

*Full Length Research Paper*

## Cancer of the cervix and cervical screening: Current knowledge, attitude and practices of female health workers in Sokoto, Nigeria

Oche M. O.\*., Kaoje A. U., Gana G and Ango J. T.

Department of Community Health, Usmanu Danfodiyo University Teaching Hospital, Sokoto, Sokoto State, Nigeria.

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This descriptive cross sectional study assessed the knowledge, attitude and practices of female health workers at Usmanu Danfodiyo University Teaching Hospital, Sokoto with respect to cervical cancer Pap smear screening. A multistage sampling method was used to select a total of 240 subjects. Data was collected using a set of structured, self administered questionnaire which sought information on socio-demographic characteristics, knowledge of cervical cancer, knowledge of cervical cancer screening and uptake of screening services amongst the respondents. Data was analysed using Epi-info statistical software with level of statistical significance set at  $P < 0.05$ . Almost all [217 (98.6%)] of the respondents had ever heard of cervical cancer, 217 (98.6%) of the respondents had good knowledge ( $\geq 50\%$ ) about cancer of the cervix, while 199 (90.5%) knew that it can be detected by cytological screening. The mean knowledge score was  $82.2 \pm 13.8$ . Of the 220 study subjects, only 22 (10%) had ever done the screening test. The most common reason for not assessing Pap smear screening services was the perception that the subjects were not at risk of the disease. Education of female health workers on the dangers posed by the disease, and reassurance to overcome all possible barriers towards acceptance of the screening test are recommended.

**Key words:** Cervical cancer, Pap smear, female health workers, knowledge.

### INTRODUCTION

Cervical cancer poses a major public health threat to women in many low and medium resourced countries in South and Central America, Sub-Saharan Africa, South and Southeast Asia, where it is still the leading type of cancer among women (Ferlay et al., 2001; Parkin et al., 2005). With about 500,000 new cases and 250,000 deaths each year worldwide, it is the second most common cancer among women (World Health Organization (WHO), 2006) with incidence in Sub-Saharan countries

ranging from 30 to 40 per 100,000 women (Kahesa et al., 2008). In Nigeria, the national incidence of cervical cancer is 250/100,000 (Adewole et al., 1997). Cancer is responsible for about 51 million deaths yearly, out of which cervical cancer accounts for 8.5%, most of which occur in the developing countries (Hakulinen et al., 1986).

There are many factors related to the development of cervical cancer. These include infection with high-risk human papilloma virus (HPV), early sexual debut, high

\*Corresponding author. E-mail: [ochedr@hotmail.com](mailto:ochedr@hotmail.com). Tel: +2348035045144.

parity, multiple sexual partners and co-infection with human immunodeficiency virus (HIV). Chlamydia trachomatis, herpes simplex virus type-2, immunosuppressants, and certain dietary deficiencies are also known to be associated risk factors for HPV infection (WHO, 2002). Moreover, HIV increases the incidence rates of cervical cancer, where several studies have shown a strong association between HIV-1 and invasive cancer of the cervix (Adjorlolo-Johnson et al., 2010). As many as 80% of diagnosed cases are detected in the advanced stages in which treatment, even when available, has a markedly reduced likelihood of success (Luthra et al., 1988).

The Papanicolaou (Pap) smear is one of the most essential screening tools for the early diagnosis of cervical cancer and has been found to be the most effective preventive measure (WHO, 2006b). The value of cervical cancer screening in reducing the risk of cervical cancer and mortality has been established, and the risk of developing cervical cancer can be reduced by 80% through regular screening (Stewart and Kleihues, 2003; Özgül, 2007). The benefits of Pap smear's wide availability and usage have been documented, resulting in lowering of mortality rates by up to 60 to 90% in some developed countries (Sankaranarayanan et al., 2001; Wong et al., 2009).

Findings from studies have suggested that unscreened women were at high risk of cervical cancer which had necessitated researchers to continue to investigate different reasons for non-screening among women (Ponten et al., 1995; Oscarsson, 2008). The American Cancer Society recommends that all women should begin cervical screening at age 21 years; a 3 year interval can be considered in the age group 21 to 29 years while women who have had the HPV vaccine should follow the screening recommendations for their age group (American Cancer Society, 2012).

Several reasons for low rates of Pap testing have been observed including low education, lower cognitive scores, low acculturation, and other demographic, social and psychological factors (Wolff et al., 2003; Wu et al., 2001; Coronado et al., 2004). A previous study from Zaria noted that only 270 patients were screened as part of routine screening in 5 years (Oguntayo and Samaila, 2010).

Several studies have shown the importance of health care professionals as predictors of the use of cervical cancer screening. Women's knowledge is also implicated in screening uptake. Women with low levels of knowledge about cervical cancer and its prevention are unlikely to access screening services (Abotchie and Shokar, 2009; Liao et al., 2006; Hummeida et al., 2009).

Previous studies done among female health workers have shown good knowledge of cervical cancer; however, cervical screening attendance rates are still far from satisfactory in most countries (Udigwe, 2006; Anya et al., 2005; Mutyaba et al., 2006). For example, only 18%

of female health workers (who were aware of the Pap smear) had actually accessed it (Cyril et al., 2009). This study was therefore carried out to investigate the current knowledge of cervical cancer and cervical screening among female health workers at the Usmanu Danfodiyo University Teaching Hospital, Sokoto. It is hoped that data obtained from this study will form the basis for further interventions on cervical cancer prevention.

## METHODOLOGY

### Setting and study population

This study was carried out among female health workers of the Usmanu Danfodiyo University Teaching Hospital (UDUTH), Sokoto. The hospital is located in Wamakko Local Government Area within Sokoto metropolis, and serves the host state Sokoto and neighboring Kebbi and Zamfara states, including patients from Niger Republic. It serves as a regional center for Neurosurgery and carries out services such as dialysis, computerized tomography (CAT scan), magnetic resonance imaging (MRI), radiotherapy among others. The hospital has a total of 700 health workers comprising of doctors, nurses, midwives, laboratory technologists/technicians, pharmacists radiologists/radiographers and physiotherapists. The teaching hospital has about 450 bed spaces and serves both the host state and the surrounding states of Kebbi and Zamfara. It records over 5,000 patients visits in a month.

### Study design

This was a descriptive cross sectional study conducted among female health workers comprising doctors, nurses, pharmacists and medical laboratory scientists at the Usmanu Danfodiyo University Teaching Hospital, Sokoto. Using an appropriate sample size formula for estimating minimum sample size for a descriptive study in a population less than 10,000 (Kirkwood, 1998), and 69.8% prevalence of knowledge of cervical screening from a previous study in Nigeria (Aboyeji et al., 2006), a sample size of 216 was determined. The estimated sample size was adjusted to accommodate for non-response and wrong/incomplete responses to 240.

### Sampling method

A multistage sampling method was used to select the study subjects. First, the four professional areas with female health workers (FHW) were identified namely doctors, nurses, pharmacists and medical laboratory technologists. At stage 2, the populations of each group of FHW were obtained and samples proportionately allocated based on the population of each group of FHW. There were a total of 356 FHWs in the study centre comprising of 30 doctors, 306 nurses, 12 laboratory technologist and 8 pharmacists. In the final stage, the FHWs were randomly selected until the calculated sample size of 240 was obtained and made up of the following; doctors (20), nurses (206), laboratory scientists (8) and pharmacists (6).

### Data collection

Data was collected using a set of structured, self administered

**Table 1.** Socio-demographic data.

Age (years)	N (%)
20-29	101 (45.9)
30-39	67 (30.5)
40-49	34 (15.5)
50-59	17 (7.7)
≥60	1 (0.4)
<b>Religion</b>	
Christianity	116 (52.7)
Islam	102 (46.4)
Others	2 (0.9)
<b>Marital status</b>	
Single	81 (36.8)
Married	131 (59.5)
Divorced	1 (0.4)
Widowed	7 (3.2)
<b>Educational training</b>	
Basic	51 (23.2)
Post – basic	145 (65.9)
Others	24 (10.9)
<b>Tribe</b>	
Hausa	79 (35.9)
Ibo	48 (21.8)
Yoruba	48 (21.8)
Others	45 (20.5)

**Table 2.** Awareness and source of information about cervical cancer.

Awareness	N (%)
Yes	217 (98.6)
No	3 (1.4)
<b>Source of information</b>	
From school	165 (76)
Public lectures	44 (20.3)
Radio/TV	7 (3.2)
News papers	1 (0.46)

questionnaire which sought information on socio-demographic characteristics, knowledge of cervical cancer, knowledge of cervical cancer screening and uptake of screening services amongst the respondents. The questionnaire was pretested on 20 FHWs in the state specialist hospital and there after administered to the study subjects by three resident doctors trained on the objectives of the

study, interpersonal communication skills and administration of the study tool. Informed consent was obtained from the respondents after explaining the objectives of the study to them and with a pledge to keep all information volunteered confidential. Ethical clearance was obtained from the ethical committee of the Teaching hospital.

#### Data analysis

Incomplete entries and none responses were excluded and 220 questionnaires were processed using the EPI-INFO statistical software version 3.3.2 program. All quantitative variables were summarized using appropriate measures of location and variability, while categorical variables were presented as percentages and frequencies. Each correct answer to knowledge question attracted one mark, with no marks awarded wrong answers. Scores < 50 and ≥ 50 were graded as inadequate and adequate knowledge, respectively. The chi-square test was used to test for associations between variables, with level of statistical significance set at  $P \leq 0.05$ .

#### RESULTS

A total of 220 female health workers filled and returned the questionnaires (92% response rate). The ages of the respondents ranged from 20 to 60 years, with a mean age of  $33 \pm 9$  years. A total of 52.7% of the respondents were Christians while 46.4% were Muslims, 36.8% were single and 59.5% were married; 23.2% had only basic training while 65.9% had some form of post basic training. The tribal distribution showed that 35.9, 21.8 and 21.8% were Hausa, Igbo and Yoruba, respectively (Table 1). Almost all [217 (98.6%)] the respondents had ever heard of cervical cancer. About three quarters 165 (76%) heard of it from lectures and seminars in schools while most, 44 (20.3%) got information about it through public lecture (Table 2). Of the 220 respondents, 188 (85.5%) and 193 (87.7%) knew that cervical cancer is associated with HPV and multiple sexual partners, respectively. Majority [199 (90.5%)] knew that the disease can be detected at the precancerous stage through the Pap smear. A total of 217 (98.6%) of the respondents had good knowledge ( $\geq 50\%$ ) about cancer of the cervix and its associated risk factors while 199 (90.5%) knew that it can be detected by cytological screening. The mean knowledge score was  $82.2 \pm 13.8$  (Table 3).

A total of 176 (79.6%) respondents were aware of the presence of cervical cancer screening service in the study centre.

A total of 191 (86.8%) respondents were of the opinion that cervical cancer screening is for all women of child bearing age, 15 (6.8%) believed that only women with symptoms suggestive of the disease should go for the screening test while 10 (4.5%) opined that only women who have had promiscuous life style should undergo the test (Table 4). Of the 220 study subjects, only 22 (10%) had ever done the screening test. Of these, 19 (86.4%)

**Table 3.** Knowledge of cervical cancer (n = 220).

Variable	N (%)
Sexual transmission	67 (30.5)
Early marriage	55 (25.0)
Runs in the family	85 (38.6)
Caused by HPV	188 (85.5)
Caused by bacteria	33 (15.0)
Caused by local insertions into the vagina	186 (84.5)
Onset of old age	55 (25.0)
Caused by multiple sexual partners	193 (87.7)
Post coital bleeding is a sign	209 (95.0)
Offensive discharge is a sign	209 (95.0)
Prevention with antibiotics	23 (10.5)
Can be detected by Pap smear screening	199 (90.5)

Mean knowledge score = 82.2 ± 13.8.

**Table 4.** Respondents' perception of those to undergo cervical screening test.

Those expected to do Pap smear	N (%)
All women of child bearing age	191 (86.8)
Only women with symptoms suggestive of cancerous cervix	15 (6.8)
Only women with promiscuous life style	10 (4.5)
Don't know	4 (1.8)

had done it only once while only one person (4.5%) had done the test thrice. Of the 22 respondents who had undergone the screening test, 15 (68.2%) of them did it within the last 3 years. Seventeen (77.3%) of the study subjects did the test voluntarily without anybody prompting them or having any signs or symptoms of the disease while the rest carried it out on the request of their physicians. The most common reason adduced by the respondents for not undergoing the screening test was that they believed they were not at risk (34.4%). Other reasons included fear of experiencing pain during the procedure (24.7%) and also fear of the outcome of the test (21.1%) (Table 5).

A total of 171 (77.7%) of respondents who were yet to be screened for cervical cancer opined that they intend to avail themselves of the opportunity as soon as they can while 196 (81.9%) of the study subjects would recommend the screening to others. There was a spurious relationship between knowledge score and uptake of Pap smear. Poor knowledge being associated with a higher uptake rate of Pap smear. There was a statistically significant association between increasing age of respondents and marital status of the respondents with uptake of Pap smear test. There was however no statistically significant

relationship between ethnicity, religion, educational qualification and uptake of Pap smear (Table 6).

## DISCUSSION

At every stage in life, a woman in the third world risks some serious health problems including human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS), high maternal mortality ratios and cancer of the cervix later in life (Ezem, 2007). In recent times, there appears to be a surge in non-communicable diseases as has been seen in the last few decades in the developed world. Cervical cancer an easily preventable disease is prominent amongst them.

This study examined the knowledge of cervical cancer among female health workers and their attitude and practices of Pap smear screening. The knowledge of cervical cancer and the detection of premalignant form by screening is fundamental to the prevention of the disease. Our study showed a very high level of awareness of cancer of the cervix among our respondents; similar high levels of awareness was observed in the study carried out among nurses at the Lagos University Teaching Hospital (LUTH) Nigeria, where 99% of their respondents were aware of the disease (Awodele et al., 2011). This high level of awareness observed in our study is not unexpected considering the educational background of the subjects. However, the high level of awareness observed in this study is in contrast to the findings from similar studies carried out in Maiduguri and Abuja, Nigeria where less than 10% of their respondents were aware of the disease (Audu et al., 1999; Nnodu et al., 2010).

A greater proportion of our respondents got information about cervical cancer through lectures and seminars (76%) while in school and the work place. This is not in agreement with findings from Lagos, Nigeria, where most of their subjects got information regarding the disease from the electronic media (Awodele et al., 2011).

Findings from our study showed that majority (87.7%) of our study subjects correctly identified HPV as the primary cause of cervical cancer. This collaborates with the findings of Awodele in Lagos and Oyedunni in Ibadan, Nigeria (Awodele et al., 2011; Oyedunni and Opemibo, 2012). The respondents in our study recorded a mean knowledge score of 82.2 ± 13.8 for cervical cancer. This is high when compared with findings from other parts of Nigeria (Awodele et al., 2011; Nnodu et al., 2010; Oyedunni and Opemibo, 2012).

Majority (90.5%) of the subjects were aware of Pap smear as one of the screening procedures for cervical cancer. This is in consonance with findings from a similar study by Awodele in Lagos Nigeria (Awodele et al., 2011). Several other studies in Nigeria showed lower levels

**Table 5.** Reasons for not undergoing cervical cancer screening test.

Reason	N (%)
Not at risk	68 (34.4)
Afraid of experiencing pain	49 (24.7)
Not aware of the service	4 (2.0)
Does not want to be exposed to male doctors	34 (17.2)
Afraid of the outcome of the screening test if it comes out to be positive	43 (21.1)

**Table 6.** Association of some variables with uptake of cervical cancer screening.

Knowledge of cervical cancer	Uptake of cervical cancer screening test		Test statistics
	Yes	No	
Poor (<50%)	2	1	P=0.027
Good (≥50%)	20	197	
<b>Age (years)</b>			
<40	6	163	X <sup>2</sup> =33.70; df=1; P<0.0001
≥40	16	35	
<b>Marital status</b>			
Married	18	113	P=0.037
Unmarried	4	85	
<b>Religion</b>			
Christianity	15	101	P=0.177
Islam	7	95	
<b>Educational attainment</b>			
Basic	2	49	X <sup>2</sup> =3.45; df=2; P=0.178
Post basic	16	129	
Others	4	20	

levels of cervical cancer knowledge (Audu et al., 1999; Ojiji and Dike, 2008; Ayinde et al., 2004; Ogunbode, 2005). The high level of awareness and knowledge of cervical cancer and Pap smear demonstrated by our subjects did not translate to proper utilization of the screening procedure. Although a greater proportion of our subjects (79.6%) were aware of the presence of the screening services in the study center, only 22 (10%) of the respondents had undergone the screening for cervical cancer. This poor utilization of the screening services observed in our study affirms similar findings among nurses in Nnewi (7.1%), Ibadan (34.6%), and Owerri (7.1%), all in Nigeria (Udigwe, 2006; Ayinde et al., 2004; Ezem, 2007).

Similar low utilization of Pap smear was recorded in other countries (Mutuyaba et al., 2006; Lyimo and Beran,

2012). The observed low uptake of Pap smear in our study portends a dangerous sign as a low uptake among the predictors of its use (female health workers) might have a negative effect on the attitude of the general population towards utilization of the screening procedure. Female health workers must be proactive and in the vanguard for the fight against cervical cancer and anything short of this will erode the confidence the women folk have on them.

Although majority (89.2%) of the respondents were of the opinion that Pap smear should be done by all women, only 10% of our subjects had undergone the procedure. This may not be unrelated to the widely held view that cervical cancer increases with age, as findings from this study showed a statistically significant association between increasing age of respondents and uptake of

Pap smear ( $P < 0.05$ ). This is further buttressed by the fact that 77.7% of the subjects intend going for the procedure in future when they are older and at greater risk. However, the marital status, ethnicity, religion and educational qualification did not have any statistically significant association with uptake of Pap smear.

The most common reason for not assessing Pap smear among the respondents was the perception that they were not at risk of contracting the disease (34.4%). This widely held view has also been expressed by female health workers from other centers in Nigeria (Udigwe, 2006; Ezem, 2007). Despite the high awareness by our respondents of the link between cervical cancer and sexual activity, as well as the place of sexually transmitted diseases, a large proportion of study subjects still believed they were not at risk. The perception of one's susceptibility can on the long run affect screening behavior. A similar finding was also observed from the study in Ghana where 47% of their subjects felt they were not at risk of the disease (Abotchie and Shokar, 2009).

Other reasons given for not undergoing the screening test include fear of pain, fear of outcome of the test and lack of awareness. These findings are in consonance with other studies in Nigeria (Udigwe, 2006; Oyedunni and Opemibo, 2012). With the National Health Insurance scheme (NHIS) in place, it is hoped that all women covered by the scheme will avail themselves the opportunity of being screened for cervical cancer.

## Conclusion

This study revealed high knowledge of cervical cancer and low Pap smear uptake. Several barriers have been identified to have contributed to the low uptake of the screening for cervical cancer. If the fight against the disease is to be won, concerted efforts should be made to educate female health workers who are involved in health education of the general population on the dangers posed by the disease and reassurance to overcome all possible barriers towards acceptance of the screening test. The NHIS should be strengthened to increase access of the entire women folk to screening; this will go a long way in reducing the burden of cervical cancer in the country.

Reliability and validity of the responses were not verified although the instruments for the study were pretested.

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