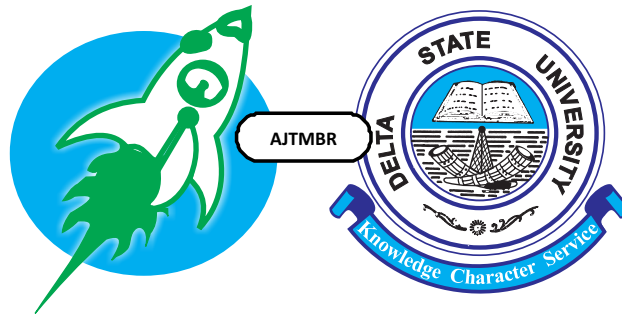# African Journal of Tropical Medicine and Biomedical Research (AJTMBR)

The Journal is the Official Publication of the College of Health Sciences,
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Focus and Scope

The African Journal of Tropical Medicine and Biomedical Research is a multidisciplinary and international journal published by the College of Health Sciences, Delta State University of Abraka, Nigeria. It provides a forum for Authors working in Africa to share their research findings on all aspects of Tropical Medicine and Biomedical Sciences and to disseminate innovative, relevant and useful information on tropical medicine and biomedical sciences throughout the continent. The journal will publish original research articles, reviews, editorials, commentaries, short reports, case reports and letters to the editor. Articles are welcome in all branches of medicine and dentistry including basic sciences (Anatomy, Biochemistry, Physiology, Pharmacology, Psychology, Nursing etc) and clinical sciences (Internal Medicine, Surgery, Obstetrics and Gynaecology, Dental surgery, Child Health, Laboratory Sciences, Radiology, Community Medicine, etc). Articles are also welcome from social science researchers that document the intermediating and background social factors influencing health in countries of Africa. Priority will be given to publication of articles that describe the application of the principles of primary health care in the prevention and treatment of diseases.

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Acknowledgments

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Original articles

The Awareness of Cervical Cancer Prevention Strategies among Resident Doctors in Tertiary Centre in Benin City

Osazee K[1] and Obahiagbon O[2]

Abstract

Introduction: Cervical cancer is a disease of public health importance, being the fourth most common cancer among women worldwide and the most common cancer among women in developing countries. While developed countries practice a population-based cervical cancer screening program, developing countries like Nigeria practice an opportunistic screening mode. Therefore, health workers, including resident doctors, are expected to drive this model through opportunistic counselling and referral of their female patients and relatives.

This study was designed to assess the Awareness of resident doctors in UBTH regarding cervical cancer prevention strategies.

Materials and Method: This was a cross-sectional descriptive study from July 2022 to August 2023 among resident doctors involved in outpatient consultations at the University of Benin Teaching Hospital (UBTH).

Results: Overall, the knowledge of cervical cancer prevention strategies was good, with 62.5% of respondents demonstrating good knowledge. The attitude of the respondents towards cervical cancer prevention strategies was even better, with 86.4% of the respondents demonstrating an excellent attitude to these strategies. However, the practice of cervical cancer prevention strategies was generally poor. Most of the respondents (64.1%) had never referred a female patient for cervical cancer screening. Only 37.2% of the female participants had done a pap smear before, and most (68.8%) had done it just once. Among the male respondents, 75% of their female spouses had never done a pap smear.

Conclusion: The excellent knowledge and attitude about cervical cancer prevention strategies among resident doctors who participated in this study did not reflect on their practice of preventive measures.

Keywords: Cervical cancer, Human papillomavirus, Prevention strategies, Awareness

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INTRODUCTION

Cervical cancer is a disease of public health importance, being the fourth most common cancer among women worldwide[1] and the most common cancer among women in developing countries.[2,3] There has been a steady decline in the incidence of and mortality from cancer of the cervix in developed/high-income countries due to well-established screening programs, good human papillomavirus vaccine coverage and facilities/infrastructure for follow-up and prompt treatment of women with precancerous stages of the disease and cervical cancer.[4,5] This is not the case in low- and middle-income countries (LMICs) like Nigeria, with limited access to such preventive strategies. Therefore, most women in these countries present when cervical cancer is already in its advanced stages with associated high mortality rates.[1] In 2018, about 570,000 new cases and 311,000 deaths from cervical cancer were

estimated to have occurred globally, and almost 90% of these deaths occurred in LMICs.[1]

Nearly all cases of cervical cancer are caused by persistent high-risk (oncogenic) human papillomavirus (HPV) infection, with the viral DNA isolated in about 95% of cervical malignancies.[4,6,7] Over 200 species of this double-stranded DNA virus have been identified, but only about 40 are known to infect the lower genital tract.[3,6] High-risk serotypes 16 and 18 are the most common oncogenic serotypes, and they are implicated in about 65-75% of cervical cancers.[3] Other oncogenic sub-types include serotypes 31, 33, 35, 45, 52, 56, 58, amongst others. Serotypes 6 and 11 (low-risk HPV) are associated with genital warts.[3,4,6,7]

Human papillomavirus is sexually transmitted both by penetrative intercourse and skin-to-skin contact.[1] The peak time of acquiring this infection is shortly after coitarche in both males and females. The majority (up to 90%) of HPV infections are transient and resolve spontaneously within two years. The remaining 10% persist and give rise to preinvasive and malignant cervical lesions.[1,3] Factors associated with an increased risk of persistent HPV infection and cervical cancer include multiple sexual partners, early coitarche, tobacco smoking, immunosuppression, co-infection with other sexually transmitted infections like HIV and herpes simplex, prolonged oral contraceptive use and high parity.[1,3,7] The progression from infection to carcinogenesis takes 15 to 20 years in immunocompetent women and 5 to 10 years in the immunocompromised.[1,3] This provides a long window of opportunity for detecting the condition via different screening methods in its preinvasive or early malignant stages when a cure is achievable.[8]
The World Health Assembly in 2020 adopted a comprehensive approach to the control and prevention of cervical cancer utilizing primary, secondary and tertiary preventive strategies.[1] Primary prevention of cervical cancer involves vaccination of girls aged 9 – 14 years against HPV, preferably before they become sexually active[1,3,] while secondary prevention entails screening and treatment of preinvasive lesions in sexually active women from 25 – 30 years and above. Tertiary prevention involves early diagnosis and prompt treatment of invasive cervical cancer.[1]

It is expected that health workers and medical doctors will have a good level of knowledge about cervical cancer and its preventive strategies irrespective of their areas of specialization, which should result in a positive attitude and deliberate efforts towards its prevention. This is particularly important in developing countries where population-based screening programs are absent or not well established and where opportunistic screening is practised. Thus, health professionals would be expected to play a vital role in counselling and informing their female clientele about this condition, how to prevent it and going a step further to refer them to places where they can access these services. This study aimed to assess the knowledge, attitude, and practice of resident doctors in UBTH regarding cervical cancer prevention strategies.

MATERIALS AND METHODS
This cross-sectional descriptive study was carried out from June 2022 to August 2023 among resident doctors involved in outpatient consultations at the University of Benin Teaching Hospital (UBTH). "Resident doctors" refers to doctors undergoing specialist training in medical specialities. These doctors could play a vital role in the prevention of cervical cancer as they encounter female patients who may never have cause to visit the gynaecology/family planning clinic where routine screening is carried out.

Resident doctors involved in outpatient clinic consultations who had spent at least one year in residency training and consented to the study were included. Based on these criteria, residents from the surgery departments, internal medicine, paediatrics, and family medicine were selected for this study. Each department has a population of 40, 35, 25 and 20 residents, respectively, giving a total study population of 120. A total population sampling was done.

Resident doctors in the Department of Obstetrics and Gynaecology and Community Health were excluded from this study to avoid bias, as these departments are responsible for cervical cancer opportunistic screening in UBTH. Also excluded were residents not involved in outpatient clinic consultations, those less than a year in training and those who did not consent to the study.

A pretested self-administered structured questionnaire was utilized in data collection. The questionnaire was divided into sections A, B, C, and D. Section A assessed the sociodemographic characteristics of the respondents. In contrast, section B assessed respondents' knowledge of cervical cancer prevention strategies. Ten knowledge-based questions were asked, with a score of 1 for correctly answered questions and 0 for wrong or "unsure" responses, with a maximum score of 10 obtainable. Those with 50% correct responses and above were adjudged as having "good knowledge", while those with less than 50% correct responses were adjudged as having "poor knowledge". Section C assessed the attitude of the respondents towards cervical cancer prevention. Five questions were asked, and responses were put on a Likert scale. Those who agreed and strongly agreed were regarded as having a positive attitude to cervical cancer prevention. At the same time, those who strongly disagreed or were neutral were considered to have a negative attitude. Section D assessed the practice of cervical screening among the respondents.

Data was analyzed using the IBM SPSS software version 24, and results were presented in frequency tables, percentages and charts.

Ethical approval for the study was obtained from the University of Benin Teaching Hospital Research and Ethics Committee. All data collected were treated with utmost confidentiality and used for research purposes only.

RESULTS
SOCIODEMOGRAPHIC CHARACTERISTICS
One hundred three resident doctors participated in this study out of 120 residents from the selected specialities. The remaining 17 were excluded from the criteria stated in the methodology, giving a response rate of 86%. The mean age of participants was 36.6 years (SD $\pm$ 3.91), with the majority of the participants (81.5%) in the 4th decade of life i.e. 31 – 40 years (Table 1). There were more male than female participants (60 vs 43), and a more significant proportion were senior registrars (55.3%). Most participants (77.7%) had been in residency training for at least three years. Also, most of the participants were married (82.7%).

Table 1: Sociodemographic characteristics of respondents

VARIABLE	FREQUENCY n = 103	PERCENT %
Age (years)		
26 – 30	7	6.8
31 – 35	40	38.8
36 – 40	44	42.7
>40	12	11.7
Mean Age = 36.6 ± 3.91		
Sex		
Male	60	58.3
Female	43	41.7
the cadre of resident doctor		
Junior registrar	46	44.7
Senior registrar	57	55.3
Years in training		
1 -2	23	22.3
3 – 4	49	47.6
≥ 5	31	30.1
Specialty in-training		
Family medicine	18	17.5
Internal medicine	31	30.1
Surgery	34	33.0
Paediatrics	20	19.4
Marital status		
Single	17	16.5
Married	85	82.5
Separated	1	1.0
Religion		
Christianity	100	97.1
Islam	3	2.9

KNOWLEDGE OF CERVICAL CANCER PREVENTION STRATEGIES

The majority (95.1%) of the respondents were aware that cervical cancer has a long precancerous phase that is detectable by pap smear, as shown in Table 2. Most respondents were also aware of the risk factors for cervical cancer, and most answered all the questions concerning risk factors correctly (Table 2). The knowledge of vaccines available for cervical cancer was also high: 86.4% knew about the

Cervarix vaccine, while 45.6% knew about Gardasil. Furthermore, 60.2% of the respondents knew that HPV vaccines were available in the centre where they practised (UBTH). However, only 8.7% knew about Gardasil 9 (Table 2). Areas where the level of knowledge was also poor included the age group to be screened for cervical cancer, the screening interval and the HPV vaccine recommendation for males.

Overall, most participants (84.5%) demonstrated good knowledge about cervical cancer prevention strategies, while 15.5% had poor knowledge, as shown in Table 3.

Table 2a: Summation of Knowledge of Cervical Cancer Prevention Strategies

VARIABLE	CORRECT RESPONSES FREQ(%)	INCORRECT RESPONSES FREQ(%)
Risk factors for cervical cancer:		
Oncogenic HPV infection	98 (95.1)	5 (4.9)
All HPV infections	63 (61.2)	40 (38.8)
Early sexual exposure	91 (88.3)	12 (11.7)
Multiple sexual exposure	101 (98.1)	2 (1.9)
Cigarette smoking	74 (71.8)	29 (28.2)
Immunosuppression	87 (84.5)	16 (15.5)
Low social class	82 (79.6)	21 (20.4)
High parity	66 (64.1)	37 (35.6)
Immunosuppressive conditions	85 (82.5)	18 (17.5)
Cervical cancer has a long precancerous phase that is easily detectable by exfoliative cytology (pap smear).	98 (95.1)	5 (4.9)
Transmission of oncogenic HPV infection		
Vaginal sex	95 (92.2)	8 (7.8)
Anal sex	49 (47.6)	54 (52.4)
Oral sex	38 (36.9)	65 (63.1)
Blood transfusion	95 (92.2)	8 (7.8)
Average duration from HPV infection to invasive disease (cervical cancer)	29 (28.2)	74 (71.8)
Age group for cervical cancer screening	23 (22.3)	80 (77.7)

Table 2b: Summation of Knowledge of Cervical Cancer Prevention Strategies

VARIABLE	CORRECT RESPONSES FREQ(%)	INCORRECT RESPONSES FREQ(%)
Interval for cervical screening tests for women with no previous screening tests	34 (33.0)	69 (67.0)
HPV vaccines are recommended for:	26 (25.2)	77 (74.8)
HPV vaccines available		
Cervarix	89 (86.4)	14 (13.6)
Gardasil	47 (45.6)	56 (54.4)
Gardasil 9	9 (8.7)	94 (91.3)
Hiberix	96 (93.2)	7 (6.8)
HPV vaccines are available in UBTH	62 (60.2)	41 (39.8)

Table 3: Overall Knowledge of Cervical Cancer Prevention Strategies

LEVEL OF KNOWLEDGE	FREQUENCY n = 103	PERCENT %
Poor Knowledge	16	15.5
Good Knowledge	87	84.5

ATTITUDE TOWARDS CERVICAL CANCER PREVENTION
The participants demonstrate a positive attitude towards cervical cancer prevention, as shown in Tables 4 and 5. Overall, 86.4% had a positive attitude (Table 5).

Table 4: Attitude Towards Cervical Cancer Screening Strategies

VARIABLE	POSITIVE ATTITUDE FREQ(%)	NEGATIVE ATTITUDE FREQ(%)
Cervical cancer is a severe public health issue	86 (83.5)	17 (16.5)
A population-based cervical cancer screening program should be established in Nigeria	86 (83.5)	17 (16.5)
Cervical cancer prevention should be part of routine outpatient clinic conversations with women of reproductive age	90 (87.4)	13 (12.6)
Community-based cervical awareness campaigns will help reduce the burden of the disease in Nigeria	89 (86.4)	14 (13.60
HPV vaccination should be made accessible and added to the routine NPI immunization schedule	81 (78.6)	22 (21.4)

Table 5: Overall attitude towards cervical cancer prevention

VARIABLE	FREQUENCY n = 103	PERCENT %
NEGATIVE	14	13.6
POSITIVE	89	86.4

PRACTICE OF CERVICAL PREVENTION STRATEGIES

Most respondents (64.1%) had never referred or counselled a patient to have a pap smear. While half of them reported that they had not discussed cervical cancer screening with a patient in the preceding six months, 14.6% reported having never done so before. The most common reason for not having this conversation with patients was the busy nature of outpatient clinics. Among the female respondents, the majority (62.8%) had never had a pap smear; of the 16 respondents who had a previous pap smear done, 68.8% only had it done once. The common reasons given for not having a pap smear done were fear of detection of cervical cancer (27.6%), invasive nature of the test (24.1%) and unavailability of the service (17.2%). Among the male respondents, the majority (75%) reported that their female spouses had never done a pap smear.

Table 6a: Practice of cervical cancer prevention

VARIABLE	FREQUENCY	PERCENT %
Have you ever sent a patient for cervical cancer screening n = 103		
Yes	37	35.9
No	66	64.1
If yes, how many times? n = 37		
Once	1	1.0
2 - 5 times	19	18.4
6 - 10 times	7	6.8
More than ten times	10	9.7
When last did you discuss cervical cancer screening with a female patient n = 103		
One month ago,	21	20.4
2 - 6 months ago	16	15.5
Seven months - 1 year	16	15.5
More than one year	35	34.0
Never	15	14.6
Possible reasons for not discussing cervical cancer screening with female-female patients n = 96		
Busy outpatient clinics	34	35.4
No opportunity	29	30.2
No reason	21	21.9
Not within the scope of the specialty	6	6.3
Patients <18 years	5	5.2
I do not remember	1	1.0

Table 6b: Practice of cervical cancer prevention

VARIABLE	FREQUENCY	PERCENT %
Ever had a pap smear done n = 43		
Yes	16	37.2
No	27	62.8
If yes, how many times have you done it? n = 16		
Once	11	68.8
Twice	3	18.8
Three or more	2	12.5
Possible reasons for having never done a pap smear n = 29		
Fear of detection of cervical cancer	8	27.6
It's too invasive	7	24.1
Unavailability of service	5	17.2
Never considered it	3	10.3
Time constraints	1	3.4
Persistent postponement	1	3.4
No reason	1	3.4
Has your female spouse ever done a pap smear n = 60		
Yes	15	25.0
No	45	75.0
If yes, was it based on your counsel? n = 15		
Yes	10	66.7
No	5	33.3

Table 6c: Practice of cervical cancer prevention

VARIABLE	FREQUENCY	PERCENT %
Ever recommended cervical cancer screening for your partner/female friend n = 103		
Yes	59	57.3
No	44	42.7
Ever recommended cervical cancer screening for a relative n = 103		
Yes	52	50.5
No	51	49.5

DISCUSSION

Cervical cancer is the fourth most common cancer among women globally and the most common cancer among women in developing countries.[1-3,8] In Nigeria, it is the second most common cancer among women, breast cancer being the commonest.[9-11] Presently, there is no population-based screening program in Nigeria. Thus, opportunistic screening is practised, and it is expected that health workers, including medical doctors, should drive this process by educating patients about this condition and encouraging them to get screened for cervical cancer.

The knowledge of cervical cancer prevention strategies among resident doctors who participated in this study was good, as 84.5% responded correctly to 50% or more of the knowledge-based questions asked. Most of them (95.1%) were aware that cervical cancer has a long precancerous phase that is detectable by a pap smear, and they also knew about the vaccines available for its prevention, including the availability of vaccines in the hospital where this study was carried out. This level of knowledge was not surprising as these respondents were resident doctors with a high level of medical education. Esike *et al.,* in a similar study conducted among Nigerian resident doctors drawn from different training centres, reported even higher levels of knowledge.[8] In their study, 100% of the participants knew that cervical cancer had a precancerous stage and could be detected by a pap smear. This higher level of knowledge may have been recorded because their study was conducted among senior resident doctors with higher training and experience, unlike this study, which was among a mixture of senior and junior residents. Similarly, high levels of knowledge/Awareness of cervical cancer prevention strategies were reported among other health workers by Anyebe *et al.*[12], Addah *et al.*[13] and Awodele *et al.*[14] in Zaria, Port Harcourt, and Lagos, respectively, and by Kress *et al.*[15] in Ethiopia.

Despite the overall sound level of knowledge, some vital knowledge gaps were identified in this study. Only 22.3% of participants knew the recommended age group for cervical cancer screening, and only 33.0% knew the screening interval. Furthermore, only 25.2% of participants agreed that HPV vaccines can be

given to both males and females, while just 8.7% of participants were aware of the nonvalent HPV vaccine (Gardasil 9). These findings lend credence to the fact that resident doctors and, indeed, other health workers need more enlightenment about cervical cancer prevention strategies so that they can accurately counsel their patients and refer them for cervical cancer screening as appropriate.

The resident doctors' attitude to cervical cancer prevention in this study was positive. Most of them (>83.5%) agreed or strongly agreed that cervical cancer is a severe public health issue that should be prevented by the establishment of a population-based screening program, which has been proven to be effective in developed countries where this disease has almost been eradicated. A large proportion (78.6%) of the respondents also agreed or strongly agreed that HPV vaccination should be made accessible and added to routine immunization for children as this strategy has effectively controlled other deadly diseases like polio. Most of the respondents also submitted that cervical cancer prevention should be part of routine outpatient conversations with women of reproductive age and that community-based awareness campaigns should be carried out to increase Awareness of this preventable cancer. This cheerful disposition towards steps that can be taken to prevent cervical cancer was encouraging, considering that this was coming from doctors who are thought leaders in the health sector and as well as stakeholders in healthcare policy development. Awodele *et* al. also reported a positive attitude of Nurses towards cervical cancer prevention, where 89% of them thought it advisable to have a pap smear done.[14] Similar findings were reported by Zahedi *et al.* in a study among health workers in Haiti, where all the respondents agreed or strongly agreed that a cervical cancer screening program

should be started in their community.[16]

Unfortunately, the excellent level of knowledge and positive attitude towards cervical cancer prevention did not translate to good practice among the resident doctors who participated in this study. Many (64.1%) had never referred or counselled a patient for a pap smear. In comparison, 14.6% of them reported that they had never had a conversation about cervical cancer prevention with a female patient. The reasons given for this level of practice included busy outpatient clinics (35.4%) and lack of opportunities to do so (30.2%), while 21.9% had no reason. Furthermore, an alarming 75% of male resident doctors reported that their female spouses had never done a pap smear. Similar findings were reported by Esike *et al.,* whose study was among resident doctors from diverse training centres in Nigeria, where 58% of respondents had never referred a female patient for cervical cancer screening, and 68% of the male respondents had never recommended cervical cancer screening to their female relations.[8] This suggests that more work needs to be done to encourage resident doctors who have contact with female patients who may never be present at the gynecologic clinic to include cervical cancer prevention in their clinic conversations and practice. This is particularly important in an environment where opportunistic screening is practised.

The uptake of pap smear among the female resident doctors in this study was poor at 37.3%, and of the 16 who had been screened before, 68.8% had only done it once. The primary reasons given for not taking the test included the fear of detecting cancer (27.6%) and the invasive nature of the test (24.1%). Esike *et al.* also reported a poor uptake of 22.7% among female resident doctors[8]. In studies conducted across the country which included other health workers, the

uptake has been reported to be even poorer: Anyebe *et al.* reported 15% in Zaria[12], Addah *et al.* – 12.8% in Port Harcourt[13], Anya *et al.* - 9% in Southeastern Nigeria[17] and Aboyeji *et al.* - 3% in Ilorin.[18] This trend is a cause for concern as female health workers are expected to be models in this regard. Poor uptake among these practitioners will likely negatively impact their ability to counsel and encourage other women to get screened.

CONCLUSION
The knowledge of cervical cancer prevention strategies among resident doctors undergoing training in UBTH is good, although this can be improved upon considering the knowledge gaps identified in this study. While the attitude of these doctors toward cervical cancer prevention strategies is also good, their excellent knowledge and attitude are not reflected in the practice of cervical cancer preventive strategies among them.

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