

# Awareness and Acceptance of Cervical Cancer Screening in Pregnancy among Antenatal Clinic Attendees in a Tertiary Hospital in Northwest Nigeria

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## ABSTRACT

**Background:** Cervical cancer is the leading cause of cancer deaths among women in many developing countries. Lack of effective screening programmes remains a major challenge in these countries. Routine cervical cancer screening in pregnancy is a documented viable option to reduce the burden, as a good number of women access antenatal care. This study sought to determine the awareness and acceptance of cervical cancer screening in pregnancy among antenatal clinic attendees in a tertiary hospital in northwestern Nigeria. **Methodology:** A cross-sectional descriptive study among 200 consecutive women attending the antenatal clinic of a tertiary hospital in northwestern Nigeria over a three-month period. Data was collected using a pretested structured self-administered or interviewer-administered questionnaire and analysed using SPSS version 25.0. **Results:** Majority of the women were aged between 30 – 34 years with a mean age of  $29.85 \pm 5.56$  years. A total of 71.5% of respondents were aware of cervical cancer, however only 51.5% were aware of cervical cancer screening tests. Only 14.5% of respondents knew that Pap smear could be done in pregnancy and only 9.5% had ever done a Pap smear. Up to 67.5% of the respondents were willing to accept a free Pap smear in the index pregnancy. Concerns of safety of the test in pregnancy was the reason given by most of the respondents who were not willing to accept a Pap smear in the index pregnancy. **Conclusion:** The awareness of cervical cancer screening in pregnancy among pregnant women was low despite the high awareness of cervical cancer. The willingness to accept cervical cancer screening in pregnancy was high; thus, free routine cervical cancer screening in pregnancy could reduce cervical cancer prevalence in developing countries.

**Keywords:** Cervical cancer awareness, Screening, Pregnancy, Pap smear, Antenatal care

## INTRODUCTION

Globally, cervical cancer continues to be one of the most common cancers among women, being the fourth most common after breast, colorectal and lung cancer.<sup>1,2,3</sup> In 2018, an estimated

570,000 new cases and 311,000 deaths from cervical cancer were reported worldwide.<sup>3</sup> The incidence and mortality from cervical cancer however varies significantly across different

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countries, with the highest regional rates and mortality seen in Africa.<sup>3</sup> In Nigeria, cervical cancer is the second most common cancer among women with 14,943 new cases and 10,407 deaths in 2018.<sup>3</sup> In Northern Nigeria, cancer of the cervix still remains the leading gynaecological cancer, accounting for 65.7% of all gynaecological cancers.<sup>4</sup> Cervical cancer accounted for 23% of all malignancies seen at Ahmadu Bello University Teaching Hospital, Zaria, Nigeria in 2018.<sup>5</sup>

The correlation between human papillomavirus (HPV) infection and the development of precancerous cervical lesions that may lead to cervical cancer is clearly established.<sup>6</sup> Cervical cancer is now regarded as a long-term consequence of persistent infection of the lower genital tract by high-risk HPV with serotypes 16 and 18 accounting for 71% of cases.<sup>2,6,7</sup>

Cervical cancer is one of the few preventable human cancers.<sup>1-12</sup> The two major preventive approaches for the control of cervical cancer involve: primary prevention by HPV vaccination and secondary prevention by screening for precancerous lesions.<sup>2</sup> Early diagnosis and treatment of precancerous cervical lesions has proven to be effective in preventing cervical cancer.<sup>6</sup> The incidence and mortality of cervical cancer have decreased significantly in developed countries in the last fifty years because of organized, effective, population based screening programmes aimed at early detection and treatment of precancerous lesions.<sup>2,5-8</sup> Unfortunately, organized, population-based cervical cancer screening programmes have not yet been implemented in most developing countries, including Nigeria, despite the greatest burden of cervical cancer in these countries.<sup>8</sup> This lack of effective screening programs, worsened by the established low utilization of cervical cancer screening services has been identified as a major barrier to effective cervical cancer control.<sup>1,5,14-16</sup> Therefore, improving cervical cancer screening utilization has been recommended as an effective measure aimed at reducing the incidence and mortality due to cervical cancer in developing

countries.<sup>15</sup>

Pregnancy offers an opportunity for a woman to voluntarily seek medical care in the form of antenatal care.<sup>9,12,14</sup> Indeed, women in developing countries seem to utilize reproductive health services more during pregnancy. At least 1% of the population of childbearing women screened annually for cervical cancer will be diagnosed with cervical intraepithelial neoplasia (CIN).<sup>11</sup> The prevalence rate of preinvasive cervical lesions following Pap smear in pregnant and non-pregnant women is similar.<sup>10</sup> Most cervical abnormalities in pregnancy reported in the literature are detected from the antenatal care in developed countries where such screening is offered.<sup>11</sup> In the United States, about 2 - 3 million abnormal Pap smears are diagnosed each year and 5-13% of these are detected in pregnant women.<sup>11</sup> Since these precursor lesions of cervical cancer can be detected by screening and are amenable to treatment before it becomes invasive, pregnancy offers an excellent opportunity for screening.<sup>9,11,12,14</sup>

Cervical cancer screening in pregnancy is an emerging field and the evaluation of cervical cytology in pregnancy may be challenging due to the pregnancy-associated changes in the cervix. Nevertheless, current knowledge suggests that cervical cytology in pregnancy is safe, reliable, with similar diagnostic accuracy as in non-pregnant patients especially when conducted by experienced professionals.<sup>9,11,17-19</sup> Therefore, this opportunity provided by pregnancy to spread awareness and provide cervical cancer screening should not be missed.<sup>10</sup>

The Society of Gynaecology and Obstetrics of Nigeria's (SOGON) guideline for the prevention of cervical cancer in Nigeria recommends that cervical cancer screening be offered routinely during pregnancy as an effective strategy to scale up cervical cancer screening uptake amongst the target population and thus reduce the overall incidence of cervical cancer.<sup>7</sup> Various studies have also made similar recommendations.<sup>9-12,14</sup> This recommendation if operationalized in our antenatal clinics can help to reduce the burden of cervical

cancer. However, women's knowledge of cervical cancer and their awareness of cervical cancer screening as a preventive measure is also implicated in screening uptake and is thus necessary to facilitate uptake.<sup>6,15</sup> Therefore, the awareness and the acceptability of cervical cancer screening during pregnancy among pregnant women in developing countries would thus determine not just uptake but also the success of cervical cancer screening and hence effective cervical cancer prevention.<sup>6</sup>

There is a dearth of data on the awareness and acceptance of cervical cancer screening during pregnancy among pregnant women in Nigeria. This study aimed to determine the awareness and acceptance of cervical cancer screening in pregnancy among antenatal clinic attendees in a tertiary hospital in northwest Nigeria.

## METHODOLOGY

This was a cross-sectional descriptive study of 200 consenting pregnant women attending the antenatal clinic of a tertiary hospital in northwest Nigeria. The sample size was estimated based on the formula for cross sectional studies and findings from a previous study including a 10% attrition.<sup>5</sup> Every consecutive pregnant woman who consented to participate in the study was recruited until the sample size was obtained. Data was collected from January to April 2021 with the aid of a pretested structured self-administered questionnaire while non-literate respondents were interviewed by the researcher. Statistical analysis was done using the statistical package for social sciences (SPSS version 25.0) and data was presented using tables and charts.

Ethical clearance was obtained from the hospital's research ethics committee. Informed written consent was obtained from the respondents in English language and Hausa, which is the predominant indigenous language.

## RESULTS

There were 200 respondents recruited for the study and the socio-demographic characteristics (Table

1) revealed that most of the respondents were aged between 30 and 34 years 62 (31.0%) with a mean age of  $29.85 \pm 5.56$  years. All were married and were mostly housewives 65 (32.5%) and 150 (75.0%) had attained tertiary education. Majority 71 (35.5%) were multiparous women of paras 2-4. Most of the respondents 143 (71.5%) had heard of cervical cancer and of this, about half (50.3%) heard it from health workers (Table 2) while 57 (28.5%) had never heard of cervical cancer. Most 170 (85.0%) did not know the cause of cervical cancer while only 30 (15.0%) believed they knew the cause of cervical cancer, out of which only 8 (26.7%) attributed cervical cancer to HPV infection. Less than half of the respondents 82 (41.0%) knew that cervical cancer is preventable while 103 (51.5%) did not know if cervical cancer is preventable and 15 (7.5%) were of the view that cervical cancer is not preventable.

A total of 103 (51.5%) women had heard of cervical cancer screening methods and Pap smear 87 (84.5%) was the most commonly known cervical cancer screening method (Table 3). Almost half of the respondents 97 (48.5%) had not heard of cervical cancer screening methods. Only 29 (14.5%) women knew that Pap smear could be done in pregnancy while majority 147 (73.5%) did not know if Pap smear could be done in pregnancy. As shown in table 4, only 19 (9.5%) women had ever been screened for cervical cancer (Pap smear) prior to the study and more than two-third 135 (67.5%) of the respondents were willing to accept a free Pap smear in their present pregnancy. The commonest reason given by majority of the respondents who were unwilling to accept Pap smear in their present pregnancy (64.6%) was fear of the safety of the test for their baby (Figure 1).

Table 1: Socio-demographic characteristics of respondents (N=200)

Sociodemographic Characteristics	Frequency	Percentage
<b>Age (Years)</b>		
15-19	5	2.5
20-24	29	14.5
25-29	59	29.5
30-34	62	31.0
35-39	36	18.0
40-44	9	4.5
<b>Ethnicity</b>		
Hausa	113	56.5
Yoruba	27	13.5
Igbo	19	9.5
Others	41	20.5
<b>Marital Status</b>		
Married	200	100.0
<b>Religion</b>		
Christianity	62	31.0
Islam	138	69.0
<b>Level of Education</b>		
No formal education	6	3.0
Primary	4	2.0
Secondary	40	20.0
Tertiary	150	75.0
<b>Parity</b>		
0	66	33.0
1	44	22.0
2-4	71	35.5
≥ 5	19	9.5
<b>Occupation</b>		
Housewife	65	32.5
Student	28	14.0
Civil Servant	52	26.0
Trader	28	14.0
Others	27	13.5

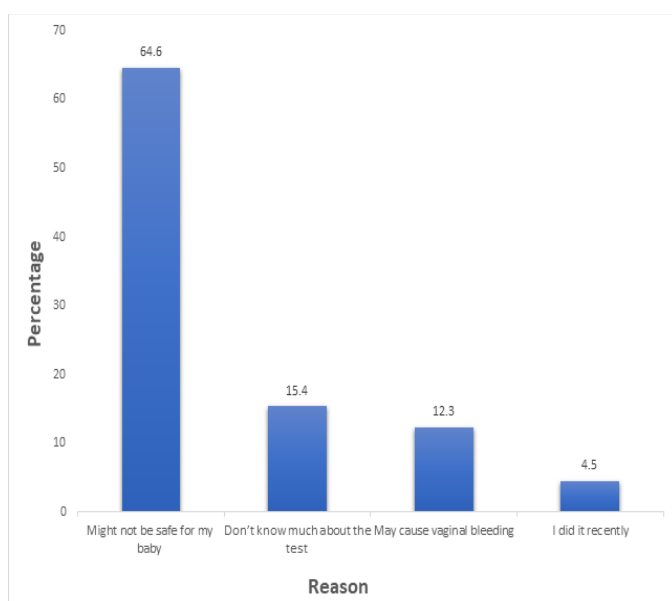


Figure 1: Reasons for not willing to accept a free Pap smear in this pregnancy

Table 2: Awareness of cervical cancer (N=200)

Variable	Frequency	Percentage
<b>Ever Heard of Cervical Cancer? (N=200)</b>		
Yes	143	71.5
No	57	28.5
<b>Source of Information on Cervical Cancer (n=143)</b>		
Health Workers	72	50.3
Mass Media	40	28.0
Family and Friends	24	16.8
Printed Materials	7	4.9
<b>Know the Cause of Cervical Cancer? (N=200)</b>		
Yes	30	15.0
No	170	85.0
<b>Cause of Cervical Cancer (n=30)</b>		
HPV Infection	8	26.7
Bacterial Infection	8	26.7
Smoking	5	16.7
Genetics/Hereditary	2	6.6
Some Cosmetic Products	7	23.3
<b>Is Cervical Cancer Preventable? (N=200)</b>		
Yes	82	41.0
No	15	7.5
Don't Know	103	51.5

Table 3: Awareness of cervical cancer screening (N=200)

Variable	Frequency	Percentage
<b>Heard of Tests to Detect Cervical Cancer Early? (N=200)</b>		
Yes	103	51.5
No	97	48.5
<b>Screening Test Ever Heard of (n=103)</b>		
Pap smear	87	84.5
Visual Inspection with Acetic Acid (VIA)	8	7.8
Visual Inspection with Lugol's Iodine (VILI)	3	2.9
HPV DNA Testing	5	4.8
<b>Can Pap Smear Be Done During Pregnancy? (N=200)</b>		
Yes	29	14.5
No	24	12.0
Don't Know	147	73.5

Table 4: Acceptability of cervical cancer screening (N=200)

Variable	Frequency	Percentage
<b>Ever Done a Pap Smear?</b>		
Yes	19	9.5
No	181	90.5
<b>Willing to accept a free Pap smear in this Pregnancy?</b>		
Yes	135	67.5
No	65	32.4

## DISCUSSION

Cervical cancer is a disease of women within the reproductive age group and the study group conforms with this age bracket with a mean age of  $29.85 \pm 5.56$  years. Considering the highest age bracket of 30-34 years in this study, most of the respondents have reached the recommended age of starting cervical cancer screening as proposed by the World Health Organization (WHO) which is 30 years (25 years for women living with HIV) and 25 years as proposed by the SOGON guideline for the prevention of cervical cancer.<sup>5,7</sup> The fact that most (35.5%) of the women were multiparous and up to 9.5% were grand multiparous in this study agrees with the finding of high parity in other studies among northern Nigerian women.<sup>11,20</sup> This high parity may explain the high incidence of cervical cancer in northern Nigeria.<sup>4</sup>

This study revealed a high level of awareness of cervical cancer which may be related in part to the high literacy level among respondents, the fact that all the respondents in this study were pregnant women attending antenatal clinic where cervical cancer is now part of the routine health talks as well as the recent cervical cancer health education and free screening programmes offered by various non-profit organizations in the hospital. A similar high level of awareness of cervical cancer was reported in Zaria among women attending primary healthcare centers (67.3%) and among market women (66.9%).<sup>5,20</sup> In a study with a comparable high level of tertiary education as this study, a higher awareness of cervical cancer (84.0%) was reported among pregnant women attending antenatal clinic in tertiary hospitals in Enugu, South-eastern Nigeria.<sup>21</sup> In contrast, a lower level of awareness (15%) and (37.5%) was reported among rural women in Lagos and South-eastern Nigeria respectively.<sup>22,23</sup> Health workers were the commonest source of information on cervical cancer in this study, in consonance with reports by Ahmed et al and Ekwedigwe et al.<sup>10,20</sup> This is however in contrast with studies by Ingwu et al and Oluwole et al in which the major source of information on cervical cancer was the media.<sup>21,22</sup>

Health workers should thus be encouraged to sustain health education and enlightenment on cervical cancer in their interaction with patients. This need for enlightenment programs on cervical cancer is further buttressed by the wide misconception on the aetiology of cervical cancer noted in this study as only 26.6% of respondents who claimed to know the cause of cervical cancer attributed it to HPV infection. Furthermore, less than half (41.0%) knew that cervical cancer is preventable. The lower proportion of women who knew that cervical cancer is preventable (31.9%) in a study in Afikpo, Southeast Nigeria, may be due to the fact that the study was conducted among a rural population of women.

Though about half of the women (51.5%) in this study were aware of cervical cancer screening methods, one expected a higher figure considering the high awareness of cervical cancer. The higher awareness of cervical cancer screening reported in studies in Zaria (68.6%)<sup>20</sup> and Lagos (85.0%)<sup>22</sup> is in contrast with similar studies in most African population which reported a low awareness of cervical cancer screening.<sup>5,10,15,23</sup> The high awareness of Pap smear as a cervical cancer screening method in this study (84.5%) unlike the lower rates reported in Enugu (32.8%) and Lagos (65.0%) may be related to the recent increased cervical cancer screening sensitization by various bodies in the hospital including the antenatal clinic.<sup>21,22</sup> In addition, cervical cancer screening in Nigeria is mostly opportunistic and limited to tertiary centers where Pap smears are used for screening due to the availability of requisite skills and facilities in such centers. Therefore, the expected low awareness of other screening methods noted in this study, calls for increased sensitization of women on methods such as visual inspection with acetic acid (VIA) and visual inspection with Lugol's iodine (VILI) which are recommended by the WHO in low resource settings<sup>5</sup> as well as HPV DNA testing, a highly sensitive screening method with a high negative predictive value which is however still expensive and not widely available in developing countries.

The low level of cervical cancer screening uptake (9.5%) noted in this study is similar to the low uptake (10%) reported in Somolu, South-western Nigeria.<sup>24</sup> A much lower uptake of 2.8% and 1.8% was reported in South-eastern Nigeria among pregnant women attending antenatal clinic in Enugu and Abakaliki respectively.<sup>10,21</sup> These studies reflect the general low uptake of cervical cancer screening in many developing nations which may be attributable to poor knowledge of cervical cancer, poor preventive healthcare seeking behaviour, poverty, low availability and accessibility of cervical cancer screening.<sup>8,22-25</sup>

The awareness that Pap smear could be done in pregnancy was low (14.5%) in this study. This finding is difficult to compare with other settings due to the dearth of related studies in this regard. This low awareness of cervical cancer screening in pregnancy is worrisome as the opportunity that pregnancy presents for cervical cancer screening when women utilise antenatal care services is therefore lost if the poor awareness and misconceptions concerning cervical cancer screening in pregnancy is not corrected with appropriate information and health education. The willingness to accept a Pap smear in the index pregnancy among respondents in this study was reasonably high (67.5%) and comparable to findings of a similar study in Ibadan.<sup>16</sup> This high willingness to accept cervical cancer screening in pregnancy may therefore translate into a higher uptake of cervical cancer screening in the near future if routine antenatal screening is considered. Though the interpretation of cervical cytology in pregnancy could be challenging due to the pregnancy-associated changes in the cervix, Pap smears during pregnancy are an important and reliable diagnostic tool.<sup>18</sup> It is thus recommended that diagnostic procedures in pregnancy such as cytology, colposcopy and histology must be done by experienced professionals to reduce misinterpretations.<sup>18,19</sup> Furthermore, watchful waiting for premalignant cervical disease in pregnancy is adequate, once invasive disease is

excluded.<sup>18</sup> Follow-up Pap smear and treatment for high-grade lesions diagnosed in pregnancy can be safely deferred to at least 6 weeks after delivery as the progression rate of dysplastic lesions of the cervix in pregnancy is very low and the risk of invasive cancer almost insignificant.<sup>9,18,19</sup>

Therefore, in low-resource countries where population-based screening is not existent and women do not seek or do not have access to routine healthcare services, pregnancy offers a unique opportunity for cervical cytology since increasing number of pregnant women are beginning to avail themselves of antenatal services. Efforts to increase the number of competent professionals and required facilities for the evaluation of cervical cytology in pregnancy is critical.

In this study, concerns of safety of the test in pregnancy was the reason given by most of the respondents (64.6%) who were not willing to accept Pap smear in the index pregnancy despite the established safety of cervical cytology in pregnancy.<sup>9,10,17</sup> This underscores the need for effective enlightenment strategies to bridge the information gap regarding the safety and reliability of cervical cancer screening in pregnancy and thus improve cervical cancer screening uptake.

## CONCLUSION

The awareness of cervical cancer is high among the respondents. There is need to bridge the gap between awareness of cervical cancer and knowledge of the cause of cervical cancer as well as cervical cancer screening methods among women. The poor uptake noted in this study and indeed the poor cervical cancer screening uptake in most developing countries could be improved by scaling up enlightenment campaigns particularly among women of reproductive age that emphasizes the safety of cervical cancer screening during pregnancy and considering free routine screening during pregnancy, taking advantage of the opportunity presented at routine antenatal care and the high willingness to accept cervical cancer screening in pregnancy as noted in this study.

**Conflict of interest**

There is no conflict of interest to declare.

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