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Assessing the Knowledge of Breast Cancer and its Treatment Among Female Undergraduate Students in the Faculty of Science in a Tertiary Education Institution in Nigeria

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ABSTRACT

A cross-sectional study carried out to determine the knowledge of breast cancer and its treatment among female undergraduate students in the faculty of science at Gombe State University. Self-administered questionnaires were distributed to all 260 respondents who were in the faculty of science Gombe State University. More than half of the respondents were aged 21-25 (59.2%), most of them were single (61.2%) and 70.4% of respondents reported having no family history of breast cancer and 38.1% were in 200 level. More than two-thirds of the respondents (85.0%) showed a poor understanding of the major risk factors and early warning signs of breast cancer but the result reported that the majority of the respondents are aware of the existence of the disease. Chi-square test detected a statistically significant association between academic level (p-value= 0.01<0.05), and family history (*p*-value= 0.04<0.05) with the knowledge of breast cancer and treatment. The findings show that there is inadequate knowledge of breast cancer disease among female undergraduate students in Gombe State University targeted education measures should be employed to improve the early detection of breast cancer.

Keywords: Breast Cancer, Female, Undergraduate Students, Gombe, Nigeria

INTRODUCTION

The incidence and mortality of breast cancer is rapidly rising. Breast cancer is a malignant tumor that develops from the cells of the breasts. It normally starts from the inner lining of milk ducts that supply them with milk. Because of the rising incidence of breast cancer, it becomes one of the major interests of scientific research, and screening for breast cancer is highly recommended.

The International Agency Research on Cancer (IARC) reported 28,380 new cases of breast cancer in Nigeria in 2020 (Sung *et al*, 2021). The Gombe Cancer Registry reported a total of 1833 cases of cancer from 2009 to 2016. The highest percentage of the cases in females was breast cancer, 33.5% (FMoH, 2016). According to the (National Cancer Institute, 2011), about 232,340 female breast cancer and 2,240 male breast cancer are reported in the USA each year (Menson, 2001). Globally, breast cancer is the most common malignant neoplasm among women. Breast cancer accounts for 35.1% of cancer cases in Egypt and the median age at diagnosis is ten years younger than in Europe and the United states (Abdulla, 2011). The World Health Organization reports that about 519,000 women die from breast cancer annually and more new cases are reported(WHO 2022; Afaf *et al*., 2015). The incidence of breast cancer is higher in developed countries than in developing countries (Hisham and Yip 2004). Lack of breast cancer screening and awareness is responsible for the increasing incidence and mortality from breast cancer in developing countries as many cases of the

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disease are reported at advanced stage which ultimately results in poor treatment outcome (Afolayan *et al*., 2012).

Most university students are at a level where it is of paramount importance to regularly carry out breast self-examination to sense any changes early (Afaf *et al*., 2015).

MATERIALS AND METHODS

Study Site

This study was carried out at Gombe State University located in Gombe State Nigeria.

Study Design

This study is a descriptive cross-sectional survey among female undergraduate students in the Faculty of Science, Gombe State University.

Study Population

The study population involved all accessible female undergraduate students in various departments of the Faculty of Science at Gombe State University during the time of this study.

Study Instrument

Self-administered questionnaire developed based on the previous research and literature according to possible awareness and knowledge about breast cancer was used to collect data from the respondents. The questionnaire was divided into five sections, which are socio-demographic data (such as age, marital status, academic level, and family history), awareness section (which comprises six questions), knowledge of breast cancer disease section (knowledge of risk factors, early warning signs, and Breast self-examination), knowledge of breast cancer treatment (which contain six questions) and perception section. The questionnaire was adopted from previous research and modified.

Validity of Instrument

The instrument was submitted to the expert in the study area, for any possible corrections where necessary, and then the face and content validity of the instrument were ascertained.

Sample Size Determination

The sample size was determined using the formulae:

$nf = \frac{N \times n_o}{N + n_o}$ as described by (Araoye 2004) for a population of < 10,000. Where N= estimated population of female students in the faculty of science, Gombe State University n_o= estimated population size (for population > 10,000), and n_f = adjusted sample size (if the population is < 10,000).

For the estimated sample size $n_o = \frac{Z^2\,pq}{d^2}$ where: Z= number of deviations (considered as 1.96 at 95% confidence interval); p = proportion of the population (for maximum variability, p = 0.5); d= tolerable sampling error (5%=0.05);

$n_o = \frac{1.96^2 \times 0.5(0.5)}{0.05^2}$ = 384.61, approximately 385.

To determine the adjusted sample size based on the estimated size of the study population as obtained above:

$nf = \frac{1400 \times 385}{1400 + 385}$ =301.96, approximately 302 respondents.

Sampling Method

A convenient sampling technique was used to collect data in which all participants had an equal chance of being selected.

Data Collection

Four assistants were recruited who were briefed on the content and the importance of the instrument. A total of 310 questionnaires were distributed to the respondents, and a

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total of 260 questionnaires were returned and appropriately completed by the respondents, reflecting a return rate of 83.8% from the minimum sample size, 10% were not returned and 6.2% were regarded as invalid because the respondents provide multiple answers to a single question almost throughout, as some question are mutually exclusive. The questionnaires were collected on six consecutive days.

Data Analysis

The returned questionnaires were analyzed using the Statistical Product Service Solution (SPSS) version 25.0. Categorical data were presented as frequency and percentages of the total. However non-parametric method (chi-square test) was used to show the effects of socio-demographic data on the respondents in the level of knowledge and its treatment, they were then classified into good (100-80%), fair (79-60%) and poor (<60%) based on blooms cutoff category (Ramhi *et al.,* 2018). The perception section was categorized into positive and negative perceptions. A variable with a p-value of less than or equal to 0.05 was considered significant.

Ethical Consideration

This study was approved by the Research and Ethics Committee of the Gombe State Ministry of Health under the state Health Research Committee, with the reference number: MOH/ADM/621/V.1/307. All questionnaire responses were kept anonymous.

RESULTS

Table 1 shows that 239 (91.9%) admitted to having heard of breast cancer, of which 142(54.6%) stated that the condition is not common in their environment and 217(83.3%) believed that early detection improves chances of survival.

Table 1: Participants' Responses on Awareness

STATEMENTS	N (%)
Have you heard of breast cancer?	
YES	239 (91.9)
NO	20 (7.7)
Is it common in your environment?	
YES	118(45.4)
NO	142 (54.6)
Can it be detected early?	
YES	190 (73.1)
NO	69 (26.5)
Can early detection improve the chances of survival?	
YES	217 (83.5)
NO	43 (16.5)
Have you heard of breast self-examination?	
YES	214 (82.3)
NO	46 (17.7)
How did you hear about breast cancer?	
Online	74 (28.5)
Television	75 (28.8)
Friends	45 (17.3)
Others	66 (25.4)

Table 2 shows that there was no statistically significant association between the knowledge of breast cancer with age, marital status, academic level, and family history.

Table 3 showed that there was a statistically significant association between knowledge of breast cancer treatment with family history (p-value= 0.04<0.05) but there was no association with other socio-demographic variables.

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Table 2: Participants Responses on Knowledge of Breast Cancer

Socio-demographic	**Characteristics n (%)**			
	Good	Fair	Poor	P – Value
AGE				
16 – 20	3 (4.2)	7 (9.7)	62 (86.1)	0.67
21 – 25	5 (3.2)	19 (12.3)	130 (84.4)	
26 – 30	0 (0.0)	1 (4.5)	21 (95.5)	
31 and above	0 (0.0)	1 (1.2)	10 (90.9)	
MARITAL STATUS				
Single	4 (2.5)	18 (11.3)	137 (86.2)	
Married	4 (4.8)	8 (9.5)	72 (85.7)	0.77
Divorced	0 (0.0)	2 (16.7)	10 (83.3)	
Widowed	0 (0.0)	0 (0.0)	4 (100)	
ACADEMIC LEVEL				
100L	4 (4.6)	6 (6.9)	77 (88.5)	
200L	4(4.0)	11 (11.1)	84 (84.8)	0.1
300L	0 (0.0)	9 (20.5)	35 (79.5)	
400L	0 (0.0)	2 (6.9)	27 (93.1)	
FAMILY HISTORY				
YES	4 (6.3)	6 (9.5)	53 (84.1)	
NO	3 (1.6)	19 (76.0)	161 (88.0)	0.2

$p<0.05$

Table 3: Participants Responses on Knowledge of Breast Cancer Treatment

SOCIODEMOGRAPHIC	GOOD	FAIR	POOR	P – VALUE
AGE				
16 – 20	4 (5.6)	6 (8.3)	62 (86.1)	
21 – 25	7 (4.5)	18 (11.7)	129 (83.8)	0.93
26 – 30	1 (4.3)	2 (8.7)	20 (87.0)	
31 and above	0 (0.0)	1 (9.1)	10(90.9)	
Marital status				
Single	6 (3.8)	19 (11.9)	134 (84.3)	
Married	6 (7.1)	8 (9.4)	71 (83.5)	0.33
Divorced	0 (0.0)	0 (0.0)	12 (100)	
Widowed	0 (0.0)	0 (0.0)	4 (100)	
Academic level				
100L	3 (3.4)	4 (4.6)	80 (92.0)	
200L	9 (9.1)	12 (12.1)	78 (78.8)	0.08
300L	0 (0.0)	8 (18.2)	36 (81.8)	
400L	0 (0.0)	3 (10.0)	27 (90.0)	
Family history				
YES	5 (7.8)	6 (9.4)	53 (82.8)	0.04
NO	7 (3.8)	17 (9.3)	159 (86.9)	

$p<0.05$

There is considerable poor knowledge of cancer and its treatment as shown in figure 1 below.

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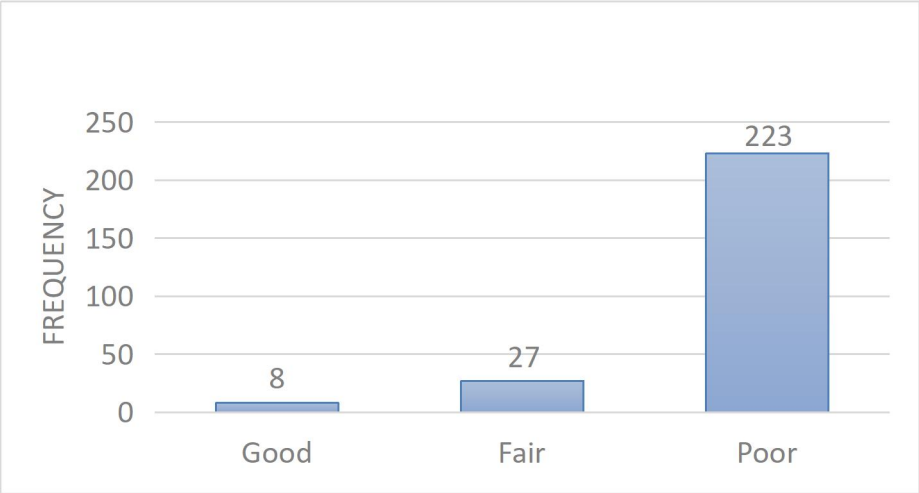

Figure 1: The figure above represents the result for overall knowledge of both breast cancer and its treatment obtained from this study.

DISCUSSION

The study revealed that, of the 260 respondents, 154 (59.2%) of the women who participated in this research were aged between 21-25, 159 (61.2%) were single and 183 (70.4%) had no family history of breast cancer, compared to 64 (24.6%) who had the family history. 217 (83.5%) of the respondents believe that if breast cancer is diagnosed early, it improves the chances of survival of the patient, this is consistent with other studies obtained by (Okobia et al., 2006; Madanat and Merril 2006), but inconsistent with other study carried out by (Akhigbe and Omuemu, 2009). Furthermore, 214 (82.3%) of participants admitted that they had heard of breast self-examination for breast cancer, these basic findings are contrary to research (Akhigbe and Omuemu, 2009) showing that (86.1%) of the interviewed women did not know about breast self-examination. A study in Ethiopia showed that self-reported breast cancer screening coverage is low (Abdel-Fattah *et al*., 2000).

The study showed that the majority of participants had a good awareness of breast cancer. In this study, the majority of our respondents were aware of the existence of the disease but they showed a poor understanding of major breast cancer risk factors and symptoms. The participants were not aware of early signs of breast cancer therefore were likely to miss them even if they perform breast self-examination. This study was in line with what was reported by (Mufavedze *et al.,* 2012) who reported that 72% of university students in the United States had poor knowledge of breast cancer symptoms. Knowledge about the treatment of breast cancer was in line with the work done by (Kumar *et al.,* 2009) but higher than that found by (Oluwatosin and Oladepo, 2006). It was also found that more than 50 % of females in their 20s with university education have poor knowledge about breast cancer (Menson, 2001).

Using chi-square statistical analysis and (P = 0.05) as a significant reference value yielding poor results, it is clear that education level has a significant effect on the level of knowledge of breast cancer and its treatment among female undergraduate students, with (p-value = 0.01 < 0.05). As well, there was a significant association according to those having a family history of breast cancer and those that do not (p-value = 0.04 < 0.05).

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CONCLUSION

In Conclusion, the participants demonstrated poor knowledge but good awareness of the disease and a positive perception of the treatment of breast cancer. Regarding this study, there is a need for a sensitization program which will improve female knowledge about breast cancer risk factors and early warning signs.

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