

Awareness and Practice of Cervical Cancer Screening among Women Accessing Care in a Rural Tertiary Hospital in Nigeria

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Abstracts: Background. The burden of cervical cancer is on the increase, especially in developing countries, where programmed or regular screening for the disease with Papanicolaou smear is inadequate. The objective was to determine the awareness and practice of cervical cancer screening in a rural tertiary hospital in Nigeria. Methodology. 220 consecutive and consenting women of age 20–70years attending Federal Teaching Hospital, Ido-Ekiti and Comprehensive Health Centre, Oke-Isa, Ado-Ekiti, Ekiti State were recruited between April and August 2009. Relevant data were collected using interviewer-administered semi-structured questionnaires. Results. Mean age \pm SD of participants was 41.2 ± 12.6 years and mean age at sexual debut was 20 years. Twenty three (10.7%) participants were single and all were sexually active. 147 (68.4%) had more than one life time sexual partner. 78 (36.3%) of participants were aware of cervical cancer but only 39(18.2%) were aware of its screening, and majority (71.8%) got to know about cervical cancer through health workers. Increasing age, multiple sexual partners, parity more than 4, having a partner who has multiple sexual partners and polygamy were significantly associated with development of pre-malignant lesions for cervical cancer in this study. Conclusion. Majority of the participants were not aware of CC and the steps to be taken to prevent it from occurring. This poses a tremendous health education challenge.

Keywords: Awareness, Cervical Cancer, Screening, Papanicolaou Smear, Nigeria

1. Introduction

Cervical cancer (CC) has remained a major health problem especially in the developing world despite the knowledge of pre-invasive stage of this malignant condition and implementation of cervical cancer screening programs [1, 2]. The developing countries accounted for 370,000 out of 466,000 cases of CC that were estimated to have occurred in the world in the year 2000 [3]. This had increased to 493,000 cases worldwide in 2002 of which more than 80% of these cases occurred in the developing countries [4]. CC is an important public health problem among adult women in developing countries in South and Central America, Sub-Saharan Africa and South-East Asia. In these regions, it is either the most common or second most common cancer

among women. About 274,000 or more deaths occur annually due to CC globally, and more than 80% of these deaths occur in developing countries [5, 6] Moreover, resource-constraint settings, such as we have in Sub-Saharan Africa, are currently witnessing a growing number of women infected with human immunodeficiency virus (HIV). This may further compound the problem because they have an increased risk of Human Papilloma Virus (HPV) infection, the causal agent of CC. CC awareness is generally low worldwide but worse in developing countries despite the increased prevalence of the disease in these countries [7]. People who are aware of CC are more likely to have had the screening done in the past and the sources of information, most of the time, are the health care

providers [7]. Unfortunately, those who had the cancer may have had no knowledge of the risk factors and the possible prevention options. Some became aware of the disease for the first time when they were diagnosed of CC [8]. In order to improve the level of awareness of CC and its screening coverage, there is the need to employ primary care approach. This will help to identify and proffer solutions to barriers to CC control. Primary care is the care provided by physicians specifically trained for and skilled in comprehensive first-contact and continuing care for ill persons or those with undiagnosed signs and symptoms, not limited by problems origin (biological, behavioural or social), organ system or gender [9]. Moreover the physician needs to be proactive in each of his consultation with the patients so as to be able to offer primary and secondary prevention of disease to the patients. The objectives were to verify the level of awareness of CC and screening among the participants, to assess the practice of CC screening among them and to determine the relationship between sociodemographic factors and awareness/practice of CC screening.

2. Methodology

This is a descriptive, cross-sectional hospital-based study of awareness and practice of CC screening. It was conducted in the General Outpatient Department (GOPD), Gynaecology Clinic (GC), and Immunization and Family Planning Clinic (IFPC) of the Federal Teaching Hospital (FETH), Ido-Ekiti, Nigeria. The study was conducted over a period of three months from May to August, 2009 among 220 sexually active women of ages 20 to 70 years. FETH is a reference tertiary Hospital situated in rural Ido-Ekiti, south-west Nigeria. The research protocol was approved by the Research Ethics Committee of the hospital and both oral and written consent was obtained from all the participants in the study. Women of ages 20-70 years who came for other medical conditions in the above mentioned three clinics of FETH, Ido-Ekiti, were recruited for the study. The selection of samples from the three clinics was based on the mean attendance of women of ages 20-70 years in the two months preceding the month of commencement of data collection. Each sample was calculated thus; the average attendance per clinic divided by the total attendance in the three clinics multiplied by the desired sample size. For example, in the GOPD, the sample taken was calculated as $460/570 \times 220 = 177$. In the same manner, in the IFPC, twenty five ($64/570 \times 220=25$) consenting women were selected. In the GC, eighteen ($46/570 \times 220=18$) women were selected. This was done to ensure equal distribution based on the clinics population size. The IFPC runs once a week, GC runs once a week and GOPD runs five days in a week. Systematic random sampling was used to select the participants in each of the clinics days. Every 4th patient was sampled after a simple random selection of the first participant for each day. Data on sociodemographic factors, knowledge of and attitudes towards CC and its screening were taking with an interviewer administered questionnaire from the consenting participants.

The data collected were analyzed using Statistic Package for Social Science (SPSS) version 16 software (IBM, Chicago, US). The descriptive statistics were described using means, mode, median and standard deviation, frequency and percentages. Bivariate analysis was done using chi square, student *t* test, and Fischer exact test as appropriate. P value < 0.05 was considered to be statistically significant.

3. Results

A total of 220 participants were studied; but 215 questionnaires were analysed because 5 (2.3%) samples of Papanicolaou smear were inadequate for cytological analysis.

Sociodemographic characteristics

Table 1. Sociodemographic characteristics of the participants (N=215).

Characteristics	n (%)
<i>Age group (years)</i>	
20-29	42 (19.5)
30-39	63 (29.3)
40-49	53 (24.7)
50-59	36 (16.7)
60-69	13 (6.0)
70-79	8 (3.7)
<i>Marital status**</i>	
Married	181(84.2)
Single	23 (10.7)
Widowed	8 (3.7)
Separated	2 (0.9)
Divorced	1 (0.5)
<i>Religion</i>	
Christianity	209 (97.2)
Islam	6 (2.8)
<i>Educational status</i>	
Tertiary	98 (45.6)
Secondary	73 (34.0)
Primary	34 (15.8)
No formal education	10 (4.7)
<i>Occupation*</i>	
Class I	14 (6.5)
II	43 (20.0)
III	34 (15.8)
IV	102 (47.5)
V	22 (10.2)
<i>Ethnic group</i>	
Yoruba	205 (95.3)
Ibo	8 (3.7)
Hausa	—
Others	2 (1.0)

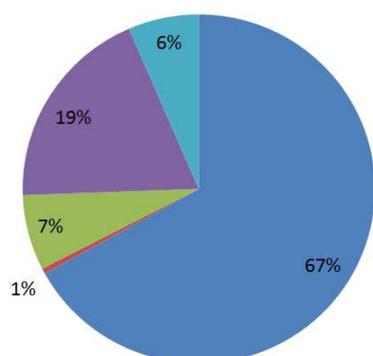
* = occupation as classified by Oyedeji [10]

** N= 192, the single females are excluded

Table 2. Family characteristics of the participants N=215.

Family dynamics	n(%)
<i>Marital status</i>	
Married	181 (84.2)
Single	23 (10.7)
Widowed	8 (3.7)
Separated	2 (0.9)
Divorced	1 (0.5)
<i>Type of Marriage*</i>	
Monogamy	134 (69.8)
Polygamy	58 (30.2)
<i>Parity</i>	
≤ 4 child birth	138 (64.2)
> 4 child birth	77 (35.8)
<i>Duration of Marriage*</i>	
> 10 years	133 (69.3)
≤ 10 years	59 (30.7)
<i>Previous Husband*</i>	
No	173 (90.1)
Yes	19 (9.9)

* N= 192, the singles are excluded



NHW: Non-hospital workers; MD: Medical doctor; NUR: Nurses; HA: Health assistants; OHW: Other hospital workers

Figure 1. Hospital job description of the participants in relation to cervical cancer screening.

Mean age \pm standard deviation of the respondents was 41.2 \pm 12.6 years, median age was 40 years (The age range was 20 to 70 years). Bimodal age occurred in the distribution and these were 30 and 33 years. 25th percentile of the age distribution was 31 years, 50th percentile was 40 years while 75th percentile was 50 years. Table 1 shows that the modal age group of the participants was 30 - 39 years. One hundred and fifty eight (73.5%) of the participants were within the age range of reproductive live and high sexual activities (age groups 20-29, 30-39,40-49 years). Other sociodemographic

characteristics of the participants are shown in Table 1. Figure 1 shows that the occupations of 144 (67.0%) participants were not health related. That is, they were not working in the hospital or any health centre. Only one female doctor (0.5%) participated in the study. Table 2 shows that 23 (10.7%) of the participants were single. All the single women were sexually active. Of the 192 (89.3%) women who had ever married, 181 (84.4%) of them were still married to their husband. Monogamous family was predominant, though a number of women, 58 (30.2%), were in polygamous family with the number of wives ranging between 2 to 6. Majority (64.4%) had between one and four children. One hundred and thirty three (61.9%) had married for more than 10 years and few 19 (8.8%) of them had married one husband before the present one they were living with.

Sexual behaviour, practices and use of contraceptives

Table 3. Pattern of risk factors for cervical cancer among the participants N=215.

Characteristics	n(%)
<i>Age at first coitus</i>	
≤ 20 years	133 (61.9)
> 20 years	74 (34.4)
No response/cannot remember	8 (3.7)
<i>Number of sexual partner in life time</i>	
> 1	147 (68.4)
1	65 (30.2)
No response	3 (1.4)
<i>No of partner's sex partners</i>	
> 1	109 (50.7)
1	51 (23.7)
I don't know/ not sure	55 (25.6)
<i>Past history of sexually transmitted disease</i>	
No	140 (65.1)
Yes	75 (34.9)
<i>Family history cervical cancer</i>	
No	210 (97.7)
Yes	5 (2.3)

Table 4. Types of Contraceptive and duration of use.

Contraceptive types	Duration of contraceptive use						Total n (%)
	0-11mo n (%)	12-23mo. n (%)	24-35mo. n (%)	36-47mo. n (%)	48-59mo. n (%)	≥60mo n (%)	
No contraceptive	-	-	-	-	-	-	135(62.8)
OCP	3 (25)	3 (25.0)	5 (41.7)	1(8.3)	-	-	12(5.6)
Condom	0 (0)	5 (33.3)	4 (26.7)	2(13.3)	3(20.0)	1(6.7)	15(7.0)
IUCD	4(14.3)	2 (10.0)	7(25.0)	6(21.4)	3(10.7)	6(21.4)	28(13.0)
Injectable	4(20.0)	9(45.0)	1(5.0)	5(25.0)	1(5.0)	-	20(9.3)
Others	1(20.0)	-	1(20.0)	0	3(60.0)	-	5(2.3)
							215(100)

OCP: Oral contraceptive pills; IUCD: Intrauterine contraceptive device; mo = month

Table 3 shows that majority of the participants (61.9%) had their first coitus before or at 20 years of age. The mean age at sexual debut was 20.1 years. The modal and median age at sexual debut was 20 years. The age range at commencement of sexual intercourse among the studied subjects was 15 and 28 years. Fifty five (25.6%) participants were not sure or could not ascertain whether their current sexual partners or husbands have more than one sexual partner. Majority of the participants (62.8%) were not using any contraceptive. Intrauterine contraceptive device (IUCD) was the commonest contraceptive being used (13.0%) followed by injectable contraceptive drugs (13.0%), male condom (9.3%) and oral contraceptive pills (OCP) (5.6%). Other findings about contraceptive use are highlighted in Table 4.

Awareness of cervical cancer and cervical cancer screening.

Figure 2 shows that 137 (63.7%) participants were not aware of both the cervical cancer and its screening. Only 78 (36.3%) of the studied subjects were aware of cervical cancer. Thirty nine (50%) of those who were aware of cervical cancer were not aware of its screening. Of the 78 respondents that were aware of cervical cancer, more than half 56 (71.8%) of them became aware of it through the health worker. Table

5 shows that occupation whether it was classified as hospital-related, or according to Oyediji's classification [10], was found to be significantly associated with awareness of cervical cancer and its screening. Professionals and senior public servants were found to have higher level of awareness of cervical cancer and its screening than the nonprofessionals and junior public servants. Similarly, those who worked in the Hospital had higher level of awareness than those who were not Hospital workers.

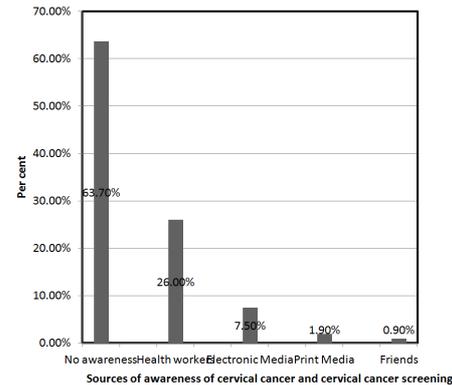


Figure 2. Sources of awareness of cervical cancer and cervical cancer screening.

Table 5. Influence of sociodemographic factors on cervical cancer awareness and cervical cancer screening awareness.

Factors	Cervical cancer awareness		Cervical cancer screening awareness	
	Yes n(%)	No n (%)	Yes n(%)	No n(%)
<i>Education</i>				
Tertiary education	44(44.9)	54(55.1)	27(27.6)	71(72.4)
Secondary education	22(30.1)	51(69.9)	10(13.7)	63(86.3)
Primary education	9(26.5)	25(73.5)	2(5.9)	32(94.1)
No formal education	3(30.0)	7(70.0)	0(0)	10(100)
Statistical parameters	$\chi^2=5.93, df=3, p=0.115$		$\chi^2=12.47, df=3, p=0.006$	
<i>Occupation^a</i>				
I	13(92.9)	1(7.1)	12(85.7)	2(14.3)
II	11(25.6)	32(74.4)	7(16.3)	36(83.7)
III	15(44.1)	19(55.9)	6(17.6)	28(82.4)
IV	37(36.3)	65(63.7)	14(13.7)	88(86.3)
V	2(9.1)	20(90.9)	0(0)	22(100)
Statistical parameters	$\chi^2=29.45, df=4, p=0.000$		$\chi^2=49.37, df=4, p=0.000$	
<i>Marital status</i>				
Married	69(38.1)	112(61.9)	35(19.3)	146(80.7)
Single	7(30.4)	16(69.6)	4(17.4)	19(82.6)
Widowed	1(12.5)	7(87.5)	0(0)	8(100)
Separated	0(0)	2(100)	0(0)	2(100)
Divorced	1(100)	0(0)	0(0)	1(100)
Statistical parameters	$\chi^2=4.69, df=4, p=0.276$		$\chi^2=2.08, df=4, p=0.759$	
<i>Hospital-related occupation^b</i>				
Non-hospital workers	35(24.3)	109(75.7)	13(9.0)	131(90.9)
Health assistants	21(51.2)	20(48.8)	10(24.4)	31(75.6)
Nurses	14(93.3)	1(6.7)	13(86.7)	2(13.3)
Doctor	1(100)	0(0)	1(100)	0(0)
Other hospital workers	7(50)	7(50)	2(14.3)	12(85.7)
Statistical parameters	$\chi^2=38.82, df=4, p=0.000$		$\chi^2=46.92, df=4, p=0.000$	

a :Oyediji's [10] classification of occupation, b : occupation classified as hospital-related job

Table 6 shows that age at sexual debut less than 20 years, multiple sexual partners and grand-multiparity were significant risk factors to development of pre-malignant lesions (p-value < 0.05). Those whose sexual partners had

multiple sexual partners had significant risk of having abnormal cervical cytology smear (P= 0.006) However, having a partner who has multiple sexual partners was a significant factor to abnormal finding in VIA (P= 0.054).

Papanicolaou smear result was not affected by the type of family but polygamous family was a risk factor to abnormal VIA finding.

Cytology

The cytology results for the participants are shown in Table 6. The percentages are given in relation to the number of participants in each group. The Table shows that abnormal cytology was found with increasing age (especially low grade squamous intraepithelial lesion (LGSIL) and high grade squamous intraepithelial lesion (HGSIL)). Acute cervicitis was highest among age group 30-39 years. It is commoner (28.8%) below 49 years when compare to age 50 years and

above (18.1%). Atypical squamous cell of undetermined significance (ASCUS) was highest in age group 20-29 years (7.1%). HGSIL was seen from 40 years of age, highest at age group 50-59 years (13.9%). Half of the 70-year old women (50%) had LGSIL and one (12.5%) of them had HGSIL. Also from this table, 16(10.1 %) of the women in the reproductive age group (20-49 years) had LGSIL while 13(22.8%) of the women at age 50 to 70 years had LGSIL. One (0.6%) of the women in the reproductive age (20-49 years) had HGSIL while 7(12.3%) of the women in age 50 to 70 years had HGSIL.

Table 6. Cytology reports of the participants.

Agegroup	Normal n(%)	Acute cervicitis n(%)	ASCUS n(%)	LGSIL n(%)	HGSIL n(%)	Total n(%)
20-29	37(88.1%)	0	3(7.1%)	2(4.2%)	0	42
30-39	44(69.8%)	11(17.5%)	1(1.6%)	7(11.1%)	0	63
40-49	37(69.8%)	6(11.3%)	2(3.8%)	7(13.2%)	1(1.9%)	53
50-59	23(63.9%)	2(5.6%)	1(2.8%)	5(13.9%)	5(13.9%)	36
60-69	8(61.5%)	0	0	4(30.7%)	1(7.7%)	13
70-79	2(25.0%)	1(12.5%)	0	4(50.0%)	1(12.5%)	8
Total	151	20	7	29	8	215

ASCUS: Atypical squamous cell of undetermined significance; LGSIL: Low grade squamous intraepithelial lesion; HGSIL: High grade squamous intraepithelial lesion

4. Discussion

This study was done to determine the level of awareness of cervical cancer and its screening among the patients attending a rural tertiary hospital in Nigeria. All the participants in this study were sexually active, the modal and mean age of sexual debut was 20 years. This mean age of sexual debut is close to what was reported by Ayinde *et al* [11] in a similar study in Ibadan, south west Nigeria who reported the mean age at first coitus as 18.8 years with modal age being 18 years. The slightly lower mean age at first coitus in their study could be because their study population consisted of undergraduate University students. It is also similar to 17.9 years which was reported in a hospital-based study in Zaria (12), northwest Nigeria, higher than 15 years reported by Umezulike *et al* [13] and lower than 21.2 years reported by Akujobi *et al* [14]. The differences in the findings of these studies may be due to the differences in the study population and culture. Involvement in sexual intercourse by teenagers should be discouraged because higher prevalence of cervical cancer has been seen in those having unprotected sex before the age of 20 years. [3, 12]

Our study also showed that 95.3% (205) of the participants were Yoruba speaking and majority of them were Christians (97.2%). This is not unexpected because the towns in Ekiti state are Yoruba-dominated and are largely of Christian faith. Most of the participants were educated with about half (45.6%) of them with tertiary education. This may be due to the general level of education in Ekiti state which is considered to be an educationally advantaged state in Nigeria.

Our study also revealed that the level of awareness of cervical cancer was poor (36.3%) and poorer still is the awareness of screening for cervical cancer (18.1%). The

level of awareness of cervical cancer and its screening in this study was lower 71% and 33.5% respectively reported by Ayinde *et al* [11] for awareness of cervical cancer and its screening. This high level of awareness in the latter study may be because the study population consisted of undergraduate students some of whom were medical students, and it was done in an urban setting [11]. A previous study done five years before in the same setting as the aforementioned by Ajayi *et al*, reported that 15% of their participants had ever heard about cervical cancer [15]. A lower level (10%) of awareness was reported in Zaria, northwest Nigeria by Abdul *et al* [12].

In another study in Accra, Ghana, 56% had heard of cervical cancer and 26.7% knew that it could be prevented [16]. This study was carried out in the Gynaecology Outpatient Clinic of the Korle-Bu Teaching Hospital, Accra, Ghana; the largest tertiary care Gynaecology Outpatient Clinic in Ghana [16]. A similar higher level of awareness was reported in a Kenya study where 51% of the study population was aware of cervical cancer, but only 32% knew about screening [7]. The level of awareness is much higher in the US where 72% of Chinese-Americans are aware of cervical cancer screening [17]. It is important to state that the level of awareness of cervical cancer screening is generally low in sub-Saharan Africa compared to developed countries.

Also, the commonest source of awareness of cervical cancer and its screening in our study was the health workers (71.8%) consistent with report by Ezem [18]. The FETHI is located in a small town in Ekiti state, Nigeria. Although it is a tertiary institution that serves people of different socioeconomic status from different parts of the state and the neighbouring states, its geographical location which has a substantial rural character could account for the observed

lower level of awareness of cervical cancer and its screening when compared to other studies early mentioned. A large number of the participants were from the rural Ido town and its surrounding villages. It is also possible that patients coming to FETHI were not being educated enough on routine screening for diseases by the health workers.

The level of education was found to significantly affect awareness of CC screening ($p=0.006$) but did not significantly affect awareness of CC itself ($p=0.115$). That is, significantly more participants with higher levels of education were aware of cervical cancer screening more than the participants in the lower levels of educational status. However, both participants in higher and lower levels of educational status had almost equal awareness of CC. This might be due to the fact that the study population consisted of women with lower level of education that worked in FETHI, who might have been privileged to hear about CC in the hospital but were not aware of its screening.

Our finding of no association between level of education and awareness of CC contradicted the report of Ayinde *et al* [11] that stated that high level of awareness of cervical cancer was found among the university undergraduates. The finding of significant impact of education on awareness of screening is in concord with Ogunbowale and Lawoyin [19] in Nigeria and a study in India [20] which showed that education influenced screening behaviour through its association with individual knowledge about cancer screening. Education encourages female empowerment and may improve women's knowledge of safe sex practices. The impact of education was also evident in this study because it accounted for a significant increase in the awareness of CC screening.

The type of occupation whether classified according to social class or in relation to health was found to significantly affected awareness of CC and its screening. This is consistent with report of Ogunbowale and Lawoyin [19] who found that professionals and skilled workers had better awareness of CC and its screening than unskilled workers. Ayinde *et al* [11] also reported higher level of awareness of cervical cancer among medical students. Similarly, a study in Kenya identified higher level of awareness in health care providers as compared to the general populace [21]. In another study by Ayinde and Omigbodun [22] in Nigeria on knowledge, attitude, and practice related to prevention of CC among female health workers in Ibadan, Nigeria, reported that though knowledge about the disease was high among female medical doctors, it was surprisingly inadequate among nurses and poor among hospital health assistants. Similar trend was observed in our study, where a nurse (out of the 15 nurses who participated) was not aware of CC and two nurses were not aware of CC screening. Awareness of the disease was just slightly above average (51.2%) among the health assistants while awareness of the screening for CC was poor (24.4%) among them.

Marital status did not significantly affect awareness of CC ($p=0.276$) and its screening ($p=0.759$) in this study. Whether single, married, divorced, or separated had no significant difference on the level of awareness of CC and its screening.

In a study among Chinese American immigrant in Seattle [17] it was reported that women who were never married had higher knowledge compared to those who had married, but in another previous study of Chinese immigrants from the same population, higher level of awareness was found among the married women than the single women [23]. This was consistent with the reports by Ayinde *et al* [11] in Nigeria and Bhagwan *et al* [20] in Maharashtra, India.

5. Conclusions

The majority of the participants were not aware of CC and the steps to be taken to prevent it from occurring. This poses a tremendous health education challenge. Higher level of formal education, professional, skilled workers and health related workers were found to be significantly associated with better awareness of CC, making education an important factor in CC awareness and screening. The general public should be educated on CC aetiology and screening, and the importance of limiting the number of sexual partners and choosing sexual partners who have not themselves had multiple sexual partners. Community leaders should be involved in achieving these objectives. Finally, government at all levels and health policy managers in both public and private institutions, should collaborate to formulate and implement regular programmed CC screening for the populace.

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