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Knowledge and Awareness of Breast Cancer Risk Factors and Screening Methods Amongst Undergraduate Pharmacy Students of Ahmadu Bello University Zaria, Nigeria

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A – research concept and design; B – collection and/or assembly of data; C – data analysis and interpretation; D – writing the article; E – critical revision of the article; F – final approval of article.

Abstract

Background: Breast cancer is one of the most common cancers worldwide. Breast cancer screening modalities help in reducing the morbidity and mortality associated with the disease.

Objective: This study aimed at assessing knowledge and awareness of breast cancer risk factors and screening methods amongst undergraduate pharmacy students of Ahmadu Bello University (ABU) Zaria, Nigeria.

Methods: The study was carried out on 235 conveniently sampled fourth- and fifth-year undergraduate pharmacy students. Data was collected through a self-administered questionnaire that assessed the students' knowledge and awareness of breast cancer risk factors, breast self-examination (BSE), clinical breast examination (CBE) and mammography. Each correct response was scored one (1) point and each wrong response was scored zero (0). Respondents with scores 0–2 were considered to have poor knowledge, those with 3-5 points had fair knowledge while those with 6-8 points had good knowledge. SPSS was used to analyze the data, knowledge was described by frequencies and percentages while chi-square test was used to compare responses between 400 and 500 level students, $p<0.05$ was considered significant in all the analyses.

Results: Of the 228 students that participated in the study, 69 (30.3%) were fourth year students while the remaining 159 (69.7%) were fifth year students. Mean age of the participants was 24±3.14. Majority were males 139 (61%) and single 210 (92.1%)**.** Knowledge and awareness scores were; good 24 (10.5%), fair 137 (60.1%), poor 67 (29.4%) for breast cancer risk factors, good 96 (42.1%), fair 90 (39.5%), poor 42 (18.4%) for BSE, good 16 (7%), fair 144 (63.2%), poor 68 (29.8%) for CBE and good 5 (2.2%), fair 165 (72.4%), poor 58 (25.4%) for mammography respectively. When the scores were compared between the levels, a significant difference was obtained ($p< 0.0001$) for knowledge and awareness of BSE.

Conclusion: The study revealed a fair level of knowledge and awareness of breast cancer risk factors and screening methods amongst undergraduate pharmacy students of ABU Zaria.

Keywords: Undergraduate Pharmacy students, Breast cancer, Risk factor, Breast examination

INTRODUCTION

Cancer is a generic term for a group of diseases in which abnormal cells divide without control and can affect any part of the body in various forms (Stewart and Kleihues, 2003; World Health Organization, 2018). Breast cancer is one of the most common cancers worldwide. Breast cancer typically produces no symptoms when the tumor is small and is most easily treated. When breast cancer has grown to a size that can be felt, the most common physical sign is a painless lump (American Cancer Society, 2018). However, the disease is curable if it is detected early, and some of its risk factors are modifiable. There is marked variation in morbidity and mortality of breast cancer between the developed and developing countries (Igene, 2008: Youlden *et al*., 2014). Breast cancer screening and early presentation has changed the outcome of this disease in the developed countries where despite increasing incidence, the morbidity and mortality are declining (Levi *et al.*, 2005). However, the contrary is obtainable in developing countries like in Nigeria where with the alarming increase in incidence, about 70 - 80% of breast cancer patients are still presenting with locally advanced or metastatic breast cancer (Abebamowa and Ajayi, 2000; Adesunkanmi *et al.,* 2006; Akinbolaji *et al.,* 2006; Ikpatt et al., 2002; Kene *et al.,* 2010; Agbo et al., 2014;). Probable reasons for these could be lack of adequate knowledge and awareness of breast cancer, its risk factors and testing methods. The aim of this study therefore was to assess the knowledge of pharmacy students about breast cancer, as they are the future health care professionals that are expected to educate and create awareness among patients and the general public regarding this condition.

METHODOLOGY

Study Design

The study was a cross-sectional survey among undergraduate pharmacy students of Ahmadu Bello University (ABU), Zaria, Northwestern Nigeria.

Study Setting and Participants

The study was conducted among fourth- and fifth-year undergraduate students of the faculty of pharmaceutical sciences of ABU, Zaria. ABU is a federal government university located in Zaria, Kaduna State and was founded on the 4th October 1962, as the university of Northern Nigeria. The faculty was among the first-generation pharmacy schools in Nigeria.

Sampling technique

Convenience sampling was utilized to recruit willing participants.

Data Collection

A self-administered structured questionnaire adopted from a previous study was used to collect data (Modubogwu *et al.,* 2017). The questionnaire was structured into five sections. Section A; were questions on demographic characteristics such as age, gender etc. Section B; were questions on knowledge of breast cancer and its risk factors, section C; were questions on knowledge and awareness of BSE (breast-self-examination), section D; were questions on knowledge and awareness of CBE (clinical breast cancer), section E; were questions on knowledge and awareness of mammography.

Measurement of Variables; For each question asked, participants were given options to select from. An I don't know option was always included in the list of options. Thereafter, each correct response was scored one (1) point and each wrong response was scored zero (0). For knowledge and risk factors of breast cancer, the total score ranged from 0–8. Respondents with scores 0–2 were considered to have poor knowledge; those with 3-5 points had fair knowledge while those with 6-8 points had good knowledge.

For questions on BSE, the total score ranged from 0–6. Respondents with scores 0–1 were considered to have poor knowledge/awareness, those with 2-4 points had fair knowledge/awareness while those with 5-6 points had good knowledge/awareness.

Knowledge and awareness of CBE was calculated the same way but with the total score ranging from 0–4. Respondents with scores 0–1 were considered to have poor knowledge/awareness, those with 2-3 points had fair knowledge/awareness while those with 4 points had good knowledge/awareness.

Knowledge and awareness of Mammography questions had a total score ranging from 0–3. Respondents with scores 0–1 were considered to have poor knowledge/awareness, 1-2 points had fair knowledge/awareness while 3 points had good knowledge/awareness.

Data analysis

The data were coded and entered into IBM® SPSS® Statistics software version 25 (Chicago, IL, USA). Descriptive statistics in form of frequencies and percentages were used for the demographic characteristics, knowledge of breast cancer and risk factors, knowledge and awareness of SBE, CBE and mammography respectively. Chi-square test was used to compare the level of knowledge/awareness of SBE, CBE and that of mammography among study participants. $P<0.05$ was considered significant

RESULTS

A total of 235 questionnaire were distributed and 228 were retrieved giving a response rate of 97%. Majority of the respondents were fifth year students 159 (69.7%) and the remaining 69 (30.3%) were responses from fourth year students. There were more male participants 139 (61%) than females and majority 210 (92.1%) were single (not married). The details are as shown in Table 1

Table 1: Demographic Information of Respondents n=228

Demographics	**Frequency (%)**
Age group*, years	
19-24	145 (63.6)
25-30	72 (31.6)
>30	4 (1.8)
Gender	
Male	139 (61)
Female	89 (39)
Marital status	
Single	210 (92.1)
Married	18 (7.9)
Ethnicity	
Hausa	117 (51.3)
Yoruba	22 (9.6)
Igbo	2 (0.9)
Others	87 (38.2)
Religion*	
Islam	178 (78.1)
Christianity	49 (21.5)
Level of study	
400L	69 (30.3)
500L	159 (69.7)

*some missing values, L= level.

Breast cancer awareness and knowledge of risk factors

Majority of the respondents 222 (97.4%) were aware of breast cancer. The most common 163 (71.5%) source of knowledge for the study participants about breast cancer was media which include; Internet, T.V and radio (Figure 1)

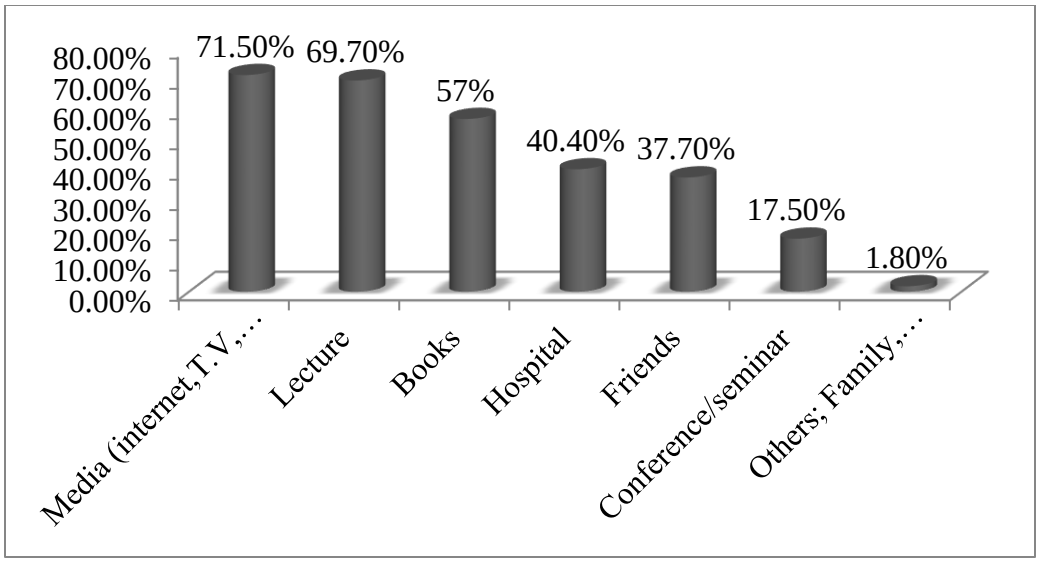

Figure 1. Source(s) of information about breast cancer among undergraduate Pharmacy students ABU, Zaria (n=228).

The findings in this study revealed that 60% of the students had fair knowledge, ten point five percent had good knowledge and about 30% had poor knowledge of breast cancer risk factors as shown in (Table 2). Questions asked in this section included family history of breast cancer, null parity (not having children at all), having first child birth after the age of 30years, breast feeding for <1-year, early menarche (starting menstruation at ≤11 years), late menopause (cessation of menstruation at ≥50 years), use of hormonal contraceptives and obesity (all with yes/no/I don't know response options).

Table 2: Knowledge of breast cancer risk factors among participants n=228

Level of knowledge	Frequency (%)
Poor (0-2)	67 (29.4)
Fair (3-5)	137 (60.1)
Good (6-8)	24 (10.5)

Knowledge and awareness of breast cancer screening methods

Assessment of study participants on BSE revealed that 96 (42.1%) had good knowledge/awareness, 90 (39.5%) had fair knowledge/awareness while 42 (18.4%) had poor knowledge/awareness. Only 16 (7%) of the participants had good knowledge and awareness of CBE while more 144 (63.2%) participants had fair knowledge and awareness of CBE and 68 (29.8%) had poor knowledge and awareness. Furthermore, majority 165 (72.4%) of the study participants had fair knowledge and awareness of mammography; few participants had good 5 (2.2%) knowledge and awareness, whereas 58 (25.4%) had poor knowledge and awareness of mammography as a screening method of breast cancer (Table 3).

Table 3: Knowledge and awareness of breast cancer screening methods among respondents n=228

Level of knowledge/awareness score	Frequency (%)
BSE	
Poor (0-1)	42 (18.4)
Fair (2-4)	90 (39.5)
Good (5-6)	96 (42.1)
CBE	
Poor (0-1)	68 (29.8)
Fair (2-3)	144 (63.2)
Good (4)	16 (7)
Mammography	
Poor (0-1)	58 (25.4)
Fair (2)	165 (72.4)
Good (3)	5 (2.2)

BSE= breast-self examination, CBE= clinical breast examination

Comparison of knowledge and awareness of breast cancer screening amongst study participants n=228

There was significant difference (p<0.0001) in the levels of knowledge and awareness of BSE between 400 and 500 levels undergraduate pharmacy students. However, the chi-square test showed no significant difference (p = 0.12 and p= 0.19) in the levels of knowledge and awareness of CBE and mammography between 400 and 500 levels undergraduate pharmacy students respectively (Table 4).

Table 4: Comparison of knowledge and awareness of breast cancer screening methods amongst undergraduate Pharmacy students ABU, Zaria

Level of knowledge/awareness score n (%)	400L, n=69	500L, n=159	df	*p*-value
BSE				
Poor (0-1)	22(31.9)	20(12.6)		
Fair (2-4)	30(43.5)	60(37.7)	2	0.0001*
Good (5-6)	17(24.6)	79(49.7)		
CBE				
Poor (0-1)	27(39.2)	41(25.8)		
Fair (2-4)	37(53.6)	107(67.3)	2	0.12
Good (5-6)	5(7.2)	11(6.9)		
Mammography				
Poor (0-1)	14(20.3)	44(27.6)		
Fair (2)	52(75.4)	113(71.1)	2	0.19
Good (3)	3(4.3)	2(1.3)		

* = significant at ≤ 0.05, df= degree of freedom, BSE= breast-self examination, CBE= clinical breast examination, n= numbers. L= level of study.

DISCUSSION

Majority of undergraduate pharmacy students of ABU, Zaria were aware or have heard about breast cancer. This is similar with the findings reported from university of Ibadan (Chioma and Asuzu, 2007) and university of Ilorin (Salaudeen *et al.*, 2009) Southwest Nigeria respectively. However, this is contrary to a study conducted in Malaysia where the vast majority of the female university students had inadequate knowledge of breast cancer (Hadi *et al.*, 2010) This finding may be attributed to the fact that healthcare students offer a little bit of cancers in their taught curricular.

The findings in this study revealed a fair level of knowledge and awareness of breast cancer risk factors among students. This is similar to a study conducted in Al-mukalla city among female

university students in Yemen (Ahmed, 2010). A study conducted in a university teaching hospital in southwestern Nigeria reported the knowledge of breast cancer risk factors as satisfactory among medical doctors but inadequate among a large percentage of nurses, pharmacists, laboratory scientists and physiotherapists (Ibrahim and Odusanya, 2009). The fair level of awareness obtained in this present study may be as a result of increased media exposure of the participants especially social media.

On the screening methods assessed for detecting breast cancer in this study majority of the participants were more familiar with BSE, followed by CBE and mammography respectively. This finding is similar to a study conducted among university female students in Yemen (Ahmed, 2010). BSE, CBE and mammography are recognized methods of screening for breast cancer and adoption of mammography screening has led to reduction in mortality from the disease in women over 50 years (Olsen *et al.,* 2005). Although, some countries with population-based breast cancer screening programme use all the three methods, some recommend use of either one or two (Shapiro *et al.,* 1998). The American Cancer Society guidelines for cancer screening recommend annual mammogram and CBE for women above the age of 40 years. Furthermore, monthly BSE is made optional with emphasis on the importance of breast cancer awareness (Smith *et al.,* 2005), though, regular BSE does not influence mortality from breast cancer, it assists women in detecting benign breast lumps and in creating more awareness about breast changes (Thomas et al., 2002). Women with breast cancer in Nigeria are relatively younger than their Caucasian counterparts, hence, adopting mammography screening guidelines designed for Caucasian population may not be beneficial in Nigeria since a large proportion of women with breast cancer are younger than the recommended age group for screening (Adebamowa and Ajayi, 2000; Anyanwu, 2000).

A large number of studies in Nigeria concerning clinical presentation of breast cancer among Nigerian women reported late presentation of the disease (Okobia and Osime 2001). This late presentation is directly related to the level of awareness about breast cancer, the risk factors and practice of the screening methods among Nigerian women. There have been reports about knowledge, attitude and practice of breast cancer screening methods among health and non-health workers in various parts of Nigeria (Odusanya and tato, 2001; Okobia *et al.,* 2006). Studies in developed countries show that attitude and orientation of healthcare providers are important determinants for the use of breast cancer screening programmes (Lurie *et al.,* 1997). In order to function as effective promoter of breast cancer control through early detection, health workers must possess the relevant knowledge as well as appropriate attitude and belief concerning the disease and its early detection (Roshan *et al.,* 1994).

CONCLUSION

Conclusively majority of undergraduate pharmacy students of ABU, Zaria have heard about breast cancer as a disease but they revealed a fair level of knowledge and awareness of the risk factors and screening methods of breast cancer Therefore, there is need to update the curricular of clinical pharmacy training to include a course on cancer so that pharmacists will be better informed about risk factors and screening methods for early detection of breast and other cancers like cervical, prostate and colorectal.

Media campaigns in campuses should be intensified to improve the knowledge and awareness of breast and other cancers as it ranked the highest source of information for the respondents in this study.

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ETHICAL CONSIDERATION

Ethical approval with clearance certificate reference: ABUCUHSR/2019/001 was obtained from Directorate of Academic Planning and Monitoring of Ahmadu Bello University Zaria. Details of the study with respect to objectives of the study, study protocol, risks and benefits, confidentiality and rights were explained to all potential participants, finally, written informed consent was signed by each of the study participants before answering the questionnaire.

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