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Knowledge of Risk Factors for Breast Cancer among Female Secondary School Teachers in Enugu East LGA, Enugu State

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Abstract
Breast cancer is a major public health problem often associated with high morbidity and is sometimes connected with poor knowledge and screening practices among women. Therefore the study investigated knowledge of risk factors for breast cancer among female secondary school teachers in Enugu East LGA, Enugu State. A descriptive cross-sectional survey design was employed for the study. The population for the study comprised 543 female secondary school teachers in public secondary schools. The multi-stage sampling procedure was used to draw 380 female secondary school teachers in public secondary schools. A structured Knowledge of Risk Factors for Breast Cancer Questionnaire (KRFBCQ) was used for data collection. Data were analysed using frequency counts, percentages and Chi-square test. Findings revealed that more than 50 per cent of the respondents were within the age bracket 20-49 years and mostly acquired first degree (63.7%), and a majority (86%) indicated no family history of breast cancer. Nearly half (48%) of the teachers had adequate knowledge of breast cancer risk factors while more than half (52%) had poor knowledge of breast cancer risk factors. A significant association was found between age and educational qualification of female secondary school teachers in Enugu East LGA, concerning knowledge of risk factors for breast cancer. The findings suggested that there is the need to organize series of seminars, workshops and health education programmes aimed at improving knowledge of breast cancer among female secondary school teachers to decrease mortality and morbidity due to breast cancer among women.
Keywords: Knowledge, Cancer, Breast Cancer, Risk Factors, Female Secondary School Teachers

Introduction

Carcinoma of the breast also known as breast cancer (BC) is the commonest malignancy in women worldwide and the second most prevalent cancer overall. It accounts for 12 per cent of all new cancers as well as a quarter (about 1.67 million) of all female cancers as of 2012 (American Cancer Society, 2015). Breast cancer in women is a major health burden in both high recourse and low recourse countries (Ferlay et al., 2015). Breast cancer is also ranked as the fifth most common cause of fatalities from cancer in women (Globocan, 2012; Molah et al., 2015). According to the Centers for Disease Control and Prevention (2014), BC is the most common cancer among women and it is the second leading cause of death among women in the United States. Each year, more than 1.6 million women are diagnosed with BC worldwide (American Cancer Society [ACS], 2015). Even with advanced technology, 40,000 women still die every year from this disease worldwide (Houshian, 2017). The global burden of BC is predicted to exceed 2 million by the year 2030, with growing proportions from developing countries (Jemal et al., 2011). Recent global cancer statistics indicate a rising global incidence of BC and the increase is occurring at a faster rate in populations of developing countries that were enjoying low incidence of the disease before now. Also, the estimated incidence of BC to overall cancers in both genders was about 11.9 per cent (Ghrayeb, Rimawi, & Nimer, 2018). In North America, Western Europe and Australia, BC mortality rates have declined, mainly due to improvements in early detection and treatment, and high BC awareness levels in the population, surveys and national screening programmes (Stewart & Kleihues, 2003). However, the reduction of death; from BC in western nations is particularly explained by the earlier diagnosis as a result of early presentation. In most of the developing countries, however, patients come for treatment in an advanced stage when little or no benefit can be derived from any sorts of therapy (Mia, 2007)

There is a variation of BC incidence worldwide in which Africa is not excluded. In sub-Saharan Africa, the incidence of BC was 15 per cent compared with 27 per cent in North African countries (Algeria & Egypt) (Parkin et al., 2003). Breast cancer is a serious disease affecting many women worldwide (Muchirevesi, 2016). It is an uncontrolled growth of malignant tissue that arises in the breast. Recent data from the Ibadan Cancer Registry (IBCR) and the Abuja Cancer Registry (ABCR) both in Nigeria, suggest a substantial increase in the incidence of breast cancer (Jedy-Agba et al., 2012). The age-standardised rate (ASR) for all invasive cancers from the IBCR was 130.6 per 100,000 women. In the ABCR, it was 138.6 per 100 000 women. Generally, the Nigerian national incidence by ASR per 100,000 for breast cancer was 52 in IBCR and 64.6 in ABCR (Jedy-Agba et al., 2012). Most of the breast cancer cases in Nigeria are detected late due to poor utilization of screening facilities and lack of

awareness (Anyanwu, 2008; Okobia et al., 2006). In Nigeria, the main reasons for high mortality from breast cancer among women include poor knowledge and lack of education (Akinola et al., 2011).

Breast cancer (BC) is a deadly disease with diverse manifestation due to its ability to metastases. Cancer is a term used for diseases in which abnormal cells divide without control and can invade other tissues. Cancer cells can spread to other parts of the body through the blood and lymph systems. The process of cancer spreading is called metastases (Sim, Seah, & Tan, 2015). Growth of cancer cell is different from normal cells. Cancer cells continue to grow and form new abnormal cells instead of dying. Due to the damage of Deoxyribo Nucleic Acid (DNA), normal cells become cancer cells. Deoxyribo Nucleic Acid (DNA) is present in every cell and conducts its functions. Normally when DNA is damaged in normal cells, they rapidly repair the damage or die but in cancer cells, the damaged DNA is not repaired or dies. It produces new cells containing the damage which is not necessary for the body. Cancer develops inside the body (Sim et al., 2015). A normal cell may become abnormal when one or more gene in the cell becomes damaged or altered. Then from the original cells, lots of abnormal cells develop to form a group of abnormal cells leading to the formation of a tumour. Sometimes a tumour may lead to the formation of cancer (Kirkegaard et al., 2010). Cancer is a generic term for a large group of diseases that can affect any part of the body. Other terms used are malignant tumours and neoplasms. One defining feature of cancer is the rapid creation of abnormal cells that grow beyond their usual boundaries, and which can then invade adjoining parts of the body and spread to other organs. Breast cancer primarily is identified when a screening examination is carried out or when the symptoms have developed. Secondly, breast cancer is when breast cancer cells spread to other parts of the body; most commonly the bones, brain, lungs or liver. It cannot be cured but it can be treated (Montazeri et al., 2008). Regardless of resource level, all countries can implement the prevention and early detection, components of cancer control to reduce the incidence and mortality of breast cancer (World Health Organization [WHO], 2006). Thus, creating high-quality information awareness about BC is assumed to be an essential strategy to inform women about early detection and support (ACS, 2013; Macmillan Cancer Support, 2014; Komen, 2015). Also, knowing the signs and symptoms of breast cancer can lead to early detection of cancer.

Several signs and symptoms of breast cancer exist, this can be crucial in providing more effective treatment, and ultimately, saving lives. Less common signs and symptoms include breast pain or heaviness, changes in breast size and shape, swelling, and nipple abnormalities, such as spontaneous discharge (especially if bloody), erosion, or retraction (ACS, 2014). The earliest signs of breast cancer are usually observable on screening, often before lumps can be felt. It is a painless lump or thickening in the breast indicated as the first and common sign of breast cancer. Breast cancer does not always mean a lump; there are also other less well-known symptoms which include a nipple becoming inverted or a change in the texture of the skin (Agbonifoh, 2016). The probability of breast cancer increases with age, but breast cancer tends to be more aggressive in younger people (Lowry et al., 2016). Hence, there is need for the risk factors of breast cancer to be known to avert danger associated with the disease.

Risk factors of breast cancer are those factors that predispose one to become a victim to the disease. Awareness of BC risk factors (gender, age, family or personal history, racial factor, radiation exposure, breast changes, early menarche, late menopause, prolonged null parity, overweight, diet, alcohol consumption, tobacco smoking, excessive estrogenic exposure, oral contraceptive use, stress and anxiety) and perception of personal risk are important factors for motivation, prevention, and or early detection of the disease. Knowledge about screening methods and warning signs of the disease plays an important and effective role towards developing and employing screening programmes in a community, which can effectively improve the chances of early detection of BC in early stages which result in improvement in survival rate and quality of life (Alshareef, 2018).

Multiple risk factors associated with BC including family history or genetic background, hormonal exposures, early age at menarche, late age at menopause, a fewer number of children and null parity (childlessness), late age at first birth, little or no breastfeeding and long-term use of hormone replacement therapy (Younis et al., 2016). Breast cancer is curable if detected early through screening and early diagnosis by breast self-examination (BSE), clinical breast examination (CBE), and mammography (Fletcher, 2000). Early detection of BC plays an important role in decreasing its morbidity and mortality. Breast self-examination is one of the screening methods for early detection of BC (Avci, 2008; Tavafian et al., 2009). The decline in BC mortality rate during the period 1991-2000 in Europe could be attributed to both the improvement in early detection and the improvement of breast cancer treatment (Tigka et al., 2013). A study by Ajayi et al. (2015) revealed the poor knowledge of breast cancer among women in both rural and urban area of Nigeria. Another reason was that not all health workers are well knowledgeable about the risk factors of breast cancer or how to prevent or its screening techniques. Inadequate knowledge about risk factors of breast cancer was also reported by previous researches (Alam, 2006; Amin et al., 2009). Female teachers and health providers, such as nurses were found to have inadequate knowledge of breast

cancer (Parsa et al., 2008; Ahmed et al., 2006). The level of knowledge of breast cancer was reported to be highest (7.7%) among those aged 50-59 (3.3%) among those that have attained the tertiary level of education and (4.3%) among the currently married; and there was a statistically significant association between level of education and level of knowledge of Breast cancer (Nnebue et al., 2018). The knowledge of risk factors for breast cancer may be influenced by some factors, such as age, marital status and level of education of the teachers in Enugu East, Enugu. This study, however, focused on age and educational qualification of female secondary school teachers. Hence, knowledge of these risk factors is essential to ensure control over breast cancer and other related diseases.

Knowledge is important to man's quality of life because many things we do depend on the knowledge we have. Oparah et al. (2014) asserted that knowledge is the possession of information, skill and understanding gained through learning and experience. Knowledge is a prerequisite for good health which empowers female secondary school teachers to be capable of taking more effective action. Knowledge about screening methods, risk factors and warning signs of BC plays an important and effective role towards developing and employing screening programmes in a community, which can effectively improve the chances of early detection of BC in early stages which results in an improvement in survival rate and quality of life (Rojas & Stuckey, 2016). It is therefore important that female secondary school teachers have this knowledge to dispense to the students under their care and even to other women.

Female secondary school teachers are those female teachers that are teaching students in secondary schools. Women including female teachers in secondary schools may lack basic knowledge of risk factors for breast cancer. Oladimeji et al. noted that 30 per cent of women in their study considered breast cancer a fast killer. These may be an indication that the myth suggesting that "breast cancer equals death" is still deeply rooted across communities. These wrong assumptions may partly account for some of the reasons why patients present late to hospitals with an advanced disease state. Teachers constitute one group of professionals who have regular contact not only with their students in schools but with the community members who look at them as change agents and role models. The importance of secondary education in the educational system cannot be overemphasized. Apart from serving as the link between primary and tertiary education, it provides the opportunity for a child to acquire additional knowledge, skills, and traits beyond the primary level through their teachers. Teachers are the fulcrum on which the lever of the educational system rests (Ojewusi & Arulogun, 2016). Periodic intervention programmes targeting especially female teachers in public schools should be undertaken.

It had been demonstrated that factors related to women´s knowledge and perceptions about breast cancer may contribute significantly to medical help-seeking behaviours. Thus, considering the potentially pivotal role played by teachers in information dissemination (Oladimeji et al., 2015; Lemlem et al., 2013). Once teachers can gain knowledge, they will help in dispensing the knowledge to the student under their care and even to other women. Nnebue et al. (2018) found a statistically significant relationship between the level of education attained and the level of knowledge of breast cancer. This implies that the higher the level of educational attainment the teacher has, the higher the probability of having a better knowledge of breast cancer.

The study was conducted in Enugu East Local Government Area (LGA). Enugu East LGA is one of the 17 LGAs in Enugu State, Nigeria. There are many public and private secondary schools where these teachers are teaching. In the LGA, health programmes are going on, but they mainly focus on issues related to pregnant women, family planning. Enough attention has not been given to women's health issues, especially as it relates to breast cancer, thereby making some women see it as a curse from the evil one (Carlson-Babila et al., 2017). Hence, the need to investigate knowledge of risk factors for breast cancer among female teachers is timely, because teachers can disseminate the knowledge they acquired to the student under their care and other women. Specifically, the study determined the proportion of female secondary school teachers that possessed adequate knowledge on risk factors for breast cancer; their level of knowledge and socio-demographic factors (age, educational qualification) associated with knowledge of risk factors for breast cancer. It was hypothesized that there are no significant differences in the proportion of female secondary school teachers that possessed adequate knowledge on risk factors for breast cancer based on age and educational qualification. Findings from the study have shown considerable awareness about the existence of breast cancer, but insufficient knowledge and misperceptions on its risk factors and causes among female undergraduate students in a higher teachers training institute. This calls for urgent actions by authorities to foster awareness on breast cancer especially among female teachers as such an act has not been proven to prevent breast cancer, and may also promote sexual immorality; thus increasing the risk of acquiring sexually transmitted infections including HIV and AIDS as well as unwanted pregnancies.

Materials and Methods

Study design

A descriptive cross-sectional survey research design was employed to achieve the objective of the study.

Description of the study area

The study was carried out in Enugu East LGA of Enugu State among female secondary school teachers. There are eleven public secondary schools in Enugu East LGA of Enugu State, which is made of six co-educational public schools and five girls' only schools. The researcher observed that women in general have wrong assumptions and misconception about risk factors for breast cancer, hence the need to study the area.

Study population and sample

The population for this study comprised 543 teachers in Enugu East LGA. The multi-stage sampling procedure was used to arrive at a sample size of 380 used for the study. The first stage involved stratification of the secondary schools in Enugu East LGA into co-educational and girls' only schools. The second stage involved using simple random sampling technique of balloting without replacement to draw three schools from each stratum. The third stage involved the use of non-proportional stratified random sampling to draw 380 female teachers from the co-educational and girls' only schools.

Data collection tools and procedure

The instrument used for data collection was a self-structured Knowledge of Risk Factors for Breast Cancer Questionnaire (KRFBCQ). The face validity of KRFBCQ was established through the judgment of three experts from Human Kinetics and Health Education, Nnamdi Azikiwe University, Awka. The internal consistency of KRFBCQ was established using split-half method (Spearman-Brown coefficient), and a reliability coefficient of 0.96 was obtained and this was considered high enough. The KRFBCQ consisted of two sections that sought to elicit information on respondents' knowledge of risk factors for breast cancer.

The researchers explained the objectives of research for the participants and the latter were assured about the privacy of their data. After their consent was gotten, female secondary school teachers were contacted in the selected secondary schools for data collection. A total number of 380 copies of the questionnaire were administered, out of which 369 copies were returned, which gave a return rate of 97.1 per cent. A total number of 369 questionnaires properly filled out were used for analyses.

Data analysis

Data were analysed using descriptive statistics of frequency counts and percentages for research questions while chi-square statistic was used to test the hypotheses at 0.05 level of significance. Teachers' BC risk factors knowledge was calculated out of the 10 knowledge specific questions (Table 2). Each correct response earned one point, whereas any wrong response attracted no mark, and thus the sum score of knowledge was calculated (10 points). Low knowledge was given to those who scored 0-3 points; moderate knowledge was given to those who scored 4-6 points, and high knowledge was given to those who scored 7- 10 points.

Results

Table 1: Socio-demographic characteristics of the participants (n = 369)

Variables	Frequency	Per cent
Age (in years)		
20-29	36	9.76
30-39	154	41.7
40-49	135	36.6
50+	44	20.2
Education Qualification		
NCE	59	16.0
Bachelor Degree	235	63.7
Master's Degree	68	18.4
Doctorate Degree	7	2.0

Table 1 shows that a vast majority of female secondary school teachers aged between 30-49 years had acquired first degree 235(63.7%).

Table 2: Proportion of Female Secondary School Teachers that possessed Adequate Knowledge on Risk Factors of Breast Cancer (n=369)

Risk factors	Yes (%)	No (%)
Family history of cancer	250(67.8)	119(32.2)
Aging	151(40.9)	218(59.1)
Obesity	138(37.4)	231(62.6)
Use of Oral contraceptives	175(47.4)	194(52.6)
Radiation exposure	208(56.4)	161(43.6)
Personal hygiene	161(43.6)	208(56.4)
Hormone replacement therapy	158(42.8)	211(57.2)
Breast cancer can be cured at any stage	231(62.6)	138(37.6)
Early age of menstruation (age 12 or before)	181(49.1)	188(50.9)
Late age at menopause (age 55 or after)	116(31.4)	253(68.6)

Table 2 shows that above all, more than half of the respondents had adequate knowledge that family history of cancer (67.8%), radiation exposure (56.4%) and breast cancer can be cured at any stage (62.6%) are risk factors of BC. Also, more than half did not know that personal hygiene (56.4%), hormone replacement therapy (57.2%), ageing (59.1%), oral contraceptives (52.6%), obesity (62.6%), early age of menstruation (50.9%) and late age of menopause (68.6%) are all risk factors for breast cancer.

Table 3: Level of Knowledge of Risk Factors for Breast Cancer among Female Secondary School Teachers, Overall (n = 369)

Level of knowledge (0-10)		Frequency	Per cent
Low knowledge	(0-3)	49	13.3
Moderate knowledge	(4-6)	257	69.6
High knowledge	(7-10)	63	17.1

Table 3 indicated that 13.3 per cent of the respondents had low knowledge, 17.1 per cent of the respondents had high knowledge, while 69.6 per cent of the respondents had moderate knowledge on risk factors for breast cancer. Therefore, majority of the respondents had moderate knowledge on risk factors of breast cancer as shown in the Table.

Table 4: **Proportion of Female Secondary School Teachers that Possessed Adequate Knowledge of Risk Factors for Breast Cancer Based on Age**

Age (in years)	Low n (%)	Moderate n (%)	High n (%)	Frequency
20-29	9 (18.4)	21 (8.2)	6 (9.5)	36 (9.8)
30-39	12 (24.5)	121 (47.1)	21 (33.3)	154 (41.7)
40-49	13 (26.5)	95 (36.9)	27 (42.8)	135 (36.5)
50+	15 (30.6)	20 (7.8)	9 (14.3)	44 (11.9)
Overall	49 (13.3)	257 (69.6)	63 (17.1)	369 (100.0)

Data in Table 4 show that respondents within the ages of 40-49 years had high knowledge (42.8%) of BC risk factors, followed by those aged 30-39 years (33.3%). Also, respondents aged 30-39 years had the highest moderate knowledge of risk factors for breast cancer (47.1%) while the respondents within the ages of 50 years and above (30.6%) had the highest low knowledge of risk factor for BC. The overall result indicates that female secondary school teachers have moderate Knowledge (69.6%) of risk factors for breast cancer based on age.

Table 5: **Proportion of Female Secondary School Teachers that Possessed Adequate Knowledge of Risk Factors for Breast Cancer Based on Educational Qualification**

Educational Qualification	Low n (%)	Moderate n (%)	High n (%)	Frequency
NCE	30 (7.8)	22 (41.1)	7 (10.1)	59 (16.0)
Bachelor Degree	12 (31.2)	198 (60.3)	25 (40.1)	235 (63.7)
Master's Degree	6 (9.0)	35 (47.4)	27 (11.6)	68 (18.4)
Doctorate Degree	1 (0.9)	2 (74.9)	4 (1.2)	7 (1.9)
Overall	49 (13.3)	257 (69.6)	63 (17.1)	369 (100.0)

Data in Table 5 show that the respondents with Master's degree had highest knowledge (11.6%) of BC risk factors, followed by those with Degree educational qualification had highest moderate knowledge (60.3%) while the respondents with NCE (7.8%) had the highest low knowledge of risk factor for BC. The overall result indicates that female secondary school teachers have moderate Knowledge (69.6%) of risk factors for breast cancer based on educational qualification.

Table 6: **Chi-square Test on the Proportion of Female Secondary School Teachers that Possessed Adequate Knowledge on Risk Factors for Breast Cancer Based on Age**

	20-29yrs (n = 36)	30-39yrs (n = 154)	40-49yrs (n = 135)	50+ yrs (n = 44)	df	χ^2 cal	χ^2 crit	Decision
Low	9 (4.8)	12 (20.4)	13 (17.9)	15 (5.8)				
Moderate	21 (25.1)	121 (107.2)	95 (94.0)	20 (30.6)	6	30.15	12.59	Rejected
High	6 (6.1)	21 (26.3)	27 (23.0)	9 (7.5)				

Table 6 shows that there was a significant difference in the Knowledge of risk factors for breast cancer among female secondary school teachers in Enugu East based on age (χ^2 calculated=30.15, χ^2 critical=12.59, df = 6) since the chi-square calculated value exceeds the critical chi-square value. This implies that knowledge of BC risk factors among female secondary school teachers differed significantly based on age.

Table 7: **Chi-square Test on the Proportion of Female Secondary School Teachers that Possessed Adequate Knowledge on Risk Factors for Breast Cancer Based on Educational Qualification**

	NCE (n = 59)	B. Degree (n = 235)	Master's (n = 68)	Doctorate (n = 7)	df	χ^2 cal	χ^2 crit	Decision
Low	30 (7.8)	12 (20.4)	6 (9.0)	1 (0.9)				
Moderate	22 (41.1)	198 (60.3)	35 (47.4)	2 (4.9)	6	437.7	12.59	Rejected
High	7 (10.1)	25 (40.1)	27 (11.6)	4 (1.2)				

Table 7: shows that there was a significant difference in the Knowledge of risk factors for breast cancer among female secondary school teachers in Enugu East based on educational qualification (χ^2 calculated=437.66, χ^2 critical=12.592, df = 6) since the chi-square calculated value exceeds the critical chi-square value. This implies that knowledge of BC risk factors among female secondary school teachers differed significantly based on educational qualification.

Discussion of Findings

Table 1 indicated that a vast majority of female secondary school teachers aged between 30-49 years had acquired a first degree. The age group belongs to reproductive age and it is within active years of a civil servant. This is consistent with a study by Kayode et al. (2005) which was carried out in Ilorin and a study by Alice and Okeowo (2014) among female secondary school teachers. Breast cancer tends to occur in women after the age of 20 years, levelling up to a plateau at the age of 45-55 years, and thereafter increasing to a peak at 50-60 years (Bassey et al., 2011). In Nigeria, the main reasons for high mortality from breast cancer among women include poor knowledge and lack of education (Akinola et al., 2011). Hence age and educational qualification acquired are essential in this issue of knowledge of risk factors of BC.

Table 2 showed that more than half of the respondents had adequate knowledge that family history (67.8%), radiation exposure (56.4%) and breast cancer can be cured at any stage (62.6%) are risk factors of BC. The findings were not in agreement with the findings of Ojewusi and Arulogun (2016) who reported that more

than half of the respondents (50.8%) were not aware that family history of breast cancer is a major risk factor associated with breast cancer. One of the strongest risk factors of breast cancer is a family history of the disease (Tsuchiya et al., 2007).

Also, this study indicated that more than half did not know that personal hygiene (56.4%), hormone replacement therapy (57.2%), ageing (59.1%), oral contraceptives (52.6%), obesity (62.6%), early age of menstruation (50.9%) and late age of menopause (68.6%) are all risk factors of breast cancer. The report of this study showed that the respondents did not know that age is a risk factor of breast cancer which is in tandem with the findings of Ojewusi and Arulogun (2016) who reported that 79.2% did not know that as age increases, the tendencies of having breast cancer increases and this may be the reasons why some of them thought that breast cancer is the disease of young girls and some believe that breast cancer is the disease of old women. This finding seems to contradict with a similar study done by Montazeri and Vahdaninia (2008). Regarding the risk factors, it was reported that 16.0%, 62.7%, 30.7% and 44% agreed that high-fat diet, increase in age, no breastfeeding and obesity respectively are some of the risk factors to develop breast cancer.

Table 3 showed an overall result which indicates that female secondary school teachers have moderate Knowledge of risk factors on breast cancer. This does not agree with the findings of Parsa et al. (2008) who reported that the majority of participants had a low level of knowledge (63%). Kareemet al. (2018) on the other hand, indicated that knowledge about some risk factors was very low, and results confirmed the lowest rate 14% for early menarche followed by late first pregnancy and late menopause which represented by proportions of 28% and 38% respectively. This reveals the need to educate the educators.

Table 4 showed that respondents within the ages of 40-49 years had high knowledge of BC risk factors. The age range of the respondents in this study falls within (22-59); this is related to a study by Kayode et al. (2005) carried out in Ilorin and a study by Bassey et al., (2011) which found that breast cancer tends to occur in women after the age of 20 years, levelling up to a plateau at the age of 45-55 years, and thereafter increasing to a peak at 50-60 years.

Table 5 showed an overall result which indicates that female secondary school teachers have moderate Knowledge of risk factors for breast cancer based on educational qualification. It shows that the respondent with a Master's degree had the highest knowledge of BC risk factors. Also, the respondents with Doctorate though few in number but more than half of them have high knowledge of BC risk factors. Similarly, Nnebue et al. (2018) indicated a significant relationship between the level of education attained and the level of knowledge of breast cancer. This implies that the higher the level of educational attainment the teacher has, the higher the probability of having a better knowledge of breast cancer. Alshareef (2018) reported that education and awareness lead to better screening and subsequently early detection which contribute to better treatment and prognosis. Hence, a more direct approach would be best applied to enhance their knowledge and by extension, the knowledge of their female students to equip them with adequate information should the need arise.

Table 6 showed that knowledge of BC risk factors among female secondary school teachers differed significantly based on age. Age plays a significant role in breast cancer morbidity and mortality among women. This is because there is a decrease in the average age of the women diagnosed with breast cancer and there is an increase in the lifetime risk of breast cancer among women. The study by Minasie et al. (2017) is consistent with this study's findings which indicated that elderly women may be aware that age is a significant factor of breast cancer. Alshareef (2018) noted that age affected significantly awareness level; as older married females learn more about the disease.

Table 7 showed that knowledge of BC risk factors among female secondary school teachers differed significantly based on educational qualification, which is not consistent, with a study by Alshareef (2018) who indicated that educational level did not affect awareness about BC as more educated females did not necessarily know more about the disease. Most of the breast cancer cases in Nigeria are detected late due to poor utilization of screening facilities and lack of awareness (Okobia et al., 2006; Anyanwu, 2008).

Conclusion

The findings of the study have shown that the Knowledge of risk factors for breast cancer among female secondary school teachers was moderate; meaning that there is a need to improve the knowledge of teachers in this area. More than half of the respondents had adequate knowledge that family history of cancer, radiation exposure and breast cancer can be cured at any stage are risk factors of BC. Also, more than half did not know that personal hygiene, hormone replacement therapy, ageing, oral contraceptives, obesity, early age of menstruation and late age of menopause are all risk factors for breast cancer. There were significant differences in the

Knowledge of risk factors for breast cancer among female secondary school teachers in Enugu East LGA based on age and educational qualification.

Recommendations

Based on the findings and discussion of the study, the following recommendations are made:

1. There is the need to organize a series of seminars, workshops and health education programmes aimed at improving knowledge of breast cancer among female secondary school teachers to decrease mortality and morbidity due to breast cancer among women.
2. The Federal Government through the ministry of health should introduce a periodic intervention programme on knowledge of breast cancer issues targeting female teachers in public schools.
3. Relevant non-governmental organizations (NGOs) can make a significant contribution to breast cancer and screening methods education by sponsoring health talks, seminars and workshops for teachers, to reposition them better to reach out to their students and the community at large.
4. The government should play a major role in the campaign via providing communication materials and resource persons to ensure that adequate information on health issues especially breast cancer are made known to teachers concerning their age and educational qualification. To decrease mortality and morbidity of BC, better awareness which is done only through awareness and screening programmes is needed.
5. Teachers should be encouraged to increase their education qualification by allowing them to undergo study leaves with pay since from this study we observed that education qualification affects the knowledge of risk factors for breast cancer.

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