Determinants of cervical cancer screening uptake among female staff in a multicampus university in South-Western Nigeria

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Abstract

Background- Cervical cancer remains a leading cause of morbidity and mortality among women in developing countries despite the availability of screening tests that could detect pre-cancerous conditions. The aim was to assess the respondents' level of knowledge and attitude towards cervical cancer screening as well as to identify factors predictive of screening uptake.

Methodology- A cross-sectional survey of 150 female staff of Osun State University, South Western Nigeria selected across campuses by multi-stage sampling. Data was collected with the aid of semi-structured questionnaire and analysed using descriptive and inferential statistics.

Results- The mean age for the respondents was 34.7 (±8.32) years. Majority (80%) of the respondents were aware of cancer of the cervix but only 40% had good knowledge of the disease. About 77.5% of the respondents had a good attitude towards its screening. Only 21 (%) had ever done cervical cancer screening. Factors associated with cervical cancer screening uptake include age, income, level of education, staff category, respondents' belief on general availability of cervical screening, attitude, having known a person with cervical cancer, having had information through counseling on cervical cancer as well as respondents' knowledge of cervical cancer. The latter two are predictive of screening uptake. Respondents with good knowledge were about four times likely to have had cervical cancer screening compared with respondents with poor knowledge.

Conclusion- Majority of the respondents had poor knowledge of cervical cancer but good attitude towards its screening. Identifiable determinants of cervical cancer screening uptake were knowledge-based, thus continuous enlightenment of women of all age-groups becomes imperative.

Key Words- Attitude, Cervical Cancer, Determinants, Knowledge, Pap smear, Screening uptake

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Déterminants du recours au dépistage du cancer du col de l'utérus chez le personnel féminin d'une université multicampus du sud-ouest du Nigéria

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Abstrait

Contexte général de l'étude : Le cancer du col de l'utérus demeure l'une des principales causes de morbidité et de mortalité chez les femmes dans les pays en développement malgré la disponibilité de tests de dépistage qui pourraient détecter des affections précancéreuses. Évaluer le niveau de connaissances et l'attitude des répondants à l'égard du dépistage du cancer du col de l'utérus ainsi que d'identifier les facteurs prédictifs du recours au dépistage.

Méthode de l'étude : Une enquête transversale auprès de 150 membres du personnel féminin de l'Université d'État d'Osun, au sud-ouest du Nigéria, sélectionnées sur les campus par échantillonnage à plusieurs degrés. Les données ont été recueillies à l'aide d'un questionnaire semi-structuré et analysées à l'aide de statistiques descriptives et inférentielles.

Résultat de l'étude : L'âge moyen des répondants était de 34,7 (±8,32) ans. La majorité (80%) des répondants était au courant du cancer du col de l'utérus mais seulement 40% avaient une bonne connaissance de la maladie. Environ 77,5% des répondants avaient une bonne attitude envers son dépistage. Seulement 21 (%) avaient déjà effectué un dépistage du cancer du col de l'utérus. Les facteurs associés au recours au dépistage du cancer du col de l'utérus comprennent l'âge, le revenu, le niveau d'éducation, la catégorie de personnel, la croyance des répondants quant à la disponibilité générale du dépistage du col de l'utérus, l'attitude, le fait d'avoir connu une personne atteinte d'un cancer du col de l'utérus, d'avoir eu des informations par le biais de conseils sur le cancer du col de l'utérus ainsi que connaissances des répondants sur le cancer du col de l'utérus. Les deux derniers sont prédictifs du recours au dépistage. Les répondants ayant de bonnes connaissances étaient environ quatre fois susceptibles d'avoir subi un dépistage du cancer du col de l'utérus par rapport aux répondants ayant de faibles connaissances.
Conclusion : La majorité des répondants avaient une mauvaise connaissance du cancer du col de l'utérus mais une bonne attitude envers son dépistage. Les déterminants identifiables du recours au dépistage du cancer du col de l'utérus étaient fondés sur les connaissances, de sorte qu'il devient impératif d'éclairer en permanence les femmes de tous les groupes d'âge.

Mots-clés : Attitude, cancer du col de l'utérus, déterminants, connaissances, frottis de pap, participation au dépistage

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INTRODUCTION

Cervical cancer is among the leading cancers that affect women globally (1). It is the leading cause of cancer related deaths in the developing world.(1) The challenge of cervical cancer is further worsened by a concomitant presence of HIV infection in many women in the Sub-Saharan African region which accounted for about 75% of the over 20 million women diagnosed with HIV infection globally in 2020.(2) Women infected with HIV have increased susceptibility to Human Papilloma Virus (HPV) infection which is known to cause cervical cancer.(3)The burden faced by low- and middle-income countries is significantly greater than developed countries. The incidence and mortality rate from cervical cancer have been reduced greatly in developed countries consequent upon the advent of cervical screening and vaccination.(4,5) Approximately 570,000 cases of cervical cancer and over 300,000 deaths from the disease occurred in 2018.(1) Most of the patients that die from the disease are from the developing countries where poverty, ignorance, unhealthy lifestyle and reduced funding of the health sector among others have immensely contributed to a higher prevalence of cervical cancer.(6) Apart from these factors, patients seek medical help at advanced stages when metastases would have occurred thereby reducing the chances of cure and patients' survival (7). Early detection and treatment of the precursor or pre-invasive lesions has been found to prevent cervical cancer and reduce morbidity and mortality (7,8).

Human Papilloma Virus (HPV) infection causes neoplastic changes in the cervical epithelium which can be detected early with screening techniques (7). Routine screening with a pap smear is recommended for all women from 18 years of age or earlier if sexually active till age 60.(9) This has not been the case in developing countries due to inadequate and poor uptake of screening services (9,10). Non availability or poor uptake of screening facilities is responsible for higher morbidity and mortality from cervical cancer in developing world (5). Studies show low level of uptake of cervical cancer screening services among African women (9). Marital status, knowledge, perceived barriers and having a regular health care provider were identified as those factors that determine its uptake.(11) According to WHO, the choice of having the screening done is hampered by lack of knowledge about the disease and risk factors, beliefs about the disease, poor access to preventive services,

affordability of the service and current health service system (5,8).

In Nigeria, over 40 million women are said to be at risk of developing cervical cancer (12). No national policy on cervical cancer screening exists in the country. Good knowledge of the disease and a positive attitude towards screening is needed for women to access the largely opportunistic screening services currently being offered (13). Although a number of studies have looked at the determinants of screening uptake (11,14,15). it is imperative that current evidence on knowledge, attitude and practice of cervical cancer screening as well as their determinants be obtained so as to know whether there is progress in this part of the world. This study was carried out to determine the knowledge of cervical cancer together with the determinants of the uptake of cervical cancer screening among female staff in a multi-campus university with six campuses spread across different geo-political regions in Osun State. It was designed to offer an insight into the perspectives of women located across urban, semi-urban and rural settings with regards to the acceptability, availability and accessibility of cervical cancer screening services. This study therefore aimed to identify the determinants of the uptake of cervical cancer screening among women working in a multi-campus university with campuses located in varying geo-political environments.

MATERIALS AND METHODS

The study was carried out at Osun State University in Osun State, South-Western Nigeria. According to the national population and housing census projections, Osun State was estimated to have about 4.1million people in 2022. Osun State University has six campuses spread across six rural and urban towns in the state with the main campus situated in Osogbo, the state capital. The institution has over 1000 workers out of which about a third are women.

The study is a descriptive cross-sectional study focused on factors responsible for the uptake of cervical cancer screening among the respondents. The sample size was estimated using the Leslie formula. A sample size of 138 was gotten which was approximated to 150. A multistage sampling technique taking into cognizance the campuses, colleges, faculties/departments as well as administrative units was employed to recruit participants into the study. Through, this sampling technique, participants were selected from 16 departments and six administrative units or directorates from

eight faculties in five colleges across four campuses. Two of the four campuses were located in an urban and a rural area respectively while the other two were located in semi-urban areas. Research instruments were semi-structured self-administered questionnaires. The questionnaires were pretested in one of the other two campuses which were not selected for the study. Study variables included socio-demographic data, knowledge about cancer of the cervix and attitude towards the screening, as well as factors associated with cervical screening uptake. There were nine knowledge and eleven attitude questions, and anyone who scored up to 50% and above of the total mark was assigned as having good knowledge or positive attitude, while those who scored less were classified as having poor knowledge or negative attitude.

Ethical clearance was obtained from the College of Health Sciences Ethical Review Committee, Osun State University; also permissions were obtained from the heads of the selected campuses and the selected respondents who took part in the study. An informed consent was duly obtained from each participant.

The SPSS software version 20 was used for data entry and analysis after sorting out the questionnaires. Relevant frequency distribution tables were generated. The Chi-square test was used to demonstrate relationships between categorical variables. Logistic regression models were used to identify possible predictors of cervical screening uptake while level of statistical significance was set at p-values less than 0.05.

RESULTS

Table 1 shows the socio-demographic characteristics of respondents. The majority of the respondents were in the age group 30-39 years (47.4%), from the Osogbo/main campus of the university (58.0%), married (69.3%), Christians (79.3%), non-teaching staff (83.3%) and had tertiary educational status of having had a first or master's degree (67.4%) as shown in Table 1.
Out of the 150 respondents, only 120 (80%) have ever heard of cancer of the cervix and are the ones whose data were further analysed in this study. The sources of information about cancer of the cervix were Radio/TV (48.0%); Health workers (34.0%); Friends (28.7%); Internet/social media (26.0%); Newspapers (18.7%) and religious organizations (8.7%). A total of 37 (30.8%) respondents correctly identified the causative agent of cancer of the cervix as a virus. Also, 52 (43.3%) were aware of pap smear as a screening

method while 39 (32.5%) respondents correctly identified pap smear to be a "swab test.

Only 40% of respondents had good knowledge of cancer of the cervix with 60% having poor knowledge. However, 77.5% of the respondents showed a positive attitude towards cervical cancer screening while only 22.5% showed a negative attitude as shown in Figure 1.

In Table 2, respondents' knowledge and attitude on cervical cancer/ screening were related with selected socio-demographic and other characteristics. Age was the only variable that showed statistical significance with knowledge. Among the respondents in the age-group 20-29 and 40-49 years, 57.1% and 50% had good knowledge respectively while for those in the age groups 30-39 and above 50, 28.3% and 12.5% had good knowledge respectively. With regards to attitude, having had information through counselling on cancer of the cervix showed statistical significance with a positive attitude towards cervical cancer screening as 90.0% of respondents who had information had a positive attitude compared to 65% of those who did not. Staff category also showed statistical significance with attitude towards cervical cancer screening as all respondents who were teaching staff had a positive attitude towards cervical cancer screening compared to 72.2% of the non-teaching staff.

In Table 3, respondents' belief and practice of cervical cancer screening is explored. Most, (80.8%) of all respondents either were not sure or clearly said that cancer screening centres were not available. Similarly, 79.2% of all respondents said screening centres were not accessible. However, with regards to affordability and socio-cultural acceptability of cervical cancer screening, 67.5% and 59.2% of respondents affirmed that the screening was affordable and socio-culturally acceptable to them respectively.

With regards to practice of cervical cancer screening using pap smear, only 21 (17.5%) of the respondents had ever done the screening, and of this, 17 had at least one screening in the last three years. Only four respondents had done the test twice while the others had it once.
In terms of absolute figures, there were more respondents in the urban areas who answered affirmatively to both sets of questions than those in the semi-urban and/or rural areas, however this was not statistically significant.

The factors that were associated with ever having had cervical screening using pap

smear are shown in Table 4.

Respondents aged 40-49 (41.7%), those having above the mean income (34.2%), high level of education (21.2%), knowing a person with cancer of the cervix (40.7%), having had counseling on cancer of the cervix (31.7%), good knowledge of the disease (27.1%) and positive attitude (21.5%) towards cervical cancer screening have been screened for cervical cancerg compared to their counterparts. Also, more teaching/ academic staff (39.4%) had done pap smear screening test compared to non-teaching staff (12.4%). Similarly, more respondents with the belief that cervical screening are generally available (30.4%) had practice screening compared to those who did not have the belief (19.0%) or those who were not sure (5.9%).

The factors that were associated with cervical screening uptake were further subjected to logistic regression in Table 5 to identify possible predictors/determinants of screening uptake.

Table 5 shows that knowing a person having cancer of the cervix, having information through counseling about cancer of the cervix and having good knowledge are the predictors of screening uptake among the respondents.

Among those yet to do cervical cancer screening, some of the reasons proffered are shown in Figure 2. Availability (37.4%), counting the test as unnecessary (20.2%) and accessibility (16.2%) are the leading reasons for not taking up the screening.

DISCUSSION

This study on the predictors of the uptake of cervical cancer screening shows that respondents' level of knowledge and access to information through counselling about the disease are the factors that determine screening uptake among the study population. Various studies on cancer of the cervix have reported similar findings (4,16). Thus, efforts to increase the uptake of screening for cancer of the cervix must be targeted at improving access to information through counselling to enhance knowledge about the disease.

Although majority of the women were aware of cancer of the cervix, the overall level of knowledge is low. Radio and television were the commonest source of information to the respondents. Previous studies have shown the relevance of mass media in informing, educating, and communicating important health issues to the general public including the rural areas (14,17).

Unfortunately, mass media hardly give comprehensive information that can result in good knowledge of health issues among the populace. However, our study shows that good knowledge of the disease is significantly associated with prior counselling (18). Thus, programmes on mass media should focus more on comprehensive counselling of women and the general populace about the disease and its screening.

Also, our study shows that very few respondents were aware of cancer of the cervix through religious bodies despite all women interviewed being religiously inclined. Idowu et al. in a community study on cervical screening uptake among women reported similar finding. Religious leaders are important route through which necessary information can reach both their adherents and the general populace through preaching either in their religious houses or through the mass media (14).

Although, most respondents believe that pap smear is affordable and acceptable to them, the non-availability of screening centres is a major limiting factor to access the screening. Raising awareness without access to screening facility could delay diagnosis and worsen prognosis. It is therefore not surprising that only few respondents have ever had cervical cancer screening. This finding is however not limited to our study as various studies in this setting have reported poor uptake of pap smear due to limited access (14,16,19).

This study provides important information that will guide policy but is limited by its cross-sectional study design and self-reported nature with information bias such as recall bias. Efforts made to reduce recall bias include asking questions to double check responses.

CONCLUSION

In conclusion, majority of the respondents had poor knowledge on cervical cancer but good attitude towards its screening. Identifiable determinants of cervical cancer screening uptake were all knowledge-based, thus continuous enlightenment of women of all age-groups becomes imperative. Also, more screening centres should be made available and religious leaders targeted in order to reach more women in the community.

Conflict of interest: The authors declare no conflict of interest.

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Table 1: Socio-demographic characteristics of the total respondents (n= 150)

VARIABLE	Frequency n=150	Percentage
AGE GROUP (Mean age 34.7 yrs, SD= 8.32) Minimum= 20, Maximum=59		
20-29 years	41	27.3
30-39 years	71	47.4
40-49 years	29	19.3
50 years & above	9	6.0
CAMPUS LOCATION		
Osogbo (Urban)	87	58.0
Okuku (Semi-Urban)	26	17.3
Ikire(Semi-Urban)	19	12.7
Ejigbo (Rural)	18	12.0
MARITAL STATUS		
Single	43	28.7
Married	104	69.3
Widow	3	2.0
RELIGION		
Islam	29	19.3
Christianity	119	79.3
Traditional	2	1.3
HIGHEST LEVEL OF EDUCATION ATTAINED		
Primary Education	5	3.3
Secondary Education	5	3.3
Post-secondary Education (PSE),	23	15.3
(First or Masters' Degree)	101	67.4
PhD equivalent or Higher	16	10.7
STAFF POSITION/ CATEGORY		
Academic Staff	25	16.7
Non-academic Staff	125	83.3
INCOME***		
Mean and below	47	31.3
Above the mean for the group	40	26.7
Respondent didn't give any figure	63	42.0

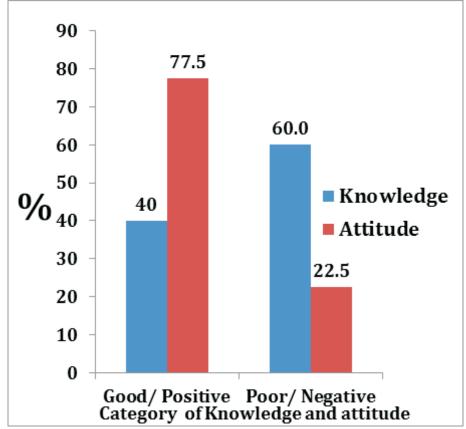*** Only 87 out of 150 respondents gave income figures

Figure 1: Knowledge and attitude categories of respondents on cancer of the cervix and its screening (n= 120)

Table 2: Respondents' knowledge and attitude on cervical cancer/screening related with selected socio-demographic and other characteristics.

Variable	Sub variables	TEST OF					
		Knowledge (n= 120)			Attitude (n= 120)		
		Poor (%) n=72	Good (%) n=48	χ^2 (p value)	(%) Negative n=27	(%) Positive n=93	χ^2 value
Age-group	20-29	15(42.9)	20(57.1)	10.829(**0.013**)	11(31.4)	24(68.6)	2.498#,
	30-39	38 (71.7)	15 (28.3)		10(18.9)	43(81.1)	(0.476)
	40-49	12(50.0)	12(50.0)		5(20.8)	19(79.2)	
	50 above	7 (87.5)	1(12.5)		1(12.5)	7(87.5)	
Marital Status	Single	21 (60.0)	14 (40.0)	0.000, (1.000)	11(31.4)	24(68.6)	2.259,
	Ever Married.	51 (60.0)	34(40.0)		16(18.8)	69(81.2)	(0.133)
Education	Low	11(52.4)	10(47.6)	0.616, (0.433)	2(9.5)	19(90.5)	1.639*,
	High	61(61.6)	38(38.4)		25(25.3)	74(74.7)	(0.201)
Having known a person with CA Cervix	Yes	13(48.1)	14(51.9)	2.039, (0.153)	3(11.1)	24(88.9)	2.591,
	No	59(63.4)	34(36.6)		24(25.8)	69(74.2)	(0.107)
Having had counselling on CA Cervix	Yes	41(68.3)	19(31.7)	3.472 (0.062)	6(10.0)	54(90.0)	10.753,
	No	31(51.7)	29(48.3)		21(35.0)	39(65.0)	(**0.001**)
Staff Position/ Category	Teaching	11(47.8)	12(52.2)	1.757, (0.185)	0(0.0)	23(100.0)	8.261,
	Non-Teaching	61(62.9)	36(37.1)		27(27.8)	70(72.2)	(**0.004**)

#- Likelihood Ratio used *Continuity correction applied.

Table 3: Respondents' beliefs and practice of cervical cancer screening

	Variable	Sub variables	Total Respondents Frequency (%) n=120	Campus Location Urban (%)	Semi- Urban (%)	Ru
Belief	Availability of cervical cancer screening centres	Yes	23 (19.2)	14 (60.9)	6(26.1)	3(
		No/ Not Sure	97 (80.8)	56 (57.7)	31(32.0)	10
	Accessibility to cervical cancer screening centres	Yes	25 (20.8)	14(56.0)	5(20.0)	6(
		No/ Not Sure	95 (79.2)	56(58.9)	32(33.7)	7(
	Affordability of cervical cancer screening (pap smear) @N3,000 per test	Yes	81 (67.5)	49(60.5)	24(29.6)	8(
		No/ Not Sure	39 (32.5)	21(53.8)	13(33.3)	5(
	Socio-cultural acceptability of pap smear (cervical cancer screening)	Yes	71 (59.2)	46(64.8)	16(22.5)	9(
		No/ Not Sure	49 (40.8)	24(49.0)	21(42.8)	4(
Practice	Has ever done Pap Smear screening before	Yes	21 (17.5)	10(47.6)	8(31.8)	3(14.3)
		No	99 (82.5)	60(60.6)	29(29.3)	10(10.1)
	Has done Pap Smear screening at least once in the last three years	Yes	17 (14.2)	9(52.9)	6(35.3)	2(11.8)
		No	103 (85.8)	61(59.2)	31(30.1)	11(10.7)
	Number of times respondent had ever had Pap Smear screening done	Once	17 (14.2)	8(47.1)	6(35.3)	3(17.6)
		Twice	4 (3.3)	2(50.0)	2(50.0)	0(0.0)
		Not Yet	99 (82.5)	60(60.6)	29(29.3)	10(10.1)

Table 4: Factors associated with cervical screening uptake among respondents

Factor/ Variable	Sub variables	Cervical screening uptake Yes (%) n=21	No (%) n=99	χ^2 (p value)
Age	20-29	4 (11.4)	31 (88.6)	11.698#(**0.008**)
	30-39	5 (9.4)	48 (90.6)	
	40-49	10 (41.7)	14 (58.3)	
	50 and above	2 (25.0)	6 (75.0)	
Income [n= 75] ***	Mean and below	3 (8.1)	34 (91.9)	6.135*(**0.013**)
	Above the mean	13 (34.2)	25 (65.8)	
Education	Low	0 (0.0)	21 (100.0)	4.030* (**0.045**)
	High	21 (21.2)	78 (78.8)	
Having known a person with CA Cervix	Yes	11 (40.7)	16 (59.3)	13.034 (**<0.001**)
	No	10 (10.8)	83 (89.2)	
Having had counselling on CA Cervix	Yes	19 (31.7)	41 (68.3)	16.681 (**<0.001**)
	No	2 (3.3)	58 (96.7)	
Staff Position/ Category	Teaching	9 (39.1)	14 (60.9)	9.221(**0.002**)
	Non-Teaching	12 (12.4)	85 (87.8)	
Respondents' knowledge	Poor	8 (11.1)	64 (88.9)	5.089 (**0.024**)
	Good	13 (27.1)	35 (72.9)	
Respondents' attitude	Negative	1 (3.7)	26 (96.3)	5.913# (**0.015**)
	Positive	20 (21.5)	73 (78.5)	
Respondents' belief on general availability of cervical screening	Yes	7 (30.4)	16 (69.6)	6.463# (**0.039**)
	No	12 (19.0)	51 (81.0)	
	Not sure	2 (5.9)	32 (94.1)	

***- Only 75 out of 120 respondents gave income figures. #- Likelihood Ratio used *Continuity correction applied.

Table 5: Binary logistic regression of the outcome variable "ever had pap smear screening" and its possible predictors.

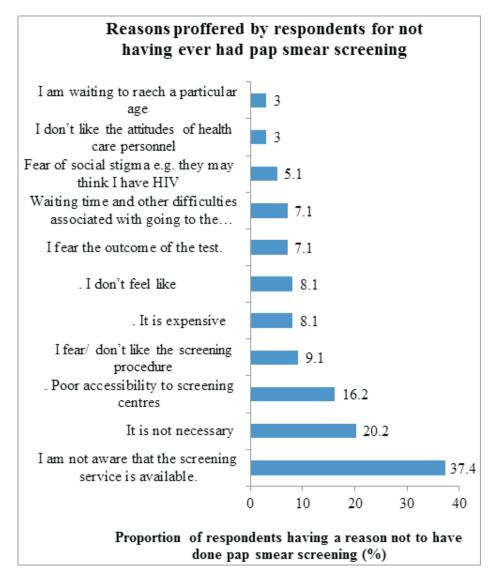| Predictor Variable	Categories of variable	P Value	Odd's ratio	95% Confidence interval	
				Lower	U
	40-49	0.381	0.400	0.052	3.105
Income	Above mean (Reference)	0.813	1.251	0.197	7.946
Educational status	High educational status (reference)	0.999	0.237	0.141	9.549
Staff category	Non-Teaching (reference)	0.421	0.540	0.120	2.423
Having known a person with CA Cervix	Yes (Reference)	**0.030**	0.267	0.081	0.883
Having had counselling on CA Cervix	Yes (Reference)	**0.002**	0.066	0.012	0.362
Respondents' knowledge	Poor	**0.026**	4.322	1.188	15.727
Respondents' attitude	Negative	0.542	2.010	0.214	18.913
Respondents' belief on general availability of cervical screening	Yes	0.308	0.385	0.061	2.411

Figure 2: Respondents' reasons for not having done cervical cancer screening (n=99).