in order to provide the appropriate screening for effective control (Shahrbabaki et al., 2025). Given this situation, the study aimed at determining the level of awareness of, attitude towards, and practice of Breast Self-Examination among female undergraduate students in the faculty of Management Science, University of Benin, Nigeria. It is hoped the result will guide the way to the design of some interventions towards enhancing the attitude and practices of BSE amongst them.

II. METHODOLOGY

➤ Study Design and Setting

This was a cross sectional descriptive study. The setting was University of Benin, with two camp offices; Ugbowo campus (located on the Ugbowo Lagos road in the Egor local government area of Edo State) and Ekwana camp campus (along the Benin-Ekenwan road in Benin City). It started as Institute of Technology in 1970 but received full University status in July 1971. The University now runs 10-12 Faculties, 75 Departments, four Schools, three Institutes and four Centers that cater to its undergraduate, postgraduate, diploma and certificate students.

➤ Study Population and Sampling Method

The University of Benin has a student population size of 29,871 comprising 17,963 males and 11,898 females. The population selected for this study comprised female students of the Faculty of Management Sciences at the University of Benin. The study sought to determine the level of awareness, attitude, and practice of BSE within this undergraduate population.

➤ Sampling Technique

The study population was initially divided using a stratified sampling technique based on the year of study (100 level, 200 level, 300 level, and 400 level) for each department within the faculty. The total female student population within the Faculty of Management Sciences was counted and found to be 1,443. This total was distributed among the three constituent departments: Accounting (630), Business Administration (446), and Banking and Finance (367). Moreover, a systematic approach, considering the proportional representation of students in each level, was applied. This established a ratio of 2:3:5:7 for Banking and

Finance and Business Administration, and 3:4:6:9 for accounting. This proportional allocation was achieved by dividing the calculated sample size for each level by the total female student population in the respective department. Final selection of students was achieved through random sampling from their designated levels.

➤ Sample Size Determination

For this study, 260 respondents were used. The sample size was determined by the standard formula for sample size (N) in a cross-sectional descriptive study

$$N = \frac{pq}{(E/1.96)^2}$$

Where N is the sample size; E is error margin (6.04%); p is prevalence rate (0.5); a study done to ascertain the knowledge and practice of BSE among women in their reproductive age in Indonesia, a prevalence rate of 19% was found. q is 1-p. Attrition rate of 10% of the total sample size was added. $N = (0.5 \times 0.5) / (0.0604 / 1.96)^2$

N is equal to 260.

➤ Data Collection Instrument and Duration

A Semi-Structured Self-Administered Questionnaire were the dominant mode for data collection of information. Overall duration of project was one year.

III. RESULTS

Table 1 gives sociodemographic characteristics of participants. The study comprised 260 female undergraduate students with a mean age distribution showing that the majority were between 18-22 years (47.3%) and 23-27 years (39.2%). The religious affiliation revealed that Pentecostals constituted the largest group (43.8%), followed by Catholics (36.5%). Marital status showed that most participants were single (91.2%). Ethnic diversity was represented, with Benin (22.7%) and Ibo (20.4%) ethnicities being most prevalent. Academic level distribution indicated relatively even representation across all levels, with the highest proportion in 400 level (30.8%) and the lowest in 100 level (16.2%).

Table 1: Sociodemographic Data

Variable	Frequency (%)
Age (year)	
14-18	18 (6.9)
18-22	123 (47.3)
23-27	102 (39.2)
28-32	17 (6.5)
Religion	
Catholic	95 (36.5)
Pentecostal	114 (43.8)
Muslim	11 (4.2)
Protestant	40 (15.4)
Marital Status	

Single	237 (91.2)
Married	23 (8.85)
Ethnicity	
Benin	59(22.7)
Ishan	32(12.3)
Ibo	53(20.4)
Yoruba	34(13.1)
Etsako	19(7.3)
Urhobo	18(6.9)
Owan	15(5.8)
Itsekiri	7(2.7)
Isoko	12(4.6)
Others	11(4.2)
Level of study	
100L	42 (16.2)
200L	67(25.8)
300L	71(27.3)
400L	80(30.8)

30.8% of respondents are in their final year of study, while 16.2% are in their first year.

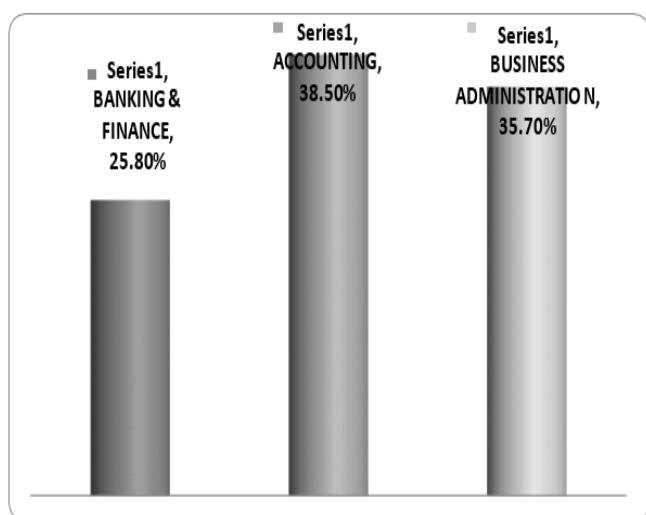


Fig 1: Course of Study of Respondents.

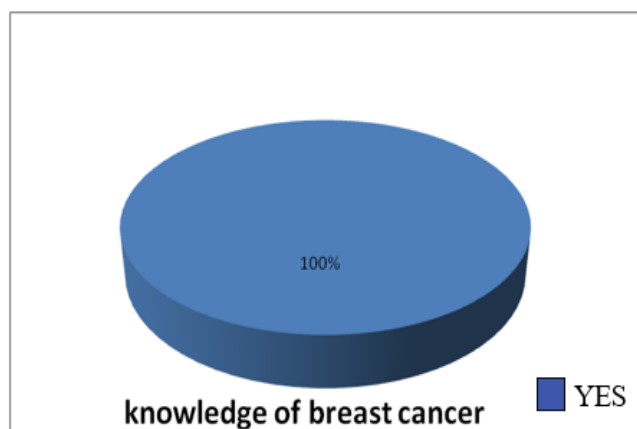


Fig 2: Knowledge of Breast Cancer among Respondents.

Breast Cancer Breast cancer was universally acknowledged and as reported (100%) all volunteers were aware that the disease. This finding demonstrates complete penetration of basic breast cancer awareness among the study population.

Table 2: Breast Cancer Knowledge Among Respondents

Knowledge of Cancer	Frequency (%)
TV	81(31.2)
Newspaper	61(23.5)
Lecture	54(20.8)
Friends	23(8.8)
Health worker	41(15.8)
Knowledge of self-examination	
Yes	250 (96.2)
No	10 (3.8)
Assessment of Respondents' BSE ability	
Yes	234 (90.0)
No	26 (10.0)
Practice of BSE Among Respondents	
Yes	208 (80.0)
No	52 (20.0)

The top source of information on breast cancer was television (31.2%), followed by newspapers (23.5%) and lecture (20.8%). Health workers contributed 15.8% as information sources. Knowledge of breast self-examination was remarkably high, with 96.2% of participants reporting awareness of BSE. Assessment revealed that 90.0% believed they possessed the ability to perform BSE, while actual practice was reported by 80.0% of respondents.

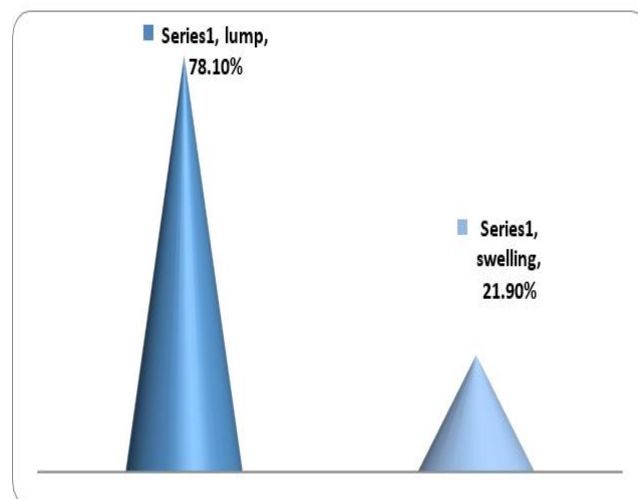


Fig 3: Meaning of Breast Cancer

Participants' conceptualization of breast cancer showed that the majority (78.08%) identified it as a lump, while 21.92% described it as swelling. This indicates reasonable understanding of primary breast cancer manifestations.

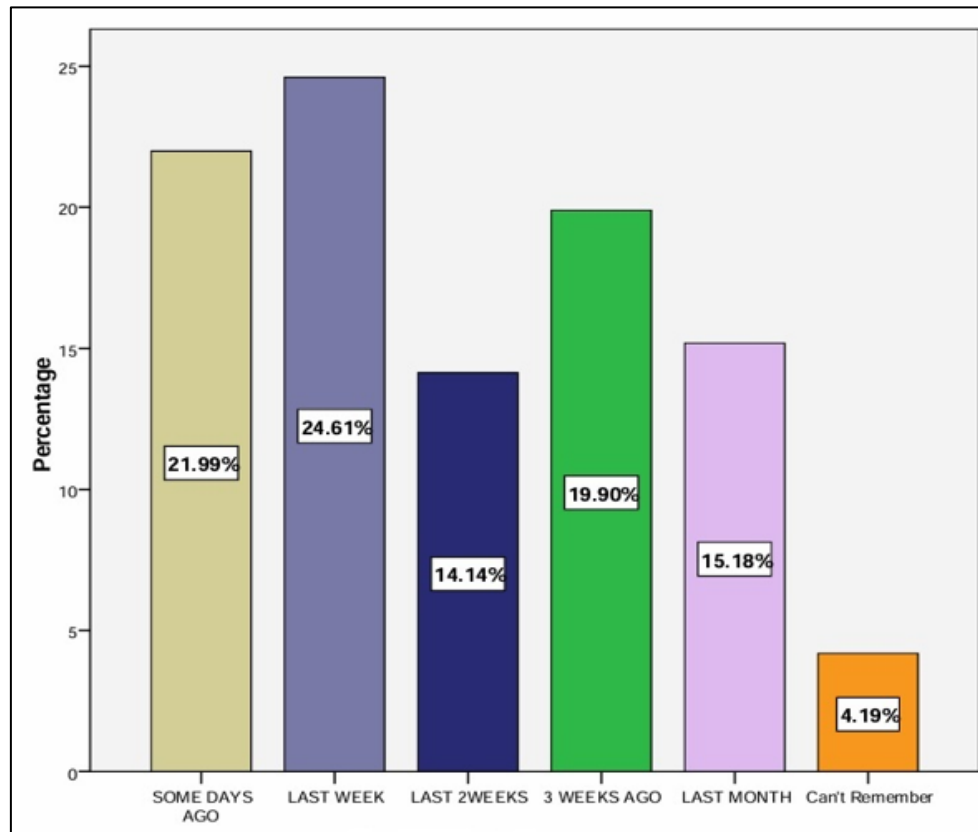


Fig 4: Showing the last time respondent did BSE

Recent BSE practice was reported by 21.99% who performed it within days of the survey, while 24.61% reported practice within the last week. Monthly practice was reported by 15.2% of participants, and 4.19% could not recall their last BSE. This temporal distribution suggests varied adherence to regular screening schedules.

Table 3: Breast Examination Practices

Response	Frequency (%)
Health worker carried out breast examination on you	
Yes	80 (30.07)
No	180 (69.3)
Frequency of BSE among respondents	
Daily	35 (16.7)
Weekly	60 (28.6)
Monthly	53 (25.1)
Bi-Monthly	52 (24.8)
Anytime I feel like	10 (4.8)
Is it necessary to bother about lump in breast	
Yes	232 (89.2)
No	28 (10.86)
Ability To Confidently Perform BSE	
Yes	159(61.2)
No	101(38.8)
Reason for BSE	
Early detection	236 (90.9)
For Healthier living	24 (9.09)
Observed abnormality during BSE	
Yes	119 (45.8)

No	141 (54.2)
Observation made upon BSE	
A Lump	33 (27.7)
A swelling	41 (34.5)
A breast discharge	25 (21.0)
A dimpling	20 (16.8)
Examines breast at the end of Menstrual cycle	
Yes	169 (65.0)
No	91 (35.0)
Looks at the breast in the mirror with arms raised over the head	
Yes	172 (66.1)
No	88 (33.8)
Examines the breast in the mirror with hands on the thigh	
Yes	134 (51.5)
No	126 (48.4)
Do you squeeze the nipple of each breast to look for discharge	
Yes	110 (42.3)
No	150 (57.7)

Table 3 showed the breast examination practices. Clinical breast examination by health workers was uncommon, with only 30.07% reporting this experience. Among those practicing BSE, frequency varied: weekly (28.6%), monthly (25.1%), and bi-monthly (24.8%) were most common. The majority (89.2%) acknowledged the necessity of investigating breast lumps. However, confidence in performing BSE was moderate, with 61.2% expressing confidence. Early detection was the primary motivation for BSE practice (90.9%). Abnormality detection during BSE was reported by 45.8%, with observations including swelling (34.5%), lumps (27.7%), discharge (21.0%), and dimpling (16.8%). Examination techniques showed variable adoption: 65.0% examined breasts at menstrual cycle end, 66.1% performed mirror examination with raised arms, 51.5% examined with hands on thighs, and 42.3% checked for nipple discharge.

Table 4: Breast Examination Perceptions

Perceptions	Frequency (%)
Belief that any lump on breast is cancer	
Yes	112 (43.02)
No	148 (68.0)
One should bother about any lump in the breast	
Yes	232 (89.2)
No	28 (10.9)
Feeling that BSE is embarrassing	
Yes	81 (31.0)
No	179 (68.99)
It takes too much time	
Yes	85 (32.6)
No	175 (67.4)
There is enough privacy for you to do BSE	
Yes	193 (74.4)
No	67 (25.6)
Breast cancer can be a family disease	

Yes	127 (48.7)
No	133 (51.4)

Table 4 presents the perceptions regarding breast examination. Perceptions about breast lumps revealed that 43.02% believed any lump indicated cancer, while 56.98% did not hold this belief. However, 89.2% agreed that any breast lump warranted attention. Barriers to BSE included embarrassment (31.0%) and time concerns (32.6%). Privacy was adequate for 74.4% of participants. Family history awareness showed that 48.7% recognized breast cancer as potentially hereditary.

Table 5: Association Between the Year of Study and Knowledge of BSE.

		100L	200L	300L	400L	χ^2	p-value
HAVE YOU HEARD OF BREAST SELF EXAMINATION	YES	39(15.0%)	65(25.0%)	69(26.5%)	77(29.6%)	1.574	0.657
	NO	3(1.2%)	2(0.8%)	2(0.8%)	3(1.2%)		

P is significant at alpha value of <0.05

TABLE 5: Knowledge of Breast Self-Examination as a Function of Year of Study The relationships between year of study and BSE knowledge are presented in table 5. According to a Chi square test there is not significant association between level of study and BSE knowledge, χ^2 (3)= 1.574, p=.657.

Table 6: Association Between Year of Study and Ability to Perform BSE.

		100L	200L	300L	400L	χ^2	p-value
DO YOU KNOW HOW TO DO BREAST SELF EXAMINATION	YES	41(15.8%)	57(21.9%)	59(22.7%)	77(29.6%)	12.231	
							0.03
	NO	1(0.4%)	10(3.8%)	12(4.6%)	3(1.2%)		

P is significant at alpha value of <0.05

Table 6 showed the association between year of study and ability to perform BSE. A significant association was found between year of study and self-reported ability to perform BSE, χ^2 (3) = 12.231, p=.03.

Table 7: Association between Year of Study of respondents and Practice of BSE

		100L	200L	300L	400L	χ^2	p-value
DO YOU CARRY OUT BREAST SELF EXAMINATION	YES	31(11.9%)	50(19.2%)	57(21.9%)	70(26.9%)	5.03	0.076
	NO	11(4.2%)	17(6.5%)	14(5.4%)	10(3.8%)		

P is significant at alpha value of <0.05

Table 7 showed the association between year of study and BSE practice. The relationship between academic level and BSE practice approached but did not reach statistical significance, χ^2 (3) = 5.03, p=.076.

Table 8: Association Between Age and Knowledge of BSE.

		14-18	18-22	23-27	28-32	χ^2	p-value
HAVE YOU HEARD OF BREAST SELF EXAMINATION	YES	17(6.5%)	121(46.5%)	95(36.5%)	17(6.5%)	4.97	0.076
	NO	1(0.4%)	2(0.8%)	7(2.7%)	0(0.0%)		

P is significant at alpha value of <0.05

Table 8 showed the association between age and BSE knowledge. No significant association existed between age and BSE knowledge, χ^2 (3) = 4.97, p = .076. Knowledge remained consistently high across all age groups, indicating that BSE awareness was age-independent within this undergraduate population. However, age did not significantly influence BSE knowledge among participants.

Table 9: Association Between Age and Ability to Carry Out BSE.

		14-18	18-22	23-27	28-32	χ^2	p-value
DO YOU KNOW HOW TO DO BREAST SELF EXAMINATION	YES	18(6.9%)	110(42.3%)	91(35.0%)	15(5.8%)	2.173	0.786
	NO	0(0.0%)	13(5.0%)	11(4.2%)	2(0.8%)		

P is significant at alpha value of <0.05

Table 9 showed the association between age and ability to perform BSE. Chi-square analysis showed no significant relationship between age and self-reported ability to perform BSE, $\chi^2(3) = 2.173$, $p = .786$. Perceived BSE ability was independent of age.

IV. DISCUSSION

Breast cancer Awareness, Attitude & Practices of Breast Self- Examination Among Female Undergraduates in Faculty of Social sciences at University of Benin. This study investigated Breast cancer Awareness, Attitudes and practices of breast self- examination among female undergraduates in the faculty of social sciences, University of Benin, Benin City. It was aim to assess the level of Knowledge about Breast Cancer and BSE as well as identify reasons responsible for barriers to breast self- examination among student as well as examine association between BSE attitude and year of study among female students and association between BSE Knowledge and practice. The study showed that one hundred per cent (100%) of female undergraduates was Aware Of breast cancer but 96.2 % had good breast Self-Examination knowledge. A similar trend was observed in previous Studies carried out among women in Africa (Godfrey et al 2016; Birhane et al 2017). However, another study conducted by Birhane et al. (2017) on female Debre Berhan University Students in Ethiopia revealed low level of Knowledge and practice among the participants. TV was the most frequently encountered information sources used by over 420 Iraqi undergraduate Scholar sat the faculty of basic education, University of Tikrit 31.2% as report by Hassan 2023. The study found that 73.2% of respondents identified newspapers and Television is their primary source of breast cancer awareness. The Study indicated no association Between year of study and BSE knowledge (= 1.574; $P = .657$).

This is different to Yazew et al (2024), who observed a Positive association between years of schooling and knowledge of BSE among female teachers. The students demonstrated generally positive attitudes towards BSE; nearly half reported believing in investigating any lump on their breasts (89.2%) or that early detection was the main incentive for practicing BSE (90.9%), findings that are in alignment with the research by Pengpid at Udoh et al (2020) from 24 low-and middle-income countries where positive attitudes regarding the value of BSE are positively related to BSE behavior. Nonetheless, roughly a third of individuals identified embarrassment (31.0%) or the time requirement of the technique (32.6%) as concerns. Almost half said that identifying any lumps during BSE signifies breast cancer – a misconception That might discourage them from carrying out screening, for fear of finding a tumor (43.02%).

Similar concerns regarding the absence of any perceived benefit to the technique (because the participants wrongly believe anything found necessarily signifies malignant illness) or perceived difficulties/inconvenience, e including fear of discovering any of these, have been recorded by Hanson et al (2019) in a variety of cultures. Nearly a quarter of women report having nowhere to screen privately (25.6 per cent), perhaps because most participants are living on university campus with flat mates (as this group are generally aged under 24 and in their early years of university degree-earning). Confidence was expressed by about 61.2% of women who thought they knew how to conduct BSE effectively. Studies from Ghana found that perceived barriers associated with the BSE task are inversely correlated with the level of actual performance of BSE among female college students (Boafo & Tetteh 2020).

Our findings that most study respondents (61.2% for performance knowledge, 65.5% for practice ability and 76.7% for intention knowledge) are knowledgeable about or confident with the necessary steps for BSE is interesting, considering that just about 28.6% reported practicing BSE monthly. Nearly 80% of female students surveyed knew about performing BSE and over 76% were able to recall the steps involved in performing BSE in some way but only 80% of women practiced BSE, which resulted in a discrepancy of between approximately 16.2% (BSE practice versus breast knowledge) between the two in the group. Of the women practicing BSE, only 28.6 % would examine breast lumps once per month, and only about a quarter had ever seen their Breast-cancer screening-practice examined by health workers (30.07%). The considerable knowledge-to-practice gap highlighted in Nigeria (Gwarzo in Udoh et al. 2020) with month1 y practice less than 19% with a prevalence of over 87% Knowledge is indeed a general issue in Sub-Saharan Africa. In many studies reported in sub- Saharan African, poor understanding of BSE technique is identified as the most important barrier (Johnson 2019).

Our finding on the adherence with respect to examination, showed 65.0% had knowledge about breast in menstrual cycle, 66.1 % know check mirror with arms up, while 42.3 per cent examine breast discharges (a warning sign for potential health problems such as nipple cancer/breast disease) is a evidence in supporting that respondents possess knowledge that did not turn to good performance of the method. Our results showed a positive association between Year of Study and perceived competence (value of= 12.231; P value=.03), but non - significant between year of study and actual practice (value of=5.03; P value=.076). There is a lack of evidence that year of Study and perception of competence directly relate to BSE practice, and more research is still Needed to clarify these relationships and also explore

potential mediating factor. However, there is evidence to suggest that in comparison to men; women, of course, had higher Breast Self-Examination (BSE) Practice rates than in men. Gwarzo in Sadoh et al (2021) found the length of university education has a negative significant impact on the practice of Breast-examination. However, our findings demonstrated the significant disparity between knowledge and attitude towards BSE and its practice. Overall, about 20 %of the students studied do not practice BSe, the remaining participants only do so irregularly; it appears difficult to get these students to change their behavior despite favorable attitudes or knowledge level.

V. IMPLICATIONS AND RECOMMENDATIONS

The study findings illuminate several priorities for enhancing BSE practice among female university students. Educational interventions have demonstrated significant effectiveness in improving BSE knowledge, attitude, and practice. PubMed, suggesting that universities should implement mandatory BSE training modules within orientation programs, emphasizing hands-on skill development rather than passive information dissemination. The low rate of clinical breast examination (30.07%) indicates that university health services should establish routine breast health screening programs with individualized BSE instruction. Interventions must address fear, embarrassment, and privacy concerns through culturally sensitive approaches, including designated private spaces in dormitories. Given the dominance of television and newspapers as information sources, public health campaigns should maximize these channels while ensuring messages include specific technical guidance. Finally, recurring educational sessions, peer support groups, and mobile health reminders could sustain engagement and transform initial knowledge into habitual practice.

VI. CONCLUSION

This study confirms that while breast cancer awareness and BSE knowledge are nearly universal among female social science undergraduates, substantial gaps persist between knowledge and consistent practice. The findings show the inadequacy of awareness alone in driving behavioral change and highlight the necessity for comprehensive interventions addressing technical skills, psychological barriers, and environmental constraints. Educational interventions that combine knowledge transmission with practical skill-building and ongoing reinforcement represent the most promising approach to bridging the knowledge-practice divide. Universities, as critical settings for reaching young women before they enter peak breast cancer risk years, must prioritize evidence-based BSE education as part of comprehensive student health programming.

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➤ Competing Interests

Authors have declared that no competing interests exist.

➤ Authors' Contributions

Authors 1 and 2 designed the work. Authors 1 and 3 did the literature review, sought for samples. Authors 1,2, did the laboratory analysis. Authors 1 and 3 did the statistical analysis and prepared the manuscript and authors 2 and 3 reviewed the manuscripts.

➤ Consent

Written informed consent was provided for publication of this case report and images to each of the authors. A copy of written consent is available for review in the Editorial office/Chief Editor/Editorial Board of this journal.

➤ Ethical Approval

Ethical clearance was deemed necessary for this study involving human subjects. Approval was secured from the authorities of the Faculty of Management Sciences prior to data collection.

➤ Informed Consent

Prior to the commencement of the study, written informed consent was diligently sought and obtained from all participating subjects.

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