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Symptoms and Predisposing Factors of Breast and Cervical Cancer among Women Employees in a Southwest Nigerian University

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

The leading cause of mortality among women has been identified as breast and cervical cancer in Nigeria. The objective of the study identified the symptoms and predisposing factors associated with breast and cervical cancer among the participants. A cross-sectional design and convenience sampling technique was used to recruit 460 women between the age of 18-60 years at a southwestern Nigerian university. Chi-square analysis revealed that bleeding per vagina after intercourse (X^2 (4) = 28.0590, $p < 0.00$), vagina discharge (X^2 (14) =20.3584, $p < 0.00$), painful intercourse X^2 (4) = 10.8698, $p < 0.03$), genetic inheritance (X^2 (4) =12.6040, $p < 0.01$) were significant among the symptoms and predisposing factors of cervical cancer. However, family history, cigarette smoking, consumption of fatty diets, environmental factors, and age were significant X^2 (12) =38.9467, $p < 0.00$) for breast cancer.

Keywords: Breast cancer; cervical cancer; morbidity.

1. INTRODUCTION

Cancer is a rebellious cell that divides itself and multiplies rapidly to overcome the normal cell in the body. The cause is not known, and neither has any drug yet been found for the cure of cancer, however, it is a well-established fact that early detection diagnosis and well-informed management will be full-blown cancer and reduce morbidity as well as mortality, significantly.

For more than 50 years in Nigeria, cancer was not recognized as a disease of the black race, but ravages of cancers are visible and recent trends appear to contradict the belief, with so many black women suffering and dying from cancers of breast and cervix. Edington and MacLean [1] published the first cancer rate survey in Nigerians using data from the Ibadan cancer registry. The pattern of cancers diagnosed in Nigerian women has been changing steadily since this report. In Abioye's 20-year survey (1960-1980) published in 1981, age-specific incidence of cancer in women ranged from 8.18 per 100,000 (age group 20-24 years) to a high 373.75 per 100,000 (age group 60-64 years) [2].

Breast and cervical cancers are the twin malignant tumors that are dealing a severe blow to women. In Nigeria today, cancer patients present themselves late, almost always in the final stages at the hospital. The most important risk factor for the development of breast cancer is being female due to the estrogen hormones produced by women. The age of the patient and family history of breast cancer also predisposes a woman to develop the disease. Early menarche, late age of first birth, nulliparity, and late menopause are the predisposing factor to the development of breast carcinoma. There are others which include obesity, alcohol consumption, use of exogenous estrogen, radiation exposure, and previous history of breast disease and ovarian cancer. The reason for late presentation includes denial, ignorance, religious considerations, and wrong diagnosis. Breast cancer can be detected by women accidentally or during self-breast examination (SBE). It can also be discovered by husbands, boyfriends, family doctors, or gynecologists during a clinical breast examination (CBE) and by screening mammography. The early detection of tumors is necessary for prompt treatment. Cervical cancer, a preventable disease is the commonest genital cancer in Nigeria. In northern Nigeria, it is the commonest in women, while in the south it is the second breast cancer. According to the American cancer society [3], over 500,000 new cases are reported each year with 80% from developing countries. Approximately 10,000 women are diagnosed with cervical cancer while 23.7% present with cervical HPV the main cause of cervical cancer [4]. In Nigeria, the population of women above 15 years who are potentially at risk of developing cervical cancer is estimated at 40.43 million [5,6]. Women with cervical cancer die 18 years earlier due to a pre-invasive stage, which takes an average of 10-15 years to develop into cancer.

These two tumors, together with death associated with pregnancy and childbirth and those resulting from the new scourge of HIV/AIDS, are reckoned to account for more than two-thirds of all death occurring in Nigerian women [7]. Breast cancer is extremely rare before age of 20 and relatively uncommon before age of 30. However, the incidence rises rapidly with age till about 50years and less. This incidence pattern is a strong indication of the

influence of reproductive factors. The reproductive risk factors include early menarche, short menstrual cycles, and ovulatory infertility. Nulliparity, late first pregnancy, obesity, waist-hip ratio, postmenopausal hormone use, oral contraceptive use, and spontaneous and induced abortions have adverse effects on the risk of developing breast cancer. Cervical cancer is the commonest genital cancer in women in Nigeria. In northern Nigeria, it is the commonest in women, while in the south it is second to breast cancer. It is an important cause of death in women aged 45-65 years. Most of the risk factors are linked with sexual activity; early age of sexual debut, early age at first birth, multiple births, and having a partner with multiple sexual partners [8-10]. The majority of women with cervical cancer die a painful, miserable, and undignified death. Breast and cervical cancers mainly affect women (mothers) who form a large proportion of the working population. They are also found on farms in rural areas. They, therefore, provide added income for their family. Most of these women die of these diseases and without a mother, the health of the family especially young children is drastically compromised. The economic costs of these cancers include out-of-pocket medical expenses, time lost to hospital admission and follow-up, job loss disability, loss of family, abandonment, and gradual deprivations.

2. METHODS

2.1 Research Design

The study was conducted among female staff and undergraduates/postgraduate students in Obafemi Awolowo University, Ile-Ife community using a cross-sectional descriptive survey design. At the first stage, convenience sample technique was adopted in the study to select the teaching and non-teaching staff because of the nature of the participants using the comprehensive list of female staff in the various faculties. This involved stratification of women according to their job description and random selection of respondents from their job descriptions. In the second stage, multi-stage sample technique was also employed to select respondents among the students from 5 female hostels on the campus for a period of four (4) weeks. The socio-demographic variables were age, marital status, religion, level of education, occupation, and monthly income.

2.2 Participants

The participants consisted of 460 women ages ranging from 18 to 60 years old. They were recruited from the university campus comprising 40 teaching staff, 120 non-teaching staff, and 300 students.

2.3 Procedure

The convenience sampling technique was used for the teaching and non-teaching staff. Based on the data gathered from the University Computer Centre, there were over 200 teaching and 1000 non-teaching female staff. The students carried the two third of the population, more than 8000 females' students enrolled during the period of the study. The total sample population was approximated to 10,000 using the Leslie formula $n = p\ (1\text{-}p)\ z^2\ d^2$

These comprised 40 teachings and 120 non-teaching staff. This involved stratification of women according to their job descriptions and the random selection of respondents from their job descriptions. A multistage sampling technique was used to select female students.

Table 1. Epidemiological study results

Variables	Levels	Frequency	Percentages
Age	Less than 25	263	57.2
	25-30	57	12.4
	31-40	62	13.5
	41-50	53	11.5
	51-60	24	5.2
	No response	1	0.2
	Total	460	100.0
Marital status	Single	318	69.1
	Married	133	28.9
	Divorced	2	0.4
	Widowed	7	1.5
	Total	460	100.0

Variables	Levels	Frequency	Percentages
Religion	Christianity	408	88.7
	Islam	48	10.4
	Traditional	2	0.4
	No response	2	0.4
	Total	460	100.0
Level of education	Primary	9	2.0
	Secondary	67	14.6
	Tertiary	367	79.8
	No response	17	3.7
	Total	460	100.0
Occupation	Students	300	65.2
	Teaching Staff	40	8.7
	Non- Teaching staff	120	26.1
	Total	460	100.0
Monthly income	Less than N2,000	29	6.3
	N2,000-N3,999	41	8.9
	N4000-N9999	71	15.4
	N10,000 and above	197	42.8
	No response	122	73.5
	Total	460	100.0

3. RESULTS

Table 2. Symptoms and predisposing factors of cervical cancer sample (n=460)

Variables	Students (N=300)	Teaching (N=40)	Non-teaching (N=120)
Symptoms of cancer of the cervix			
Bleeding per vagina after intercourse			
Yes	85(28.3%)	13(30.0%)	26(21.7%)
No	13(4.3%)	-	22(18.3%)
Don't know	202(67.3%)	27(67.5%)	72(60.0%)
X^2 (4) = 28.0590, p < 0.00)*			
Vagina discharge			
Yes	85(28.3%)	12(30.0%)	22(18.3%)
No	18(6.0%)	1(2.5%)	22(18.3%)
Don't know	197(65.7%)	27(67.5%)	76(63.3%)
X^2 (14) =20.3584, p < 0.00)*			
Painful intercourse			
Yes	81(27.0%)	15(37.5%)	23(19.2%)
No	22(7.3%)	-	15(12.5%)
Don't know	197(65.7%)	25(62.5%)	82(68.3%)
X^2 (4) = 10.8698, p < 0.03)			
Infertility			
Yes	61(20.3%)	5(12.5%)	15(12.5%)
No	31(10.3%)	3(7.5%)	20(16.7%)
Don't know	208(69.3%)	32(80.0%)	85(70.8%)
X^2 (4) =7.8047, p > 0.10)			
Blood in urine			
Yes	35(11.7%)	7(17.5%)	11(9.2%)
No	28(9.3%)	(10.0%)	16(13.3%)
Don't know	237(79.0%)	29(72.5%)	93(77.5%)
X^2 (4) =3.3433, p > 0.50)			

Table 3. Predisposing factors/causes for students, teachers, and non-teachingstaff

Variables	Students (N=300)	Teaching (N=40)	Non-teaching (N=120)
Predisposing factors/causes			
Impairment in the body system			
Yes	62(20.7%)	11(27.5%)	18(15.0%)
No	27(9.0%)	1(2.5%)	15(12.5%)
Don't know	211(70.3%)	28(70.0%)	33(27.5%)
X^2 (4) =6.0926, p > 0.19)			
Natural occurrence			
Yes	43(14.3%)	7(17.5%)	8(6.7%)
No	35(11.0 %)	3(7.5%)	17(14.2%)
Don't know	222(70.3%)	30(75.0%)	95(79.2%)
X^2 (4) =6.3072, p > 0.18)			
Genetic Inheritance/Family History			
Yes	71(23.7%)	10(25.0%)	11(9.2%)
No	25(8.3%)	2(5.0%)	13(10.8%)
Don't know	204(68.0%)	28(70.0%)	96(80.0%)
X^2 (4) =12.6040, p < 0.01)*			
One's carelessness			
Yes	43(14.3%)	6(15.0%)	7(5.8%)
No	33(11.0%)	2(5.0%)	14(11.7%)
Don't know	24(74.7%)	32(80.0%)	99(81.7%)
X^2 (4) =7.4509, p > 0.11)			
God's Punishment			
Yes	19(6.3%)	1(2.5%)	3(2.5%)
No	56(18.7%)	6(15.0%)	19(15.8%)
Don't know	225(75.0%)	33(82.5%)	98(81.7%)
X^2 (4) =4.2667, p > 0.37)			
Sexual practices			
Yes	75(25.0%)	11(27.5%)	17(14.2%)
No	21(7.0%)	3(7.5%)	13(10.8%)
Don't know	204(68.0%)	26(65.0%)	90(75.0%)
X^2 (4) =7.302, p > 0.12)			
Lack of Good Hygiene			
Yes	46(15.3%)	7(17.5%)	15(12.5%)
No	37(12.3%)	1(2.5%)	11(9.2%)
Don't know	204(68.0%)	32(80.0%)	94(78.3%)
X^2 (4) = 4.8118, p > 0.31)			
Attack of witches/evil/ spirits			
Yes	16(5.3%)	1(17.5%)	3(2.5%)
No	55(18.3%)	3(7.5%)	21(17.5%)
Don't know	229(76.3%)	26(65.0%)	96(80.0%)
X^2 (4) =5.2365, p > 0.26)			
Age			
Yes	32(10.7%)	6(15.0%)	7(5.8%)
No	24(8.0%)	-	15(12.5%)
Don't know	244(81.3%)	34(85.0%)	98(81.7%)
X^2 (4) =9.0856, p > 0.06)			

Chi-square test (p<0.05)

Table 4. Symptoms and predisposing factors of breast cancer (n=460)

Variables	Students (N=300)	Teaching (N=40)	Non-teaching (N=120)
Symptoms of Breast cancer			
Painful Breast swelling	112(37.3%)	9(26.5%)	31(25.8%)
Breast ulcer	30(10.0%)	2(5.9%)	5(4.2%)
Nipple Retraction	31(10.3%)	3(8.8%)	8(6.7%)
Breast Nodules	34(11.3%)	2(5.9%)	13(10.8%)
Weight loss	4(1.3%)	1(2.9%)	1(0.8%)
Breast Discharge	16(5.3%)	3(8.8%)	-
General Body Weakness	4(1.3%)	-	3(2.5%)
All of the above	37(12.4%)	14(33.0%)	16(13.3%)
Don't know	32(10.7%)		43(35.8%)
X^2 (24) =68.3546, p < 0.00)*			
Predisposing factor (causes) of Breast Cancer			
Family History/ Inheritance	83(27.7%)	15(46.9%)	22(18.3%)
Cigarette Smoking	31(10.3%)	3(9.4%)	11(9.2%)
Consumption of fatty diets	15(5.0%)	5(15.6%)	7(5.8%)
Environmental factors	42(14.0%)	2(6.2%)	9(7.5%)
Age	30(10.0%)	-	6(5.0%)
All of the above	30(10.0%)	7(21.9%)	10(8.3%)
Don't know	69(23.0%)	-	55(45.8%)
X^2 (12) =38.9467, p < 0.00)*			

Chi-square test (p<0.05)

4. DISCUSSION

Based on the findings of this study, the majority of the respondents do not know the symptoms of cervical cancer, 28.3% (85) of the students' respondents knew bleeding per vagina after intercourse as part of the symptoms while 67.3% (202) do not know. 21.7% (26) of the non-teaching staff knew while 60.0% (72) do not know. These were similar to all the other symptoms such as vagina discharge, 65.7% (197) of students respondents do not know, 67.5% of the teaching staff, and 63.3% of the non-teaching staff. For painful intercourse, 65.7% of students do not know, 62.5% (27) of teaching staff, and 63.3% (76) of the non-teaching staff, pain. For infertility, 69.3% (208) of students respondents do not know, 80.0% (32) of teaching, and 70.0% (85) of non–teaching do not know that it was part of the symptom. Among the student respondents, 79.0% (237) do not that blood in the urine was part of the symptom while 72.5% (29) of academic staff and 77.5% (93) of non-teaching staff do not know as well. Among the students' respondents, 70.3% (211) reported that they do not know that impairment or dysfunction of the body system was part of predisposing factors/causes of cervical cancer while 70.0% (28) of the teaching and 72.5% (33) of the non-teaching staff admitted that they do not know. Genetic inheritance/family history, 68.0% (204) of the students' respondents, 70.0% (28) of teaching staff, and 80.0% (96) of non-teaching staff reported they do not know, likewise, one's carelessness, 74.7% (224) of students, 80.0% (32)of academic staff and 81.7% (99) of non-teaching staff do not know. Among the student respondents, 25.0% (75) admitted that sexual practices were predisposing factor while 68.0% (204) reported that they do not know. While 27.5% (11) of teaching staff reported that sexual practices were predisposing factors 65.0% (26) do not know. Among the non-teaching staff, 14.2% (17) reported that sexual practices were predisposing factor while 75.0% (90) do not know. A few respondents admitted that lack of good hygiene and age was predisposing factor for cervical cancer. Among the student respondent, 68.0% (204) reported that they do not know if lack of good hygiene was a factor, 80% (32) of the teaching staff and 78.3% (94) of the non-teaching staff admitted they do not know. Among the student, respondents, 81.3% (244) do not know that age was part of the predisposing factor. While 85.0% (34) of the teaching and 81.7% (98) of the non-teaching staff respondents do not know that age was part of the predisposing factor. Unlike cancer of the cervix, respondents were aware of the symptoms of breast cancer such as painful breast swelling, breast ulcer, nipple retraction, breast nodules, weight loss, breast discharge,

and general body weakness. Among the students' respondents, 10.7% (32) were not aware of the symptom while 35.8% (43) of the non-teaching staff were unaware. The academic staff knew part of the symptoms of breast cancer. 23.0% (69) of the students' respondents and 45.8% (55) of the non-teaching staff do not know the predisposing factors/ cause of breast cancer as family history, cigarette smoking, consumption of fatty diets, and environmental factors.

5. CONCLUSION

There is a need for sensitization of the female community on the symptoms and predisposing factors of breast and cervical cancer. The importance of screening and the establishment of screening centers for earlier detection among the target groups should not be underestimated.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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