Original

Knowledge, Attitude and Practice of Cervical Cancer Screening among Reproductive Age Group Women in Ekpoma, South-South Nigeria

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Abstract

Background: Cervical cancer screening is an effective preventive approach to reduce the incidence of women developing cervical cancer. The utilization of Papanicolaou smear and HPV DNA testing has provided doctors with valuable tools for the early detection of women at risk.

Method: This study involved 350 respondents and employed a multi-stage sampling technique. Data was collected using questionnaires. Descriptive statistics were used to analyze the data using IBM SPSS version 21.0 software. The Chi-square test was utilized to test for associations, with a significance level set at $p < 0.05$.

Result: The findings revealed a lack of knowledge regarding cervical cancer and screening. Only 136 (38.9%) of the respondents had heard about cervical cancer, and only 50 (14.3%) were aware of cervical cancer screening. Also, 184 (52.6%) had a positive attitude towards being screened, and 176 (50.3%) believed that they did not require their spouse's consent for screening. Regarding the practice of cervical cancer screening, only 22(6.3%) of the participants had undergone a cervical screening. Furthermore, no statistically significant correlation was found between sociodemographic variables and individuals' knowledge, attitudes, and practices regarding cervical cancer screening.

Conclusion: This study highlights the poor knowledge regarding cervical cancer and screening among the participants. However, a majority of them expressed willingness to undergo cervical cancer screening and recognized the importance of early detection for better treatment outcomes.

Keywords: Screening, Women of reproductive age, Cervical Cancer.

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Introduction

Cervical cancer is the second most common female malignant tumour globally, which seriously threatens female health.[1] It is unique among cancers in that it can potentially be prevented. This is because cervical cancer predominantly affects women who are sexually active or have been in the past. Extensive evidence suggests that infection with specific strains of HPV, which are transmitted through sexual contact, particularly HPV 16, 18, plays a significant role in the development of this disease.[2]

Cervical cancer ranks high among female cancers in terms of both morbidity and mortality worldwide. A previous global study estimated that there were approximately 527,600 cases of cervical cancer and around 265,700 deaths attributed to it.[2,3] A 2009 WHO study reported that cervical cancer is the second most common cancer among women in Nigeria, with approximately 9,922 new cases diagnosed and around 8,030 deaths occurring annually.[4]

It is worth noting that women with cervical cancer often do not experience noticeable symptoms, especially in the early stages. Consequently, the diagnosis of malignancy typically occurs at an advanced stage, accompanied by symptoms such as vaginal bleeding, invasion, metastasis, and a poor prognosis.[5,6] In addition to the substantial burden it places on morbidity and mortality, cervical cancer also poses a significant economic risk. It imposes considerable direct costs on healthcare systems, communities, and households while also reducing the productivity of affected individuals and leading to premature death and disability.[7] This is further worsened by the absence of an effective and organized cervical cancer screening program in most developing countries, as well as the lack of awareness among women regarding the availability of such programs.[8]

The main preventive measures to combat this disease include screening and the use of vaccines that have proven efficacious in preventing infections and precancerous changes that can lead to cervical cancer.[9,10] These screening methods include the conventional Papanicolaou (Pap) test, liquid-based cytology, visual inspection with acetic acid or Lugol's iodine (VIA or VILI), and Human papillomavirus (HPV) testing for high-risk HPV.[10] Among these methods, the Papanicolaou smear (cervical cytology) has been the standard screening test for the pre-invasive stage of cervical cancer.[11] Cervical cytology is cost-effective, well-accepted by most women, and suitable for widespread screening programs.[8]

Nigeria faces a substantial burden from cervical cancer, [8] compounded by the absence of a national screening program for this disease. The effectiveness and advantages of implementing a national screening initiative as a public health strategy to mitigate and prevent cervical cancer are largely contingent upon the awareness levels of potential beneficiaries, particularly within community settings. Furthermore, there is a notable scarcity of research evaluating the knowledge, attitudes, and practices related to cervical cancer screening among women in Ekpoma. As women represent a significant demographic and economic force within the nation; it is essential to investigate whether the knowledge, attitudes, and practices related to cervical cancer screening among the female population are influenced by specific socio-demographic factors. Thus, this study aimed to assess the knowledge, attitude, and practices of cervical cancer screening among women of reproductive age group in a sub-urban community in South-South Nigeria.

Method

Study location

The study was carried out among residents of Ekpoma, Edo state, Nigeria. Ekpoma is a peri-urban town with a population of about 290,000 people, spread across six political wards: Eguare/Emaudo, Ihumudumu/Ugiemen, Ukpenu/Emuhi, Illeh, Egoro/Idoa and Uhiele.[12]

Study design

A descriptive cross-sectional study which was conducted between September 2022 to May 2023

Study population

The study population consisted of females of reproductive age (aged 18 years and above) who had resided in Ekpoma for at least six months.

Sample size estimation

The sample size was estimated using Cochran's formula for cross-sectional surveys,[13] with an awareness of 86.8% from a previous study,[14] a margin of error of 0.05, and an attrition rate of 10%, a sample size of 360

Sampling technique

A multi-stage sampling technique was implemented. The first stage included selecting three wards from the six using a simple random sampling technique. Thus, Ihumudumu/Ugiemen, Emaudo/Eguare, and Ukpenu/Emuhi were selected.

The second stage involved selecting three major streets from a central point in the wards (usually the

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marketplaces) using a simple random sampling technique. This was subsequently followed by a listing of houses along these streets. Finally, respondents were chosen from household members residing in the selected houses on the selected streets until the desired sample size was achieved.

Study Instrument

The study utilized a structured interviewer-administered questionnaire. Face validity was obtained by giving questionnaire to a community health physician to check, scrutinize and correct before distribution. The survey consisted of four sections, which consist of the socio-demographic characteristics, knowledge of cervical cancer screening tests, attitudes towards cervical cancer screening, and practices of cervical cancer screening.

Scoring of variables

The knowledge, attitude, and practice of cervical cancer screening were scored using responses to the questions asked, with each correct answer scoring one point and the wrong response scoring zero. Knowledge score ranged from 0-20, attitude 0-7 and practice 0-4. Knowledge score was categorized as poor (0-9) or good (10-20). Attitude score: Poor (0-3); good (4-7); while practice score was poor (0-4); good (>=5)

Data collection method

The research assistants included final-year medical students at Ambrose Alli University, Ekpoma, who were trained for two days. Once informed consent was obtained, the research assistants administered the questionnaires to the respondents and subsequently analyzed them.

Data analysis

Data analysis was carried out using the Statistical Package for the Social Sciences (SPSS) version 21. The statistical level of significance was set at $p < 0.05$ and 95% confidence interval. The association between the dependent and independent variables was tested using Chi-square.

Ethical Consideration

The study received ethical approval from the ethical review board of Irrua Specialist Teaching Hospital, Irrua. The ethical approval number is ISTH/HREC/20222707/311. Prior to administering the questionnaires, both verbal and written informed consent were obtained from the participants. Illiterate participants gave verbal consent in their preferred language. The research purpose was thoroughly explained to the respondents, emphasizing the strict confidentiality of their information.

Results

Three hundred and fifty completed questionnaires were analyzed for this study. The results are shown below.

Table 1: Socio-Demographic Characteristics of Respondents

Variable	Freq (%) n= 350
Age Group (Years)	
<20	86 (24.6%)
21-30	164 (46.9%)
31-40	68 (19.4%)
>40	32 (9.1%)
Mean Age ± Standard Deviation	**27.15 ± 8.185**
Marital Status of Participants	
Single	214 (61.1%)
Married	128 (36.6%)
Divorced	8 (2.3%)
Level of Education of Participants	
Primary	28 (8%)
Secondary	164 (46.9%)
Tertiary	158 (45.1%)
Religion of Participants	
Christianity	306 (87.4%)
Islam	42 (12.0%)
Traditional	2 (0.6%)
Occupation of Participants	
Trader	108 (30.9%)
Farmer	12 (3.4%)
Civil servant	26 (7.4%)
Student	152 (43.4%)
Others	52 (14.9%)

The age of the participants ranged from 18 -50 years, with most of the respondents, 164(46.9 %), belonging to the age group of 21-30 years. The mean age was 27.15, with a mean standard deviation of ±8.185. The marital status was dominated by the singles 214(61.1 %). Those with a secondary level of education were more than 164(46.9 %). The majority, 306(87.4 %), practiced the Christian religion, and most of the participants were students, 152(43.4 %). This is shown in Table 1.

Table 2: Knowledge Of Cervical Cancer and Cervical Cancer Screening

Variable	Frequency (%) n = 350
Have you heard of cervical cancer before?	

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Yes	136 (38.9%)
No	214 (61.1%)
How did you hear about Cervical Cancer?	
Family	12 (3.4%)
Friends	24 (6.9%)
Physician	26 (7.4%)
Health worker	30 (8.6%)
Newspaper	24 (6.9%)
Television/Radio	26 (7.4%)
Religious Organizations	14 (4%)
No reply	194(55.4%)
Do You know the risks of cervical cancer?	
Yes	78(22.3%)
No	272 (77.7%)
a) Early age of onset of sexual activity	
Yes	40(11.4%)
No	276 (78.9%)
Unsure	34 (9.7%)
b) Having more than one sexual partner	
Yes	44(12.6%)
No	272(77.7%)
Unsure	34 (9.7%)
c) Having a sexual partner who has or had other sexual partners	
Yes	36 (10.3%)
No	308 (88%)
Unsure	6 (1.7%)
d) Unprotected Sex/not using condoms	
Yes	44 (12.6%)
No	284 (81.1%)
Unsure	22 (6.3%)
e) Being Pregnant multiple times	
Yes	28 (8%)
No	284 (81.1%)
Unsure	38 (10.9%)
f) Having only one faithful partner	
Yes	32 (9.1%)
No	298 (85.1%)
Unsure	20 (5.7%)
g) Having an infection	
Yes	48 (13.7%)
No	282 (80.6%)
Unsure	20 (5.7%)
Have you heard of anyone who has had the disease?	
Yes	44 (12.6%)
No	306 (87.4%)

Table 2 Continued: Knowledge of Cervical Cancer and Cervical Cancer Screening

Variable	Frequency (%) n = 350
Do you know the signs and symptoms of Cervical cancer?	
Yes	28 (8%)
No	322 (92%)
a) Foul-smelling vaginal discharge	
Yes	24(6.9%)

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No	278 (79.4%)
Unsure	48 (13.7%)
b) Heavy vaginal bleeding	
Yes	20 (5.7%)
No	280 (80%)
Unsure	50 (14.3%)
c) Vaginal bleeding in between periods	
Yes	12 (3.4%)
No	298 (85.1%)
Unsure	40 (11.4%)
d) Vaginal bleeding after menopause	
Yes	18 (5.1%)
No	286 (81.7%)
Unsure	46 (13.1%)
e) Vaginal bleeding after intercourse	
Yes	18 (5.1%)
No	292 (83.4%)
Unsure	40 (11.4%)
f) Loss of weight	
Yes	34 (9.7%)
No	292 (83.4%)
Unsure	24 (6.9%)
Have you heard about cervical cancer screening?	
Yes	50 (14.3%)
No	300 (85.7%)
a) Papanicolaou(pap) Smear	
Yes	34 (9.7%)
No	316 (90.3%)
b, Human Papilloma Virus (HPV) Screening	
Yes	24 (6.9%)
No	326 (93.1%)
Is early detection of Cervical cancer good for treatment outcome	
Yes	242 (69.1%)
No	72 (20.6%)
Unsure	36 (10.3%)

From Table 2 above, it was observed that 300(85.7%) had not heard of screening for cervical cancer. Furthermore, only 34 (9.7%) knew about Papanicolaou smear. Two hundred and fourteen respondents (61.1%) of the respondents had not heard of cervical cancer disease. The most popular source of information about cervical cancer was through Health workers 30(8.6%). It was also observed that 78(22.3%) of the respondents knew of the risk factors of the disease, and having an infection was identified by most of the respondents as the commonest cause of the disease, 48(13.7%) was the most identified. Only 28 (8%) reported that they knew of the symptoms of the disease. However, weight loss 34 (9.7%) was identified as the commonest symptom, and 242 (69.1%) of the respondents believed that early detection was good for treatment outcomes.

Table 3: Association between Social Demographic Factors and Knowledge of Cervical Cancer Screening

Variables	Knowledge		χ^2	p-value
	Poor (n = 332) n (%)	Good (n = 18) n (%)		
Age group (years)				
<20	84 (25.3)	2 (11.1)	1.979	0.567
21-30	156 (47.0)	8 (44.4)		
31-40	62 (18.7)	6 (33.3)		
>40	30 (9.0)	2 (22.2)		

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Marital Status				
Single	202 (60.8)	12 (66.7)	0.864	0.999
Married	122 (36.7)	6 (33.3)		
Divorced	8 (2.5)	0 (0.0)		
Level of Education				
Primary	28 (8.4)	0 (0.0)	3.268	0.151
Secondary	160 (48.2)	4 (22.2)		
Tertiary	144 (43.4)	14 (77.8)		
Religion				
Christian	290 (87.3)	16 (88.9)	1.404	0.999
Islam	40 (12.0)	2 (11.1)		
Traditional	2 (0.7)	0 (0.0)		
Occupation				
Trader	108 (32.5)	0 (0.0)	7.269	0.077
Farmer	12 (3.6)	0 (0.0)		
Civil Servant	22 (6.6)	4 (22.2)		
Student	140 (42.2)	12 (66.7)		
Others	50 (15.1)	2 (11.1)		

Table 3 explores how social demographic factors relate to knowledge about cervical cancer screening. Younger age groups (<20, 21-30) showed poorer knowledge compared to older age groups (31-40, >40), but this difference was not statistically significant (p=0.567). Both single and married women predominantly had poor knowledge, with no significant difference based on marital status (p=0.999). Higher education levels correlated with better knowledge, but this was not statistically significant (p=0.151). No significant differences in knowledge were observed across different religious groups (p=0.999). There was a notable but not statistically significant trend suggesting students had better knowledge compared to traders, farmers, and civil servants (p=0.077). Overall, age, education level, and occupation were observed to influence knowledge, but the differences were not statistically significant.

Table 4: Association between Social Demographic Factors and Attitude towards Cervical Cancer Screening

Variables	**Attitude**		**χ^2**	**p-value**
	Poor (n = 226) n (%)	**Good (n = 124) n (%)**		
Age group (years)				
<20	58 (25.6)	28 (22.6)	0.640	0.896
21-30	106 (46.9)	58 (46.8)		
31-40	44 (19.5)	24 (19.4)		
>40	18 (8.0)	14 (11.2)		
Marital Status				
Single	146 (64.6)	68 (54.8)	1.953	0.407
Married	76 (33.6)	52 (41.9)		
Divorced	4 (1.8)	4 (3.3)		
Level of Education				
Primary	20 (8.8)	8 (6.5)	1.613	0.474
Secondary	98 (43.4)	66 (53.2)		
Tertiary	108 (47.8)	50 (40.3)		

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Religion				
Christian	196 (86.7)	110 (88.7)	2.101	0.315
Islam	30 (13.3)	12 (9.7)		
Traditional	0 (0.0)	2 (1.6)		
Occupation				
Trader	68 (30.1)	40 (32.3)	8.730	0.060
Farmer	2 (0.9)	10 (8.1)		
Civil Servant	18 (8.0)	8 (6.4)		
Student	96 (42.5)	56 (45.1)		
Others	42 (18.6)	10 (8.1)		

Table 4 examines the attitudes toward cervical cancer screening in relation to social demographic factors. Attitudes were similar across all age groups with no significant difference (p=0.896). Single and married women exhibited similar attitudes towards screening, with no significant difference (p=0.407). Education level did not significantly impact attitudes towards screening (p=0.474). There was no significant difference in attitudes based on religious affiliation (p=0.315). Although traders, farmers, civil servants, and students had varying attitudes, these differences were not statistically significant (p=0.060). In general, attitudes towards cervical cancer screening were uniformly poor across different social demographics, with no significant associations found.

Table 5: Association between Social Demographic Factors and Uptake of Cervical Cancer Screening

Variables	**Cervical cancer screening**		χ^2	**p-value**
	Screened (n = 22) n (%)	**Unscreened (n = 328) n (%)**		
Age group (years)				
<20	2 (9.1)	84 (25.6)	4.323	0.199
21-30	8 (36.4)	156 (47.6)		
31-40	8 (36.4)	60 (18.3)		
>40	4 (18.2)	28 (8.5)		
Marital Status				
Single	8 (36.4)	206 (62.8)	4.963	0.074
Married	12 (54.5)	116 (35.4)		
Divorced	2 (9.1)	6 (1.8)		
Level of Education				
Primary	2 (9.1)	26 (7.9)	0.803	0.633
Secondary	8 (36.4)	156 (47.6)		
Tertiary	12 (54.5)	146 (44.5)		
Religion				
Christian	22 (100.0)	284 (86.6)	2.128	0.404
Islam	0 (0.0)	42 (12.8)		
Traditional	0 (0.0)	2 (0.6)		
Occupation				
Trader	2 (9.1)	106 (32.3)	4.520	0.248
Farmer	0 (0.0)	12 (3.7)		
Civil Servant	4 (18.2)	22 (6.7)		
Student	12 (54.5)	140 (42.7)		
Others	4 (18.2)	48 (14.6)		

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Table 5 investigates the relationship between social demographic factors and the actual practice of cervical cancer screening. Screening uptake was low across all age groups, with no significant differences (p=0.199). Single, married, and divorced women showed low and similar screening uptake, with no significant differences (p=0.074). Education level did not significantly affect screening uptake (p=0.633). No significant differences were observed in screening uptake based on religious affiliation (p=0.404). Screening uptake was low across all occupational groups, with no significant differences (p=0.248). Overall, there was no significant association between social demographic factors and the actual practice of cervical cancer screening.

Discussion

The main aim of this study was to assess the knowledge, attitude and practices of cervical cancer screening among women of reproductive age group in a sub-urban community in South-South Nigeria.

Regarding knowledge of cervical cancer screening, it was observed that more than one-third of participants knew about cervical cancer and its various risk factors. Also, more than half of the respondents acknowledged the importance of early detection through screening. This finding corroborates the report of a descriptive cross-sectional study conducted at Lagos University Teaching Hospital, Lagos;[15] a study by Abiodun et al. in Ogun state,[16] and another study conducted at a facility in Addis Ababa, Ethiopia.[17] However, this finding contrasts with a cross-sectional study conducted by Oche et al. in Sokoto, Nigeria,[14] where a good knowledge of cervical cancer risk factors and the importance of screening was reported.

In terms of attitudes towards cervical cancer screening, more than half of respondents expressed a willingness to undergo the screening. However, over three-quarters believed that they were not at risk of developing cervical cancer. This finding is consistent with previous reports from Kwara[18] and Zaria[19] states of Nigeria. Similarly, a study conducted in Botswana[20] revealed that individuals who perceived themselves to be at risk of contracting cervical cancer were 1.8 times more likely to undergo a Pap smear compared to those who felt safe. Furthermore, all respondents expressed a willingness to undergo a Pap smear if it was provided free of charge and without causing any pain.

As regards practices related to cervical screening, over three-quarters of respondents had never undergone a cervical cancer screening. The main reason cited for this was a lack of awareness about the importance of cervical screening. The few individuals who had undergone a screening had typically done so as part of general screenings organized by hospitals or non-governmental organizations. Similar findings were observed in a cross-sectional study conducted in Sokoto,[14] where the most common reasons for not undergoing the screening test were a belief of being at low risk or a fear of experiencing pain during the procedure. Another study conducted among nurses in rural India[21] found that the majority of participants (85%) had never taken a Pap smear. Furthermore, only a small number of respondents had undergone a Pap smear themselves, with some stating that they had no specific reason for not taking the test and more than half believing that they were not susceptible to the disease. These findings suggest that even healthcare workers' adherence to cervical screening practices is questionable despite their knowledge about the risks of cervical cancer. Similar findings were also reported in a study conducted among female healthcare professionals in Saudi Arabia.[22]

In terms of the relationship between the sociodemographic factors and knowledge of cervical cancer screening, it was observed that there was no statistically significant relationship with knowledge of cervical cancer screening. This contrasted with a study done by Oche et al. on cancer of the cervix and cervical cancer screening, where the age was statistically significant[14] and Okunowo et al. on women's knowledge of cervical cancer and uptake of Pap Smear testing[15] where the level of education was found to be statistically significant.

It was demonstrated that there was no statistical significance in the relationship between sociodemographic factors and attitudes towards cervical cancer screening. This is not surprising as an individual's attitude towards screening is likely to be influenced by a lot of external factors skewing one's perception in the direction of the strongest influence. This is similar to previous reports by Okunowo et al.[15] and Qatar.[23] However, a similar

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survey done in China showed that education was the only factor significantly associated with a positive attitude towards cervical cancer screening.[24]

Again, the association between sociodemographic factors and cervical cancer screening practices showed no statistical significance. This contrasted with a study in Ghana,[25] where a statistical association was seen between institutional and personal barriers. The attitudes of these women were influenced by various institutional and personal barriers, which affected their practice of cervical cancer screening.

Implications of the findings of this study

A significant implication of the study is the imperative for increased awareness and educational efforts. The results indicate that current educational initiatives or programs may not have effectively reached their intended audience. Consequently, there is a pressing need for additional strategies aimed specifically at women within the community. Moreover, the findings reveal that a considerable number of women have not yet incorporated screening practices into their health routines, which is essential for enhancing treatment outcomes and survival rates. This points to a concerning gap in the translation of knowledge into practical action, ultimately affecting the overall improvement of women's health. Additionally, the findings highlight the necessity for customized public health interventions. Strategies must be developed to directly tackle the identified barriers and deficiencies. Public health programs should be flexible and responsive to the distinct challenges encountered by the community to successfully enhance screening rates.

Strengths and Limitations of the Study

A prominent strength of this research lies in its explicit focus and relevance. By examining cervical cancer screening in the South-South region of Nigeria, the study addresses a locale characterized by distinct health challenges and requirements. This regional emphasis facilitates the identification of local issues and the development of targeted interventions, which are essential for enhancing public health outcomes in the area. Additionally, the study's sample size of 350 participants represents another significant advantage. This relatively substantial sample increases the reliability of the findings and enhances the likelihood of capturing a wide array of perspectives within the population. Furthermore, the descriptive nature of the research offers a thorough overview of the current status of cervical cancer screening in the region, which is instrumental in understanding baseline conditions and pinpointing areas necessitating intervention. The study has notable strengths but also several limitations. Its cross-sectional design prevents establishing causal relationships, as data is collected at a single point in time, making it difficult to track changes in knowledge, attitudes, and practices. Additionally, self-reporting bias may lead participants to provide socially acceptable responses rather than honest ones, compromising data integrity. The study also does not account for recent developments in cervical cancer screening practices, limiting the long-term applicability of its findings.

Conclusion

This study revealed a significant gap in awareness of cervical cancer and its screening among participants. While many were uninformed, a notable number recognized the importance of early detection and expressed willingness to participate in screening programs. The findings underscore the urgent need for improved education, shifts in public perception, and effective strategies to increase screening participation. Enhancing awareness through coordinated government actions at state and local levels, utilizing multiple communication channels, and offering incentives for employee participation are essential. Additionally, establishing adequate facilities and personnel is crucial for effective cervical cancer screening.

Declarations

Ethical Consideration:

Authors' Contribution: A.S was responsible for conceptualizing the study, engaging in screening/review, drafting the initial manuscript, and final manuscript review. A.D and E.H contributed to the writing of the first draft, data analysis and reviewed the completed manuscript.

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