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Original Research Article

Awareness and uptake of cervical cancer screening services among female nurses in a low-resource setting: a cross-sectional study

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ABSTRACT

Background: Despite the high burden of cervical cancer in Nigeria, the uptake of screening services has remained poor even among healthcare workers. This study aimed to determine the awareness, uptake and factors influencing the uptake of cervical cancer screening among female nurses in Federal Medical Centre Asaba.
Methods: A cross-sectional study was conducted between 1st October and 31st October 2023 amongst 247 consenting female nurses at FMC Asaba using semi-structured, self-administered questionnaires with 205 correctly filled forms retrieved from the study participants. Data were analysed using SPSS 26 with a p value <0.05 considered significant.
Results: About 96.6% of female nurses were aware of screening for cervical cancer. However, only 28.9% of these nurses have been screened at least once for cervical cancer despite being aware of the availability of such screening modality at their workplace. Poor knowledge, fear of complications, cost of screening and lack of spare time, were some of the identified factors limiting the uptake of cervical cancer screening. There was also a significant association between the level of education and uptake of cervical cancer screening.
Conclusions: This study revealed a low uptake rate of cervical cancer screening among Nurses who should help in the dissemination of the cervical cancer message. These findings are an eye opener for Government at all levels, policy makers, hospital managements and professional bodies.

Keywords: Awareness, Cervical Cancer, Female nurses, Screening, Uptake

INTRODUCTION

Globally, cervical cancer continues to be a significant public health challenge, particularly for women as it ranks as the fourth most common cancer in this population.[1,2] It is the most common cancer of the reproductive tract, and a leading cause of cancer deaths among women in sub-Saharan Africa with Nigeria being inclusive.[3,4] It is a female genital cancer that results from infection with the human papillomavirus infection which is sexually transmitted.[5,6] Research indicates that approximately half of sexually active individuals, both men and women, will experience an HPV infection at some point in their lives.[7,8] The prevalence of HPV infection is striking, with lifetime risk estimates soaring as high as 80%.[9] Known risk factors for HPV infection and by extension cervical cancer include; early age at first intercourse and multiple sexual partners amongst others.[5] Fortunately infection with the HPV is usually transient, with only a minority of patients retaining the oncogenic virus within their genital epithelium, which can lead to the development of cancer if left unchecked.[5] Cervical cancer is one of the most preventable forms of human cancer because of its slow progression and cytologically identifiable precursor lesions detected via screening which helps in the diagnosis at its early stage, when effective treatment can be proffered.[10] Invasive cervical cancer is preceded by a long period of progression through various stages, which are microscopically characterized as a spectrum of precursor lesions progressing from cellular atypia to various grades of cervical intraepithelial neoplasia.[11,12]

According to recent data, the year 2020, witnessed approximately 604,000 new cases of cervical cancer, resulting in a staggering 342,000 deaths worldwide.[1,2] Significantly, this burden is disproportionately borne by low and middle-income countries (LMICs), where approximately 90% of newly diagnosed cases and associated deaths were reported in 2020.[1] Nigeria for example records over 10,000 new cases of cervical cancer and approximately 8,000 deaths from this cancer annually.[13] This staggering burden is exemplified by the fact that more than 53.1 million Nigerian women aged 15 and above are at risk of developing cervical cancer during their lifetime.[14] This alarming prevalence highlights the urgent need for enhanced awareness, preventive measures such as vaccination and screening for precursor lesions and treatment efforts to combat the devastating impact of this disease.

While the burden of cervical cancer has been drastically reduced in the developed world due to effective screening measures, this has not been the situation in most developing countries including Nigeria where there are no organized screening services with many of these patients paying out of pocket.[5,15,16] Nigeria has not had a great deal of success in implementing effective cervical cancer screening (CCS) services as screening in most settings is usually opportunistic during public health outreaches, mass campaigns, or depending on the initiative of the women and their health care provider.[5]

The various screening modalities include a Pap smear, visual inspection with acetic acid and Lugol iodine, HPV DNA testing and colposcopy. The Pap smear (cytology) has been used in large populations and screening with this modality has been shown to reduce cervical cancer incidence and mortality.[4,17] The age recommended for the start of this screening is usually between 20-30 years with various guidelines for different countries and should be repeated until the age of 65.[15]

Cost of screening, fear of positive results, lack of test awareness, reluctance to screen, low-risk perception, sociocultural norms and lack of time have been identified, as some of the factors influencing the uptake of cervical cancer screening among healthcare workers in Nigeria.[4]

The role of health care workers, especially female nurses cannot be overemphasized, especially in maximizing opportunistic screening services, as they play a critical role in the delivery of reproductive health services, including cervical cancer screening services to eligible women.[4] While their counterparts in developed countries, have continued to contribute to the success of programs aimed at reducing cervical cancer burden, as they provide CCS services including treatments, their role in CCS delivery in Nigeria has been underexplored.[4]

While there have been studies on awareness and uptake of cervical cancer screening among the general women population and undergraduates in Delta State as at the time of this literature search, no study on awareness and uptake of cervical cancer screening among nurses, who spend a significant amount of time with patients has been carried out in a tertiary hospital in Delta State Nigeria. The aim of this study was to determine the awareness, uptake and factors influencing the uptake of cervical cancer screening among female nurses in Federal Medical Centre Asaba. Our findings will help to further create awareness and make our nurses role models in screening uptake for the general Nigerian populace all geared at reducing the high burden of cervical cancer.

METHODS

Study area

This descriptive, cross-sectional study was carried out among female nurses in the Federal Medical Centre, Asaba, Delta State which is located in Oshimili South Local Government Area of Delta State in the South-South geopolitical zone of Nigeria. It is one of the tertiary hospitals in southern Nigeria that provides 24-hour primary, secondary and tertiary care to residents of the state and its environs and serves as a referral centre.

Study design

A descriptive cross-sectional study was adopted to study the awareness, uptake and factors influencing the uptake of cervical cancer screening among female nurses in Federal Medical Centre, Asaba, Delta State.

Study population

The Nursing Department of the hospital boasts 548 Nurses of different cadres of which 516 are females (the target population) manning the various wards in the hospital according to the Human Resource Unit of the hospital. They consist of General Nurses, Anaesthetic Nurses, Perioperative Nurses, Ophthalmic Nurses, Intensive Care Unit Nurses, Midwife Nurses, Public Health Nurses, and Registered Nurses.

Inclusion criteria

The inclusion criteria for the study include the following: Female nurses who work in FMC, Asaba, irrespective of their units and gave their consent for the study.

Exclusion criteria

The study excluded male nurses who work at FMC, Asaba, Delta State, nurses who do not work at FMC Asaba, female nurses who did not give consent and other Healthcare workers such as Medical Doctors, Medical Laboratory Scientists and Technicians, Physiotherapist, Pharmacists and Pharmaceutical technicians, Radiologist, Health Attendants, Public Health Officers, Environmental Health Officers, and Dentist and Dental technicians.

Sample size determination

The sample size was determined using the formula ($n=Z^2pq/d^2$)[18] based on an uptake rate of 12.2% from a previous study[19] with a Z score of 1.96 and a confidence interval of 95%.

$$n = \frac{1.96x1.96 \text{ x } 0.122 \text{ x } 0.878}{0.05x0.05} = 84$$

Allowance for a 10% non-response was added, which brought the total sample size to 92 nurses in the Federal Medical Centre, Asaba. However, of the 250 questionnaires that were distributed, only 205 correctly filled questionnaires were returned for analysis.

Sampling technique

A systematic random sampling procedure was employed with the researcher and research assistants visiting the various units in the hospital to distribute the questionnaires to one in every three nurses after explaining to the nurses and obtaining informed consent to participate in the study.

Data collection tool

A semi-structured, pre-tested questionnaire was administered to the participants. The questionnaire comprised four sections viz: socio-demographic information, awareness of cervical cancer screening among female nurses, uptake of cervical cancer screening among female nurses, and the factors influencing the uptake of cervical cancer screening among this group of health workers. The questionnaire was adapted from similar studies and was also reviewed by public health experts in the hospital. Also, a small pilot administration of the study tool was done to a small set of nurses in a similar tertiary hospital in Asaba before the commencement of this study and their comments and feedback were reviewed. A Spearman correlation coefficient of 0.97 was also obtained from this pilot administration of the data collection tool. All these contributed to the validity and reliability of the study tool. A written informed consent was obtained from the study participants.

Data analysis

Categorical variables were summarized using frequencies and percentages while the test of association between categorical variables was via the chi-square with a p-value < 0.05 considered to be significant. The Statistical Product and Service Solution (SPSS) version 26 was used to enter and analyze data from the study.

Ethical consideration

Institutional ethical clearance was obtained from the Research and Ethics Committee of the Federal Medical Centre, Asaba before the commencement of the study in conformity with the Helsinki Declaration with emphasis on the core ethical principles of autonomy, beneficence, non-maleficence and justice.

RESULTS

The mean age of the study participants was 39.80±8.76 years. The majority of the study participants were multiparous, had a Bachelor of Science degree in Nursing, were married, earned above N120,000 and were Senior Nursing Officers in rank (Table 1).

About 96.6% of the study participants were aware of both cervical cancer and its screening, another 91.7% were aware of symptoms associated with cervical cancer while 33.2% of them were not aware of the risk factors associated with cervical cancer. In addition, 68.3% of the respondents felt they were not at any risk of developing cervical cancer. Pap smear was the most identified method for cervical cancer screening in this study and was closely followed by visual inspection with acetic acid/Lugol's iodine and HPV DNA testing as seen in Table 2.

Table 1: Socio-demographic characteristics of participants.

Variables	Frequency, N (%)	Total (%)
Age (in years)		
Mean ± SD	39.80 ± 8.76	-
Parity		
Nullipara	38 (18.5)	205 (100)
Primipara	36 (17.6)	
Multipara	118 (57.6)	
Grand multipara	13 (6.3)	
Educational Level		
RN Nurse	79 (38.5)	205 (100)
BSc Nurse	109 (53.2)	
MSc Nurse	14 (6.8)	
PhD Nurse	1 (0.5)	
RN and BSc Nurse	1 (0.5)	
BSc and MSc Nurse	1 (0.5)	
Marital Status		
Single	40 (19.0)	205 (100)
Married	154 (77.0)	
Divorced	6 (2.0)	
Widowed	5 (2.0)	
Cadre of nurse		
Nursing Officer II	20 (9.8)	205 (100)
Nursing Officer I	15 (7.3)	
Senior Nursing Officer	66 (32.2)	
Principal Nursing Officer	56 (27.3)	
ACNO and above	48 (23.4)	
Income earned		
₦60,000 - ₦80,000	8 (3.9)	205 (100)
₦81,000 - ₦100,000	18 (8.8)	
₦101,000 - ₦120,000	25 (12.2)	
₦120,000 and above	153 (74.1)	

Regarding the source of information regarding cervical cancer and its screening modalities, fellow health workers constituted the major source of information for the study participants. This was followed closely by information from the various schools they attended (Figure 1).

About 76.6% of the study participants were aware of the availability of screening services in the hospital. The majority (40%) of those interviewed were of the view that nurses conducted the cervical cancer screening while another 29.7% chose the doctors as the health worker that carries out CCS. With regards to the uptake of CCS, 69.8% of the Nurses had not done any form of cervical screening before the onset of this research. The main reason given by those who have had at least one screening was that it was for periodic checks to detect early lesions while abnormal vaginal discharge, post-menopausal bleeding, post-coital bleeding and painful sexual intercourse accounted for the remaining reasons for uptake (Table 3).

Table 2: Awareness of cervical cancer and screening among nurses.

Variables	Frequency, N (%)	Total (%)
Do you know about cervical cancer?		
Yes	198 (96.6)	205 (100)
No	7 (3.4)	
Awareness of cervical cancer symptoms		
Yes	188 (91.7)	205 (100)
No	17 (8.3)	
If yes, what are the symptoms?		
Bleeding per vagina	65 (34.6)	188 (100)
Foul-smelling discharge	15 (8.0)	
Growth in the cervix	9 (4.8)	
Painful coitus	14 (7.4)	
Bleeding per vagina, foul-smelling discharge and growth in the cervix	85 (45.2)	
What are the possible risk factors or causes of cervical cancer?		
Poor hygiene	5 (2.4)	205 (100)
Smoking	7 (3.4)	
Early coitus	77 (37.6)	
Infection with HPV	45 (22.0)	
Diet	3 (1.5)	
I do not know	68 (33.2)	
Do you think		

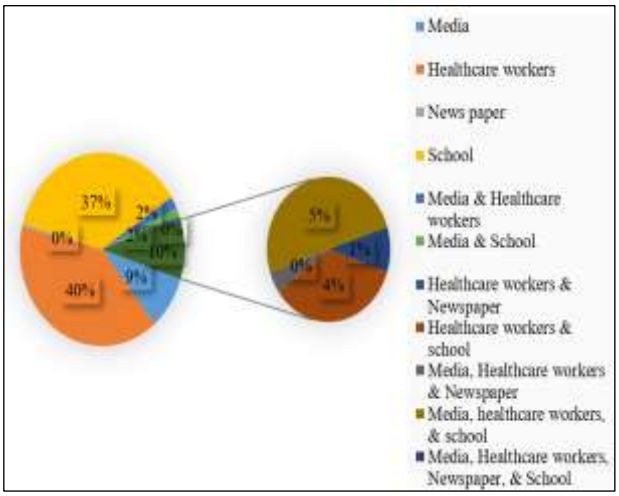

Figure 1: Sources of information about cervical cancer and its screening.

Poor knowledge of cervical cancer screening, fear of a bad result, cost of screening and lack of spare time for the procedure were the major factors identified by the respondents to be limiting the uptake of cervical cancer screening. Other factors such as lack of services for screening, husband influence and religion were also identified as seen in Table 4.

The level of education of the respondents showed some statistically significant differences with the uptake of cervical screening services. Other sociodemographic features of age, parity, marital status, cadre of nurses and monthly income did not reveal any significance (Table 5).

Table 3: Uptake of cervical cancer.

Variables	Frequency, N (%)	Total (%)
Availability of facilities for cervical cancer screening in your hospital		
Yes	157 (76.6)	205 (100)
No	38 (18.5)	
I do not know	10 (4.9)	
Who conducts cervical cancer screening in your facility?		
Nurses	82 (40.0)	205 (100)
Doctors	61 (29.8)	
Medical Laboratory Scientist	28 (13.7)	
Nurses and Doctors	11 (5.4)	
Nurses and Medical Laboratory Scientist	2 (1.0)	
Doctors and Medical Laboratory Scientist	1 (0.5)	
Nurses, Doctors and Medical Laboratory Scientist	6 (2.9)	
I do not know	14 (6.8)	
Have you ever done a cervical cancer screening before?		
Yes	58 (28.3)	205 (100)
No	143 (69.8)	
I do not know	4 (1.9)	
If yes, what are the reasons for screening?		
Periodic check for early detection of cervical cancer	58 (100.0)	58 (100)
Painful sexual intercourse	1 (1.7)	
Abnormal vaginal discharge	13 (22.4)	
Post-menopausal bleeding	2 (3.4)	
Post-coital bleeding	1 (1.7)	

Table 4: Factors limiting the uptake of cervical cancer screening.

	Frequency (%)		Total (%)
	Yes	No	
Poor knowledge of cervical cancer screening	175 (85.4)	30 (14.6)	205 (100)
Cost of the screening	125 (61.0)	80 (39.0)	205 (100)
Lack of cervical cancer screening services facilities	95 (46.3)	110 (53.7)	205 (100)
Fear of a bad result	171 (83.4)	34 (16.6)	205 (100)
Lack of spare time	111 (54.1)	94 (45.9)	205 (100)
Religion	82 (40)	123 (60)	205 (100)
Husband's influence	84 (41)	121 (59)	205 (100)

Table 5: Distribution of sociodemographic characteristics and uptake of cervical cancer screening among respondents.

Variable	Done cervical cancer screening		$\chi 2$	P value
	Yes (%)	No (%)		
Age group in years				
20-29	6 (22.2)	21 (77.8)	7.294	0.063
30-39	13 (20.3)	51 (79.7)		
40-49	23 (31.1)	51 (68.9)		
50 and above	16 (44.4)	20 (55.6)		
Parity				
Nulliparous	7 (19.4)	29 (80.6)	4.032	0.258
Primiparity	8 (22.2)	28 (77.8)		
Multiparity	38 (32.5)	79 (67.5)		

Continued.

Variable	Done cervical cancer screening		χ2	P value
	Yes (%)	No (%)		
Grand multiparity	5 (41.7)	7 (58.3)		
Educational level				
RN Nurse	16 (20.8)	61 (79.2)	12.329[F]	0.003*
BSc Nurse	31 (28.7)	77 (71.3)		
MSc Nurse	9 (64.3)	5 (35.7)		
PhD Nurse	1 (100.0)	0 (0.0)		
Marital status				
Single	7 (18.4)	31 (81.6)	4.966[F]	0.142
Married	50 (32.9)	102 (67.1)		
Divorced	0 (0.0)	5 (100.0)		
Widowed	1 (16.7)	5 (83.3)		
Cadre of Nurse				
Nursing Officer II	3 (16.7)	15 (83.3)	2.960	0.564
Nursing Officer I	3 (20.0)	12 (80.0)		
Senior Nursing Officer	18 (28.1)	46 (71.9)		
Principal Nursing Officer	17 (30.4)	39 (69.6)		
ACNO and above	17 (30.4)	31 (64.6)		
Income earned				
N60,000 - N80,000	3 (37.5)	5 (62.5)	1.956	0.582
N81,000 - N100,000	5 (27.8)	13 (72.2)		
N101,000 - N120,000	4 (17.4)	19 (82.6)		
N120,000 and above	46 (30.5)	105 (69.5)		

F = Fisher's Exact test; *Significant

DISCUSSION

Cervical cancer is a highly preventable disease and an important strategy for curbing this menace is the early detection and management of premalignant lesions of the disease which is achievable by screening at-risk women.[20,21] This descriptive cross-sectional study x-rayed the awareness and uptake of cervical cancer screening methods among Nurses at the Federal Medical Centre Asaba, Delta State Nigeria a tertiary hospital in South-South Nigeria. The mean age of the study population was 39.80±8.76years, which was similar to the finding of 37.0±9.0years in Enugu, 37.7±9.5years in Lagos, and 41.9±8.4years in Osogbo which falls within the reproductive age group bracket.[22-24]

This study recorded a high level of awareness of cervical cancer and cervical cancer screening among the study population as a significant amount knew about the symptoms, risk factors/causes of cervical cancer and the various screening modalities which were similar to the findings of Enebe et al and Nwankwo et al in Enugu, Ifemelumma et al in Abakiliki, Oyekale et al in Osogbo, Awodele et al in Lagos, Omonua et al in Abuja, Jain et al in India, and Mathivha et al in South Africa.[22,19,20,24-28] This may be attributed to the study population who have better opportunity to hear about cervical cancer during their nursing training, among colleagues and other health workers and also being involved in the management of patients with cervical cancer. Also, the environment in which the respondents work being a tertiary health facility may have played a role.

There was however a low uptake of cervical screening in this study as only 28.3% of the study population have been screened at least on one occasion despite having this knowledge. This was also supported by similar findings by Enebe et al and Nwankwo et al in Enugu where only 19.8% and 12.2% of the nurses interviewed respectively had been screened for cervical cancer before.[22,19] It was also similar to the 20.6% recorded by Ifemelumma et al in Abakiliki, 23.5% recorded by Omonua et al in Abuja This was however different from the finding by Oyekale et al in Osogbo with a 75.3% utilization of cervical cancer screening by health workers.[20,26,24] Their finding may have been due to the heterogeneous nature of their study population which involved other health workers like doctors, pharmacists, medical laboratory scientists, etc. It was also different from the 83% uptake of cervical cancer screening recorded by Mathivha et al in South Africa that had a more organized cervical screening service.[28]

Poor knowledge, fear of a bad result, cost of screening, and lack of spare time for the procedure were the major factors identified by the respondents limiting the screening uptake in this study. Other factors were lack of screening services, husband's influence and religion. This was also similar to the findings by Enebe et al in Enugu, Oyekale et al in Osogbo, Ifemelumma et al in Abakiliki, Okesiji et al in Lagos.[20,22-24]

This study revealed a statistically significant difference between educational level and uptake of cervical cancer screening as the higher the educational level of the respondents the greater the chances of having been

screened for cervical cancer. This buttresses the importance of advancing education among health workers especially nurses to get updated information about cervical cancer and its screening. Also, another plausible explanation may be that with higher levels of education comes higher remuneration which may increase the affordability of cervical cancer screening services to these group of nurses.

The limitations of this study include that it was a hospital-based study and hence may not be a true reflection of the wider society, also being a cross-sectional study it is prone to recall bias and may not provide a direct cause-and-effect relationship.

CONCLUSION

Despite the high level of awareness of cervical cancer and its screening recorded in this study, the uptake of cervical cancer screening was very low. There is therefore a need to get more nurses involved in the cervical cancer screening units which can be achieved via rotation to these units to help them get rid of fears and doubts of the cervical cancer screening process and make them better advocates for cervical cancer screening especially during the internship days. In addition, cervical cancer screening education programs should be carried out among health care providers especially nurses. This can be achieved via the continuing medical education program organized by the various professional groups and regulatory bodies during practicing license renewal as nurses constitute an important source of health information for the general populace. Institutions should also organize periodic seminars and trainings for their health workers especially the nurses that form a group of health professionals that can educate other women on cervical cancer. Also, government at all level should make cervical cancer screening free at all level of health care facility to reduce the burden of out-of-pocket payment and encourage more uptake of cervical cancer screening services.

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