Research

Knowledge of Cervical Cancer among Women of Reproductive Age in Ibadan North LGA, Oyo State, Nigeria

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How to cite this article:
Oruikor GJ, Durotoye MP, Jeremiah AG; Knowledge Assessment of Cervical Cancer among Women of Reproductive Age in Ibadan North LGA, Oyo State, Nigeria. The Nigerian Health Journal 2023; 23(3): 819 - 827.

Abstract

Background: Nigeria has one of the highest rates of cervical cancer morbidity and mortality in Sub-Saharan Africa. Both the human papillomavirus vaccine (HPV) and cervical screening are effective prevention strategies against both HPV infection and cervical cancer. Lack of awareness, limited knowledge, limited decision-making agency, lack of spousal support and stigma are barriers to uptake of these preventive measures.
Cervical cancer is a deadly disease claiming the lives of many women in developing countries due to late presentation which might be influenced by a lack of knowledge of the disease and its prevention.

Method: This descriptive study examined the knowledge assessment of cervical cancer among women of reproductive age (15-49), about cervical cancer, its prevention, and their utilization of Pap smear screening; using a convenience sample of 426 women in Ibadan North Local Government Area of Oyo State, Nigeria. Women voluntarily completed a structured questionnaire.

Result: Results showed that women who participated in the study were aware of cervical cancer (77%; n=328) but many (62.9%; n= 268) were unaware of Pap smears as the screening tests for cervical cancer. Although 41.3% (n=176) were knowledgeable about cervical cancer, risk factors and prevention, only 9.4% (n=40) had Pap smear tests done.

Conclusion: Health care professionals, need to intensify efforts to increase awareness about cervical cancer screening, and encourage women through the different clinics to use these services. The benefits of screening and early diagnosis of cervical cancer should be emphasized to enhance the utilization of cervical cancer screening services.

Keywords: Cervical cancer, assessment, prevention, cervical cancer screening, women of reproductive age, Nigeria.

The Nigerian Health Journal, Volume 23, Issue 3
Published by The Nigerian Medical Association, Rivers State Branch.
Downloaded from www.tnhjph.com
Print ISSN: 0189-9287 Online ISSN: 2992-345X

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Introduction

The Cervix is the lower-third of the uterus. In non-pregnant woman of fertile age, it measures approximately 3 cm in length and 2.5 cm in diameter. The lower part of the cervix (ectocervix) lies within the vagina and is visible with a speculum. The upper two thirds of the cervix (endocervix) above the vagina and is not visible. The cervix is composed of dense fibro muscular tissue. The cervical canal runs through the center of the cervix from the internal os (the opening at the entrance to the cavity of the uterus) to the external os (the opening in the cervix seen with a speculum). Most cervical cancer originates in the area where the endo-cervix and ecto-cervix join.

Cancer is the term used for malignant, autonomous and uncontrolled (and often rapid) growth (proliferation) of cells and tissues. Such growth forms tumors, which may invade the tissues around the cancer and cause new growth similar to the original in distant part of the body called metastases.[1]

Cervical cancer forms in the tissue of the cervix (the organ connecting the uterus and vagina). It is usually a slow-growing cancer that may not have symptoms but can be found with regular Pap test (a procedure in which cells are scraped from the cervix and looked at under a microscope.[2] Cervical cancer is almost always caused by Human Papilloma Virus (HPV) infection due to the persistent infection with causing HPV types.[3]

HPV is the most common sexually transmitted infections of more than 100 types, most of them are not associated with cervical cancer. HPV is the most common STI. There were about 43million HPV infections in 2018, many among people in their late teens and early 20s.[4]

The burden of disease due to transmissible diseases such as HIV and HPV is increasing especially in developing countries like Nigeria.[5] HPV 16 and 18 are among the most prevalent types, responsible for approximately 70% of all cervical cancer cases, other high-risk HPV types are HPV 31, 33, 45 and 58.[6] Since HPV infection also causes other cancer (anus, oro-pharynx, penis, rectum, vagina and vulva), prevention strategies will also contribute to the reduction of these other HPV-related cancers.[7]

Cervical cancer is malignant neoplasm of the cervix uteri or cervical area. It may present with vaginal bleeding, but symptoms may be absent until cancer is in its advanced stages.[8] Treatment consists of surgery (including local excision) in early stages, chemotherapy and radiotherapy in advanced stages of the disease. Cervical cancer is a typically slow-growing cancer that may not have symptoms but can be early diagnosed by doing a Pap smear.[9]

In low- and middle-income nations, cervical cancer is a significant health concern, accounting for about 25% of all cancers in women. In 2012, there were 528,000 new cases of cervical cancer globall,[14] particularly in Africa.[10] The highest incidence rate of cervical cancer was observed in Guinea with nearly 6.5% of women developing cervical cancer before the age of 75 years. It affects women < 45 years more than the other major cancer.[11] It is also the leading cause of cancer deaths in Eastern and Central Africa. Most of these deaths can be prevented through universal access to comprehensive cervical cancer prevention and control programs which can potentially reach all girls with HPV vaccination and all women who are at risk with screening and treatment for pre-cancer.[12,11,13]

Cervical cancer has various risk factors, including unprotected intercourse, polygamy, low socioeconomic status, early marriages, limited education, early menstrual cycles, numerous pregnancies, smoking, co-infections, HPV infections, hormonal changes, and weakened immune systems.[14] Persistent infection with around 15 high-risk HPV types is the major risk factor for cervical cancer with HPV-16 and HPV-18 infections accounting for about 70% of the total cases. Multiple sexual partners, younger age at first sexual intercourse, early marriage, poor dietary habit, also serve as risk factors to the HPV persistent infection and progression to cancer.[12,13,15]

The prevalence of carcinogenic HPV infection is on the rise. Despite its high incidence, there are both primary and secondary preventive measures available, such as HPV immunization and treatments for preinvasive conditions. It has been reported that numerous women have never had a Pap smear in advanced countries, which accounts for 80% of all new cases.[14] There has been calls for a coordinated effort to combat cervical cancer, involving various healthcare levels.[16,17]

This article discusses the knowledge assessment of cervical cancer in Ibadan Nigerian, a developing country in West Africa. This is a necessary step to move towards global eradication of cervical cancer.

Method

Study Design: This study utilized a descriptive cross-sectional survey design. Participants were reproductive women, aged 15-49, residing in Ibadan North Local government area of Oyo State in Nigeria who consented to take part in the study.

Study Setting: Ibadan North Local Government Area (LGA) had an area of 26 km² and a population of 152,834 at the 2006 census. It was created in 1991 by the Military head of state, General Ibrahim Babangida. The local government is divided into eleven wards and has its headquarters at Onireke. However, Oke-Badan North local Council Development Area has been carved out, leaving Ibadan North local government with six wards. It inhabitants are majorly Yoruba with lesser population of Hausa, Ibo and other tribes. The inhabitants in this area are mostly involved in trading, teaching, manufacturing, publishing, farming, artisanship and civil services.
This research was carried out from June, 2023-August, 2023.

Population of Study: The targeted population for this study comprises of women of reproductive age between 15 and 49 years of age in Ibadan north LGA Oyo state. Women who did not fit this criteria were excluded from the study.

Sample size and Technique: The sample size for this study was determined using a standard formula, Taro-Yamane formula:
$$n = N/[1+N(e)2]$$
For a cross sectional study, where n= sample size of adjusted population, N= population size and e=accepted level of error taking alpha as 0.05. The total number of women in the LGA, based on Nigeria's National Census (2006) was 77,523. Substituting this figure in the formula, a total of sample 398 was obtained. This was increased to 450 since convenience sampling was used to identify the respondents. For this study, three of the wards' communities in the LGA were selected by simple balloting. The houses in each selected community were numbered and systematic random sampling was adopted to select households where women, who were 15 years of age or older and who consented, were interviewed until the sample size had been reached. A total of 453 women were met in the selected households, out of which 426 who consented to participate in the study were interview. This constituted a 94.2% response rate.

Study Instruments: The use of structured questionnaire was employed. The structured questionnaire was developed by the researchers in English and translated into the local language for women with issues in reading and writing. The questionnaire comprised three sections, which gathered information about respondents' socio-demographic characteristics; knowledge on cervical cancer and screening tests; access to and utilization of cervical screening tests and perceived barriers influencing the uptake of cervical screening services.

Validity of the research Instruments: The validity of the research instrument (questionnaires) was established through face and content validity criteria. The questionnaire was presented to the supervisor, who made the necessary corrections. This process was to ensure the reliability and validity of the instruments.

Data collection: This study data was collected using structured questionnaires which was be administered by one of the researchers to 453 respondent using simple random sampling technique. Interested individuals' consent were gained and the questionnaires administered to each respondent to fill and retrieved back immediately for analysis. The researchers used the local language to assist respondents who encountered difficulties to read or write, while those respondents who could read and write completed the questionnaires by themselves.

Data Analysis: The data collected through the structured questionnaire were manually sorted out, before being subjected to computer analysis. The results of participants' according to the questionnaire were analyzed using frequency distribution table and charts. The research analysis was done using SPSS, Version 2.0. Frequency, percentage and charts were used as a source of data representation.

Results
A total of 453 questionnaires were distributed but 426 were filled and retrieved back for analysis.

Socio-Demographic Characters: The sample (N=426) was primarily the Yoruba tribe (90.1%; n=384). The respondents were within the age range of 15–45 years with a mean age of 41 and a standard deviation of 5 years. Of the respondents 60.6% (n=258) were married within the age range of 22–26, with a mean age at marriage of 25 and a standard deviation of 3 years. Most respondents (87.8%; n=374) were married, 32.9% (n=140) had two children and just as many, 32.9% (n=140) had three children. Other demographic data is displayed in table 4.1 below.

The Nigerian Health Journal, Volume 23, Issue 3
Published by The Nigerian Medical Association, Rivers State Branch.
Downloaded from www.tnhjph.com
Print ISSN: 0189-9287 Online ISSN: 2992-345X

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The Nigerian Health Journal; Volume 23, Issue 3 – September, 2023
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Table 1: Socio-demographic characteristics

Characteristics	Frequency	%
Age Range		
10- 20	10	2.3
21-25	6	1.4
26-30	60	14.4
31-35	66	15.5
36-40	147	34.5
41-45	137	32.2
Marital Status		
Single	6	1.4
Marred	374	87.8
Divorced	46	10.8
Widowed	0	0
Age at Marriage		
12-16	8	1.9
17-21	34	8.0
22-26	258	60.6
27-31	126	29.6
Duration of Marriage		
2-8	38	8.9
9-15	162	38.0
16-22	196	4.0
23-30	30	7.0
Religion		
Christianity	208	48.8

Characteristics	Frequency	%
Islam	210	49.3
Traditional	8	1.9
Tribe		
Yoruba	384	90.1
Igbo	30	7.0
Hausa	12	2.9
Level of Education		
No formal education	4	0.9
Primary education	208	48.8
Secondary education	192	45.1
Tertiary education	22	5.2
Number of Children		
One	58	13.6
Two	140	32.9
Threw	140	32.9
Four	70	16.4
Five	18	4.2
Employment Status		
Employed full-time	215	50.5
Employed part-time	100	23.5
Unemployed	16	3.8
Student	65	15.3

Awareness of cervical cancer

Out of the respondents, (77.0%; n =328) had heard about cervical cancer. As many as 61.0% (n=166) of the respondents reported that cervical cancer can be prevented, while only 37.1% (n=158) claimed to have heard of cervical cancer screening (pap smear). Most

(62.5%; n=205) of these women who had heard about cervical cancer, did so through the media, while 29.0% (n=95) heard about it through the hospital's health care personnel. Only a few respondents (8.5%; n=28) heard about cervical cancer from their friends.

Table 2: Awareness of cervical cancer

Statement	Freq	%
Have you ever heard of cervical cancer?		
Yes	328	77.0
No	98	23.0
If yes, where did you get an information about cervical cancer?		
Media	205	62.5
Hospital or Health personnel	95	29
Friends	28	8.5
Can cervical cancer be prevented?		
Yes	166	39.0
No	260	61.0

Statement	Freq	%
Have you heard of Pap smears?		
Yes	158	37.1
No	268	63.0

Respondent's knowledge of cervical cancer

The knowledge of the respondents was measured using 13. Correct options were given a score of 1, while wrong options were given a score of zero. Therefore, a total score of thirteen was obtainable. Scores between 1 and 6 were rated as indicating poor knowledge and scores between 7 and 13 were rated as indicating a good level of knowledge, as summarized in table 4.3. Less than 50.0% (n=202) of the women agreed that cervical cancer is an abnormal growth of the mouth of the uterus that it could spread to other parts of the body if not detected

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early. Of the women, 66.7% (n=284) disagreed that irregular/heavy vaginal bleeding was a symptom of cervical cancer; 56.8% (n= 242) agreed that multiple sex partners could be a risk factor for developing cervical cancer; 57.3% (n=242) disagreed that a Pap smear is the screening test for cervical cancer. The summary of the knowledge score by the respondents showed that 58.7% (n=250) had poor knowledge, while 41.3% (n=176) had good knowledge about cervical cancer and prevention strategies.

The younger women were more knowledgeable than the older women. This study therefore concluded that the age of women influenced their knowledge about cervical cancer and participation in screening services. That is, the younger women were more knowledgeable about cervical cancer and screening than the older ones.

Access and utilization of screening facilities
Table 4 presents information on respondents' access to and utilization of screening facilities. Approximately half of the respondents (54.5%; n= 232) reported being unaware of any cervical cancer screening center. Nearly half of them (45.5%; n =194) knew about a screening center, out of which 45.4% (n= 88) reported that the screening center was 2km to 5km away from their residences.

Barriers to Cervical cancer screening from Table 4
Of the respondents, 66.9% (n=285) agreed that a lack of information about the screening center was one of the reasons why women did not use cervical screening services. Health workers' attitudes posed a major barrier to screening for 54.9% (n=234) of the respondents.

Table 3: Respondents' knowledge about cervical cancer, risk factors and prevention (N=426)

Statement	True	False	Total
Cervical cancer is a disease that affects the cervix which is the mouth of the uterus.	266(62.4%)	160(37.6%)	426(100%)
Cervical cancer is an abnormal growth of the mouth of the uterus (cervix) that could spread to other part of the body if not detected early	20.2(47.4%)	22.4(52.6%)	426(100%)
Irregular/heavy per vaginal bleeding when not menstruating, after intercourse or after menopause is one of the symptoms of cervical cancer	142(33%)	248(66.7%)	426(100%)
Multiple sexual partners is one of the risk factors for cervical cancer	242(56.8%)	184(43.7%)	426(100%)
Cervical cancer is mainly caused by a virus (Human Papilloma Virus)	244(57.3%)	182(42.7%)	426(100%)
Cervical cancer can affect any sexually active female.	238(55.9%)	188(44.1%)	426(100%)
Early sexual intercourse is one of the risk factors for cervical cancer.	188(44.1%)	238(55.9%)	426(100%)
Women with risk for cervical cancer can be identified through blood and saliva test.	178(41.8%)	284(58.2%)	426(100%)
Limiting sexual partners to one predisposes to cervical cancer.	254(59.6%)	172(40.6%)	426(100%)
Pap smear is the screening test for cervical cancer	178(39.4%)	248(60.6%)	426(100%)
Cervical cancer can be prevented through early screening and treatment	178(39.4%)	248(60.6%)	426(100%)
Cervical cancer can be prevented by a vaccine	244(57.3%)	182(42.7%)	426(100%)

Table 4: Access and Utilization of Cervical Cancer Screening Services

Respondents' utilization of screening facilities	Frequency	Percentage
Is there any awareness of cervical cancer screening center in Ibadan north LGA?		
Yes	194	45.5
No	232	54.5
Distance of screening center to participants' residence		
< 2km	32	17.6
2 - 5km	88	48.4
-10km	42	23.1
>10km	20	11.0
Do you think distance is a barrier to cervical cancer screening test?		
Yes	386	90.6
No	40	9.4

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Do you think the cervical cancer screening test is costly?		
Yes	370	86.9
No	56	13.2
Do you think lack of information of screening services and center is a barrier for women in accessing cervical cancer screening services?		
Yes	285	66.9
No	141	33.1
Do you think attitude of health workers can pose as a major barrier to screening services?		
Yes	234	54.9
No	192	45.1

Discussion

A total of 426 participants of reproductive age in Ibadan north local government, Oyo state were questioned for this study. All of the respondents are female. Majority of the participants had primary education (48.8%), 45.1% had secondary education, 5.2% had tertiary education while 0.9% had no formal education.

The level of awareness of cervical cancer displayed by women in this study was in line with the work of Awodele et al.[18] who found that most women were aware of cervical cancer and risk factors. The results, however, do not support those of Ayinde and Omigbodun[19] and Balogun et al.,[20] who reported low levels of awareness of cervical cancer and risk factors. The low level of awareness of the Pap smear as a screening method reported in this study agreed with those of Adanus.[21] This study's findings supported reports by Al Thanii et al[22] and Parkin et al[22] that mass media remained the major source of information on cervical cancer prevention in Honduras. Most respondents lacked knowledge about cervical cancer and its prevention, agreeing with findings reported in Nigeria by Nwankwo et al[24] and those of Al Thani et al[22] in Qatar, who reported that women had poor knowledge about cervical cancer, screening services and HPV. The level of knowledge shown by women in this study, however, disagreed with the findings of Mutyaba et al,[25] who found that 83% of the women had satisfactory knowledge about cervical cancer screening.

Most women in this study had never been screened for cervical cancer and about half of them did not know of a cervical cancer screening center. This finding supports the study finding reported by Ezem[26] in Owerri in Nigeria, where 52.8% of participants were aware of screening facilities. This result was similar to the finding[19,22,27] which studies showed that the level of awareness of cervical screening and the level of uptake among respondents were low. This study identified some barriers that might influence the utilization of cervical cancer screening services. Some women in this study reported cervical cancer screening to be embarrassing, in contrast to the report of Ibekwe et al[28] that 68% of women believed that cervical cancer screening was not embarrassing. The finding on lack of awareness of cervical screening as one of the major barriers to uptake of screening in this study had also been reported by Kamphinda-Banda,[29] who reported that the main barrier to cervical cancer screening was women's lack of knowledge and information about cervical cancer and screening and these service sites.

The significant association found between the women's knowledge of cervical cancer and prevention and their age disagrees with that reported by Al Thani et al[22] findings that older women were more knowledgeable about cervical cancer and screening services than younger women. Also, this study disagreed with findings that screening was higher among women aged 40 and older compared with younger women as reported by Al Thani et al,[22] who reported that more women aged 40 and older used Pap smear services than younger women. The findings are, however, at par with Leung and Leungs[30] findings that females aged 37 years or younger were more likely to attend cervical cancer screening. The report of some of the respondents on their partner's refusal to allow them to participate in screening confirmed the finding reported by Lyimo and Beran (2012) that men's attitudes towards cervical screening and treatment of cervical cancer are factors contributing to poor uptake of cervical cancer screening services.

Recommendations

It is recommended that greater attention should be given to develop strategies of comprehensive prevention for

The Nigerian Health Journal, Volume 23, Issue 3
Published by The Nigerian Medical Association, Rivers State Branch.
Downloaded from www.tnhjph.com
Print ISSN: 0189-9287 Online ISSN: 2992-345X

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cervical cancer by integrating with other reproductive healthcare services like antenatal care, health information education and communication and’ family planning services at all level of health care delivery system. Mass awareness campaigns and screening program should be improved to reduce the magnitude of the problem as well as the use of proven approaches in implementation of health extension programs to encourage screening behavior of women by all health care providers and other health sector stakeholders. Further research is needed to fully understand the issues relevant to women who had no screening behavior for prevention and control of cervical cancer. In addition, further studies in other areas of Ibadan should be carried out to give deeper insight to the state of knowledge and screening of cervical cancer.

Nurses are one of the key health care providers in rural Nigeria. Based on the findings of this study, nurses; mostly community health nurses should:

- Advocate and lead community focused educational programs to raise awareness about cervical cancer and its prevention through all available avenues such as clinics and religious gatherings
- Canvass for the establishment of screening facilities in the rural areas at a subsidized rate to encourage women at these levels to participate in screening
- Enhance their capacity to do Pap smear tests at the primary health care levels
- Encourage the uptake of cervical cancer screening among women
- Create awareness among men about the benefits of cervical screening.
- Address the barriers raised in this study to encourage women to utilize cervical screening services, including respecting women’s privacy and reducing the embarrassment associated with cervical cancer screening.

Limitations of the study: This study was conducted in four wards of Ibadan north local government, Oyo state Nigeria and the findings may not be generalizable to the whole state or country. Therefore, inferences from the findings should be made with caution. The women might have responded in a socially desirable way rather than presenting their true experiences. This study did not confirm the availability of screening facilities and their accessibility (distance and affordability) to rural dwellers as stated by the respondents. This study is also restricted to women of reproductive age.

Strengths of the study: Although similar studies have been done in this domain, to the best of our knowledge, none has been done with this study design.

Conclusion

The cognizance of cervical cancer is the fundamental responsibility of medical professionals in order to detect, diagnose and treat at early stage. Health workers attitude towards awareness creation and information dissemination should be improved with continuous trainings. Dissemination and better awareness creation of cervical cancer, should not only lie with the medical professionals' role, but also everyone including male and female members of the community. Rural women in Nigeria required more information on cervical cancer and its prevention. Mass media was the major source of cervical screening information, followed by health care workers. Health professionals should provide preventive information at various clinics. Continuous reinforcement of educational information on cervical cancer and screening is a priority to increase uptake of cervical cancer screening services, early detection of cervical lesions and effective treatment.

Declarations

Ethical consideration: The researchers developed a consent form which was signed by Dr Djibril, on 15th of June, 2023. This form was presented to each participant to obtain her consent. Those who consented were enrolled as participants, while those who declined weren't forced. The researchers ensured that confidentiality of information was always maintained. Participation was voluntary and participants were informed about their right to withdraw from the study at any time without incurring any penalty.

Authors’ contribution: Oruikor, Gabriel Jeremiah, Durotoye, Modupeoluwa Peace and Jeremiah Aristide-Flore Gabriel conceived the idea of writing this paper. All authors were involved at different stages of this manuscript (literature search, proofreading and reviews of this manuscript).

Conflict of interest: **None**

Funding: None

The Nigerian Health Journal, Volume 23, Issue 3
Published by The Nigerian Medical Association, Rivers State Branch.
Downloaded from www.tnhjph.com
Print ISSN: 0189-9287 Online ISSN: 2992-345X

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The Nigerian Health Journal; Volume 23, Issue 3 – September, 2023
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The Nigerian Health Journal, Volume 23, Issue 3
Published by The Nigerian Medical Association, Rivers State Branch.
Downloaded from www.tnhjph.com
Print ISSN: 0189-9287 Online ISSN: 2992-345X

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The Nigerian Health Journal; Volume 23, Issue 3 – September, 2023
Knowledge of Cervical Cancer among Women of Reproductive Age in Ibadan North LGA, Oyo State,
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