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Research Article

Barriers to Utilization of Cervical Cancer Screening Services Among Women of Reproductive Age in Ondo, Southwest Nigeria

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ABSTRACT

Cervical cancer (CC) is the second most commonly diagnosed cancer among women of reproductive age group; yet screening for early detection of the disease among them is not a common practice in Nigeria. This study therefore, investigated the barriers to utilization of cervical cancer screening service among women of reproductive age in Ondo town, Ondo State. A descriptive cross-sectional survey was adopted using a four-stage sampling technique to select 244 consenting women of reproductive age in Ondo town. A validated interviewer administered questionnaire was used to solicit information on CC-related knowledge and perception, utilization and barriers to utilization of the screening services. Data were analyzed using descriptive statistics and Chi-square test at $p < 0.05$. Respondents' mean age was 30 ± 6.8 years, 70.9% were married and 58.2% had tertiary education. Majority (73.8%) had heard about CC and 67.8% correctly defined CC. Mean knowledge score was 17.1 ± 5.3 . Respondents with poor, fair and good knowledge of CC were 11.1%, 53.3%, and 35.6% respectively. Positive perception towards CC was reported by 42.6% of respondents. Only (15.6%) of the respondents have done screening for CC and the decision to do the screening was personal in 78.6% of the respondents. Main barriers hindering the utilization of CC screening services were: fear of the result (65.1%), negative attitudes of health worker (51.3%) and husband's influence on decision (51.0%). CC knowledge of respondents was not significantly associated with utilization of cervical screening service ($X^2 = 3.117$ $P > 0.05$). Low utilization of the screening services based on perceived misconception was noticed among study participants. Health promotion strategies that will target women and their spouse are therefore recommended. Health workers should help change perception of non-susceptibility of the women

Keywords: Cervical cancer, knowledge, perception, barriers to utilization of the screening service

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INTRODUCTION

Cervical cancer constitutes a major public health threat to women in many low and medium resourced countries in South and Central America, sub-Saharan Africa, South and Southeast Asia where it is still the leading type of cancer among women (Fasanu et al, 2014). The high burden of cervical cancer in these countries is due to both a high prevalence of Human Papillomavirus (HPV) infection and the lack of effective cervical cancer screening programs. In cases where effective screening programs are available, poor knowledge and negative health seeking behaviour of the

populace have led to poor utilization of such services (Arulogun and Maxwell 2012).

Globally, cervical cancer comprises approximately 12% of all cancers in women. It is the second most common cancer in women worldwide but the commonest in developing countries (NCCC, 2010). Annual global estimates are 470,600 new cases and 233,400 deaths from cervical cancer annually (Jusman, 2014). Cervical cancer is also one of the most preventable cancers because of increased awareness for early detection (Van Ballegooijen, 2000). Studies have shown that utilization of preventive reproductive health services is a major factor in reducing the burden of reproductive health

challenges. Cervical screening is acknowledged currently as the most cost effective approach to cervical cancer control. A study done on cervical cancer screening approaches in low resource settings showed that the use of pap smear for routine screening of women resulted in a dramatic decline in cervical cancer deaths over a period of four decades in wealthier countries but a continuing high mortality in the developing world (Sherris et al., 2009). Despite this evidence, utilization of screening services remains abysmally low. For instance in a study conducted in Lagos Nigeria only 7% of women who were knowledgeable about cervical cancer reportedly had had a Pap smear test done (Wright et al, 2014). Even though reasons for poor utilization have been explored in other parts of Nigeria, not much has been done in the study area. This study therefore set out to fill this gap by exploring the awareness, perception and barriers to utilization of cervical screening services among women of reproductive age in Ondo Town, Ondo State, Nigeria

MATERIALS AND METHODS

Setting: This study was a descriptive cross-sectional in design to determine the awareness, perception and barriers to utilization of cervical screening services among women of reproductive age in Ondo Town, Ondo State. Ondo town is located in the southwestern part of Nigeria rainforest. It is the second largest city in the state and has population of 275,917 people (NPC and ICF Macro, 2014). It is primarily inhabited by the Yorubas, it is the trade center for the surrounding region and the largest producer of cocoa products in the region. The Local Government has 12 wards in which Ondo town has 6 wards which includes Ward 1, Ward 3, Ward 7, Ward 8, Ward 10, Ward 11. In Ondo town there are many schools, banks, 2 secondary health facilities and many primary health care centres, 2 tertiary institutions, local industries etc are situated there. The study comprised of consenting women of reproductive age group in Ondo town in Ondo State. The sample size (n) for the study was determined or estimated using the estimation formular $N = Z^{2pq}/d^2$ (Lwanga and Lemeshow, 1991). With prevalence of Pap smear utilization amongst female civil servants in Jos, Nigeria as 10.2% (Hyacinth et al., 2012), the minimum sample size was calculated to be 141. To account for non-response rate, 235 women were recruited for the study.

Sampling Techniques: A multi-stage sampling technique was used to select the eligible. Three out of the 6 wards were selected by simple random sampling by balloting. One community each were selected out of the 3 selected wards by simple random sampling. Proportionate sampling was used to select the number of women of reproductive age to be interviewed in each of the communities. A systematic sampling technique was used to select every other house in the communities selected. Every woman of reproductive age that are willing to be interviewed in the selected house were interviewed.

Method of Data Collection: Information was collected using a semi-structured interviewer-administered questionnaire written in English. The questionnaire was translated to Yoruba

and back translated to English to preserve their original meanings. The questionnaire was divided into sections according to the objectives of the study.

Data Collection Process: The data collection process was done by recruiting four (4) research assistants who were mature female undergraduates; they were trained for a day to ensure proper understanding and administration of the instrument. The data collection took ten (10) days which always start with consent seeking of the respondents and explaining the essence of the research before administering the questionnaires.

Data management and Analysis: Serial number was assigned to each question for easy identification and for correct data entry and analysis. A coding guide was developed to code and enter each question into the computer for analysis. Analysis was done with the use of Statistical package SPSS version 15. The frequency tables were properly checked by my supervisor for the purpose of accuracy. Data were summarized using frequency tables, means and standard deviations, analysis was also done with chi-square test to compare proportions for categorical variables and the outcome variable. The total knowledge score on cervical cancer and the screening service equal 30 points. The scores of 1-10points; 11-20points and 21-30points were group poor, fair and good knowledge respectively.

Ethical Consideration: Ethical approval was sought from the Ethical Review Committee of the Ondo State Ministry of Health, Akure before commencement of the research. Verbal informed consent was also obtained from respondents before the interview and administration of the questionnaires. Ethical issues like confidentiality, opportunity to decline interview at any stage and non-exposure to risk was also discussed with each respondent. The participation in the study was voluntary. To ensure confidentiality of information, interviews were conducted as privately as possible using serial numbers only and not names

RESULTS

Socio-demographic Characteristics of Respondents: Ages of the respondents ranged from 15-49 years with a mean age of 30.0 ± 6.8 years. A high proportion (61.5%) of the respondents were between 25-34 years of age and 4.9% of the respondents were 45-49 years of age. Majority (70.9%) of the respondents were married and 80.9% were in monogamous marriage. More than half (58.2%) had tertiary education as their highest level of education, 81.6% were Christians and 75.4% were Yoruba. Mean age at marriage was 25.2 ± 3.9 years. These and other details are presented in Table 1.

Awareness and Knowledge of cervical cancer: Majority (73.8%) of respondents had heard about cervical cancer and main source of information was health workers (45.0%). Majority (67.8%) of respondents correctly defined cervical cancer as abnormal growth from female's cervix, 76.1% gave virus as the cause of cervical cancer while 2.2% gave spiritual attack as the cause. First sexual debut at age 16 as risk factor for CC was mentioned by 39.4% (Table 2).

Table 1:
Socio-demographic characteristics (N=244)

Socio-demographic variables	Frequency	Percentage (%)
Age Bracket (in years)		
15-24	42	17.2
25-34	150	61.5
35-44	40	16.4
45-54	12	4.9
Marital status		
Never married	62	25.4
Married	173	70.9
Separated	7	2.9
Divorced	1	0.4
Widowed	1	0.4
Family Type (n=173)		
Monogamy	140	80.9
Polygamy	33	19.1
Level of education		
Primary	19	7.8
Secondary	82	33.6
Tertiary	142	58.2
None	1	0.4
Religion		
Christianity	199	81.6
Islam	39	16.0
Traditional	6	2.5

Mean age 30.0±6.8

Utilization of cervical cancer screening services

Majority (84.4%) of the respondents had never done any screening for cervical cancer. Of the 28 who had done, 42.9% did pap smear, 57.1% did Visual Inspection with Acetic acid (VIA). Half of the them did the screening more than a year preceding the study. Majority (78.6%) did the screening as a result of personal decision and after awareness of the benefits, (59.9%) have not done any screening because of unavailability of the screening service (Figure 1).

Barriers to utilization of the screening services

Several reasons were proffered as barriers to utilization of screening services. A little above average (51.0%) said their husband always have influence on their decision to go for screening while (51.3%) said they are sometimes not comfortable with health worker attitude. Majority of the respondents (65.1%) reported that getting a pap test would only make them worry and fearful if they eventually find out that they have the disease, (46.7%) said that Pap smear test is painful while (45.4%) said that it is expensive. Few of the respondents (28.3%) said they feel embarrassed to have any genital examination or pap test, (42.1%) said pap test is not

readily available while (50%) do not know appropriate age to go for pap smear (Table 3).

Table 2:
Awareness and Knowledge of cervical cancer (N=180)

Variables	Yes (%)	No (%)	Don't know (%)
Having first sexual intercourse before age 16 yrs	71 (39.4)	61 (33.9)	48 (26.7)
Infection with certain bacterial	122 (67.8)	31 (17.2)	27 (15.0)
Infection with certain virus	139(77.2)	24 (13.3)	17 (9.4)
Having more than one sexual partners	116 (64.4)	41 (22.8)	23 (12.8)
Having more than 4 children	22 (12.2)	86 (47.8)	72 (40.0)
Prolong use of oral contraceptives	49 (27.2)	50 (27.8)	81(45.0)
Smoking cigarette	88 (48.9)	46 (25.6)	46 (25.6)
Late age at getting married	27 (15.0)	72 (40.0)	81 (45.0)
Can cervical cancer be prevented	152 (84.4)	9 (5.0)	19 (10.6)
Can cervical cancer be treated	154 (85.6)	13 (7.2)	13 (7.2)
Cervical cancer can kill?	163 (90.6)	12 (6.7)	5(2.8)
If diagnosed early, cervical cancer could be cured	162 (90.0)	3 (1.7)	15(8.3)

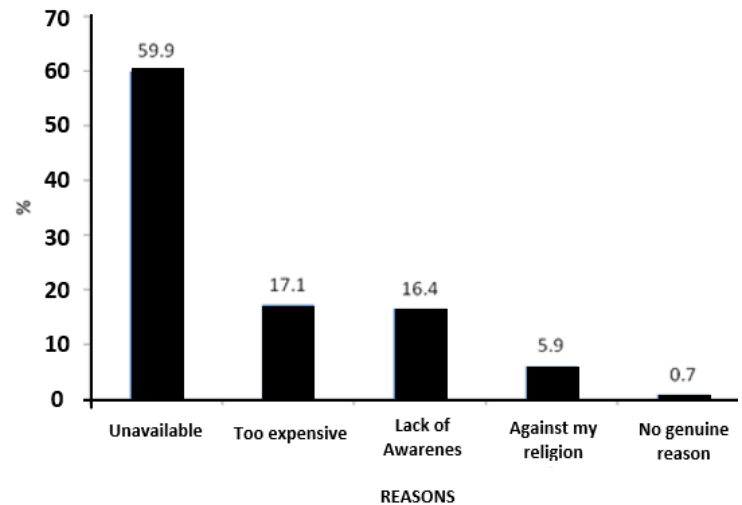


Figure 1:
Reasons for utilization of Cervical Cancer screening services

A little below half (48.0%) said screening takes much time and (39.5%) reported that screening facilities are only open at inconvenient time, few of the respondents (27.0%) also said that cervical cancer screening can expose them to some STIs

while very few (5.9%) said their culture is against going for cervical cancer screening and few (13.8%) see going for cervical cancer screening as a waste of time because cancer has no cure (Table 3).

More than half of the respondents strongly agreed or agreed that they don't know the age at which the screening can be done and almost the same number of respondents agreed /strongly agreed that the time it takes for the screening to be done is too much (Table 4).

Table 3:
Barriers to utilization of the cervical cancer screening services

Barriers to utilization	Always (%)	Sometimes (%)	Never (%)
My husband has influence on my decision	53 (51.0)	28 (26.9)	23 (22.1)
Not comfortable with health worker attitude	26 (17.1)	78 (51.3)	48 (31.6)
Long distance to health facility is an issue	24 (15.8)	61 (40.1)	67 (44.1)
I don't have money to access health facility	15 (9.9)	62 (40.8)	75 (49.3)
My family does not see reason to go to health facilities	14 (9.2)	56 (36.8)	82 (53.9)

Table 4:
Factors affecting Cervical Cancer screening

Statements	SA	A	D	SD
I do not know at what age it is appropriate to go for pap smear	76 (50.0)	29 (19.1)	34 (22.4)	13 (8.6)
I don't have time to get a screening because it takes much time	73 (48.0)	29 (19.1)	33 (21.7)	17 (11.2)
I have not gone for the screening because the health facility screening service is only open during hours that is not convenient for me	60 (39.5)	26 (17.1)	41 (27.0)	25 (16.4)
Cervical cancer screening may get a woman's womb damage or remove if not handled by a professional	23 (15.1)	20 (13.2)	34 (22.4)	75 (49.3)
Cervical cancer screening can expose a woman to some STIs	30 (19.7)	41 (27.0)	28 (18.4)	53 (34.9)
My culture is against women going for cervical cancer screening	13 (8.6)	9 (5.9)	33 (21.7)	97 (63.8)
Going for cervical cancer screening is a waste of time since cancer has no cure	21 (13.8)	9 (5.9)	47 (30.9)	75 (49.3)

Key: SA-Strongly agree; A- Agree; D- Disagree; SD- Strongly disagree

Table 5:
Perception towards cervical cancer screening services

Perception towards screening	Agree (%)	Undecided (%)	Disagree (%)
Pap smear would affect my privacy	129 (52.9)	54 (22.1)	61 (25.0)
I don't need pap smear because am not promiscuous	137 (56.1)	28 (11.5)	79 (32.4)
Prefer traditional medicine as it cures cancer	46 (18.9)	58 (23.8)	140 (57.4)
My culture forbids women undergoing such test	37 (15.2)	25 (10.2)	182 (74.6)
Cancer has no cure so why going for any test for it	63 (25.8)	33 (13.5)	148 (60.7)
Regular pap smear screening can prevent development of cervical cancer	188 (77.0)	41 (16.8)	15 (6.1)

Table 6:
Association between selected socio-demographics and their utilization of cervical cancer screening service

Variables	Utilization of cervical cancer screening service		χ^2	P-value
	Yes (%)	No (%)		
Age				
15-24	3(10.7)	32(21.1)	14.833	0.002
25-34	13(46.4)	94(61.8)		
35-44	7(25.0)	22(14.5)		
45-54	5(17.9)	4(2.6)		
Level of Education				
Primary	0(0.0)	5(3.3)	6.360	0.095
Secondary	8(28.6)	45(29.6)		
Tertiary	19(67.9)	102(67.1)		
Other	1(3.6)	0(0.0)		
Religion				
Christianity	21(75.0)	127(83.6)	11.096	0.004
Islam	5(17.9)	25(16.5)		
Traditional	2(7.1)	0(0.0)		

Perception towards cervical cancer screening services

Slightly above half (52.9%) of the respondents agreed that Pap smear would affect their privacy while, 56.1% reported that they don't need Pap smear since they are not promiscuous. Few of the respondents 18.9% prefer traditional medicine as a cure to cancer while 57.4% disagreed. Majority of the respondents (74.6%) disagreed that their culture forbid women undergoing such test while (60.7%) agreed that cancer has a cure so it advisable to go for screening to know status, (77.0%) agreed that regular Pap smear screening can prevent the development of cervical cancer (Table 5). Significant

association was found in both utilization and age of respondents ($X^2=14.833$; $P\text{-value}<0.05$) and religion ($X^2=11.096$; $P\text{-value}<0.05$) (Table 6).

DISCUSSION

All respondents selected were women of reproductive age group in Ondo Town Area of Ondo State. The ages of the respondents ranged from 15-49 years of age which is in line with the National Health Demographic Survey's (NDHS) 2013 (NPC/ICF International 2014) categorization of the fertility age range of women (15-49years). The mean age was 30.0 ± 6.8 years. A larger percentage (61.5%) of the respondents were between 25-34 years of age, this finding is also in line with the NDHS 2013 study that states that the age-specific fertility rate pattern of women in the urban settings depicts a narrow pick at age 25-29 years (NPC/ICF Macro, 2014).

In this study, majority (70.9%) were married, 80.9% practiced monogamous family type, while many (58.2%) had tertiary education which correspond with the study carried out by Utoo et al 2013 in Markurdi, Nigeria. Majority of the respondents belonged to the Yoruba ethnic group (75.4%) and this could be traced to the fact that the study location is situated in the south-western part of the country where Yoruba is the predominant ethnic group. The religious groups represented in this study were majorly Christians (81.6%). Respondents ages at marriage were majorly 24-33 years (67.6%) with mean age at marriage 25.2 ± 3.9 years, they have trading (31.1%) as the major occupation while most of them (58.2%) have 1-4 children this is still in line with Utoo et al (2013). Most of the respondents 45.1% have their sexual debut at ages 12-31 years, majority 88.9% had one sexual partner in the last 6 months which are risk factors for the disease. From the findings in this study there is likelihood of the study population to be at risk of the disease even as majority of them had early sexual debut and majority are still sexually active therefore there is need for more education on the benefit of the screening service to the study population.

Similar to findings of other studies 52.9% of the respondents still report that pap smear would affect their privacy, most African women see their privacy as a vital component of their lives that must not be compromised especially when it comes to matters relating to their sexual and reproductive life, most of them tend to keep to their friends and other people they trust. Sometimes they may prefer to keep to themselves as they feel embarrassed to have genital examination. Many of them cannot stand somebody that is not close to them or not their husband to take samples from their private parts. The finding from this study is supported by other studies who previously reported that embarrassment influences cervical cancer screening uptake using pap smear method. Most women feel uncomfortable with the idea of vaginal or 'private parts' examination with medical practitioner (Twinn et al, 2002). Previous study in the US reported that 31% of Hispanic women undertook the pap smear test admitting that the process was embarrassing, while 60% of women who did not present for screening also stated the same. Screening by male doctors affected women's decision in presenting for examination. Researchers also

indicated that the feeling of embarrassment remains even if performed by a female doctor. Research in Mexico, Ecuador and Venezuela for Latin American also reported similar patient discomfort. In Botswana, the absence of female nurses or doctors prevented women from attending screening. Many respondents indicated that women doctors are gentler than their male doctor counterparts (Julianawati, et al, 2013).

In this study some women still believe strongly that cervical cancer is associated with promiscuity as 56.1% reported that they don't need pap smear since they are not promiscuous. Studies have proven that cervical cancer is not only contacted by women who are promiscuous but women who are sexually active, Arulogun and Maxwell (2012) in their study among nurses in southwest Nigeria reported that majority of the respondents were of the opinion that only promiscuous women are at risk of cervical cancer despite the level of knowledge on cervical cancer among the study respondents, gaps in knowledge still exist about other risk factors for cervical cancer. This is a misconception because women who are faithful but whose husbands visit sex workers are equally at risk of being infected with HPV as they might be infected by their husbands. Women whose husbands have also been infected in the past are also at risk of being infected with the Human Papilloma Virus. This misconception can lead to stigmatization and wrong labeling of those who are suffering from the disease as being promiscuous as this can become a big barrier to women accessing screening services.

In this study it was observed that quite a majority (73.8%) of respondents are aware of cervical cancer while few 26.2% are still not aware of the disease unlike studies from Nwozor and Oragudosi (2013) that reported that only 35.56% were aware of cervical cancer among women in Onitsha. The awareness observed in this study indicates that there is need for more awareness programs to be done in this study site which can have greater effect on the study population. Health workers in any community are seen as role models that can help in influencing the attitudes of people towards their health so therefore there is need to engage the health workers in the awareness programs so that they can enlighten women on the disease and the risk factors associated with it in order to change their wrong or negative perception about the disease.

From this study, majority (67.8%) defined cervical cancer as abnormal growth from female's cervix which means they have good knowledge of the disease and a little below average (45.0%) of the respondents heard about cervical cancer from health workers which stresses the impact of health workers in the community. In educating these women, there should be emphasis on the risk factors and preventive measures that are needed to be taken. Health workers should also try to dissuade women out the belief that cervical cancer is caused by spiritual attacks as this can serve as the predisposing factor to their utilization. From this study, a few (2.2%) still reported spiritual attack as the cause while (76.1%) correctly reported virus as the causes of cervical cancer and (39.4%) reported first sexual intercourse before age 16 as a risk factor which corresponds with a study carried out among female nurses in University College Hospital by Arulogun and Maxwell (2012) and contradicts a study in Cameroun by Tebeu et al, (2008) that reported that only 28% of respondents had a good knowledge of cervical cancer. This disparity might be because

of the differences in the socio demographic characteristics between Nigeria and Cameroun.

Similar to findings of other studies, this study reports low utilization of screening services among the "aware" group for cervical cancer screening; as low as 15.6% of the entire population studied had ever screened for the disease. Although, this rate is higher than the 1.8%, reported by (Nwozor et al 2013) and still lower than the finding of 18% reported by Hoque et al. 2009 in a rural community in South Africa. This should raise a serious level of concern for all stake holders in reproductive health. The parliament should be magnanimous to make laws that will promote screening as has been done in other parts of the world. Utilization rate of the screening service is becoming a major challenge as even people that are more knowledgeable about the disease and the screening service have never been screened, this shows that knowledge is not statistically significant with people's utilization of the service. From this study, majority (84.4%) of the respondents have never done any screening for cervical cancer. Of the 28 who had ever screened for the disease, majority (78.6%) did the screening as a result of personal decision and after awareness of the benefits. Also from this study, it was reported that (59.9%) have not done any screening because of lack of awareness and unavailability of the screening service, therefore service should be made accessible, available and affordable to all. This low utilization here is also in line with study done by Arulogun et al (2012) that showed very low utilization of the screening service among nurses despite their awareness and knowledge about the disease and screening service. This study concluded that there was low uptake of Pap smear among the respondents despite their knowledge of prevention of cervical cancer.

Barriers are impediment to some steps or actions, barriers to utilization of the cervical screening service from several studies were influence of significant others in which husbands serves as major components, fear of the result, perceived to be painful, health workers attitude, availability of the service, time and cost of the screening, embarrassment to have genital examination and culture. From this study, a little above average (51.0%) said their husband always have influence on their decision to go for screening. This points out the effect of male involvement in women reproductive health issue as an emerging trend in reproductive health utilization as pointed out in a study done by Arulogun et al (2012).

Moreso, participants in a study admitted they did not go for cervical screening because of fear of pain and discomfort during the screening process (Julianawati et al., 2013). From this study, a little below average (46.7%) reported that Pap smear test is painful and (65.1%) reported fear of the result. Health workers attitude was also mentioned by (51.3%) and (42.1%) said pap test is not readily available while 50% do not know the appropriate age to go for a pap smear. Few (39.5%) complained of time while very few (5.9%) said their culture is against women going for cervical cancer screening. All these support findings from a study done by Nwozor et al (2013).

From this study it was observed that there is still very low utilization of the service among women of reproductive age even though a large percentage of them are aware of the disease.

There is need for the continuation of community-based involvement and the need for more studies on barriers to utilization of cervical screening service. A combination of health education approaches should be adopted to tackle this problem (advocacy, health education and training). More still, there is need for sensitization of people both men and women, young and old, leaders within the community, stakeholders on the magnitude of this problem by encouraging open dialogue on various contribution to break the cultural and societal factors affecting the utilization of the screening service.

Women in the rural areas always have difficulty in accessing clinics due to lack and cost of transportation compared to those living in urban areas. Health centres that provide this service in areas inaccessible to public transport creates barriers to the attendance of vital screening. Poverty, besides low education level, happens to be one of the reasons why the health seeking behaviour is different between urban and rural areas. Understanding and identifying barriers can be used to enhance participation rates in prevention programmes even when offered free of charge. Individuals may reconsider attending cervical cancer screening if barriers are identified and subsequently hurdled.

This study recommends ways of improving the knowledge of cervical cancer and the screening services as well as regular screening services among women of reproductive age. The findings of this study provided an insight on the barriers to utilization of cervical screening service and will have a great and far reaching implication for the planning and development of research and for the provision of baseline data in the area of cervical screening among women of reproductive age which will stress more on their awareness, knowledge, perception and barriers to utilization of the screening service. There is need to create awareness especially to the significant others to provide social support to women through social mobilization which should target community leaders, traditional rulers, religious organizations and faith based institutions and not just families. Cervical cancer screening service should be made available, accessible, affordable and sustainable.

Disclosure of conflict of interest

Authors disclose no conflict of interest.

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REFERENCES

- Arulogun O.S., Maxwell O.O. (2012):** Perception and utilization of cervical cancer screening services among female nurses in University College Hospital, Ibadan, Nigeria. *Pan African Medical Journal* 2012;11:69
- Daniyam, C. A., Agaba, P.A., Agaba, E.I. (2010):** Acceptability of voluntary counseling and testing among medical students in Jos, Nigeria. *J Infect Dev Ctries*, 4, 357-361.
- Fasanu A.O., Akindede R.A., Adebimpe W.A., Ala O.O.A., Omopariola S.O. and Adisa O.P. (2014).** Knowledge of risk factors and utilization of cervical cancer screening services

among health care workers in a Teaching Hospital in Southwestern Nigeria. *International Journal of Medicine and Medical Sciences* Vol. 4 (5), pp. 172-177.

Hoque, E. and Hoque, M. (2009): Knowledge of and attitude towards cervical cancer among female university students in south Africa. *South Africa Journal Epidemiology Infect*, 24.

Hyacinth, H.I., Adekeye, O.A., Ibeh, J.N. and Osoba, T. (2012): Cervical Cancer and Pap Smear Awareness and Utilization of Pap Smear Test among Federal Civil Servants in North Central Nigeria. *PloS7*, e46583.

Julianawati S., Cawley D., Domegan C., Brenner M. and Rowan N.J. (2013): A review of the perceived barriers within the health belief model on pap smear screening as a cervical cancer prevention measure. *Journal of Asian Scientific Research* 3(6):677-692.

Jusman Y., Ng S. C., and Osman N.A.A.(2014): Intelligent Screening Systems for Cervical Cancer. The Scientific World Journal. Article ID 810368, 15 pages. <http://dx.doi.org/10.1155/2014/810368>

Kerr, D. J. and Fiander, A. N. (2009): Towards prevention of cervical cancer in Africa, Report from meetings at St. Catherine's college, 26-27 March 2009. Available at: <http://www.afrox.org>.

Lwanga S.K. and Lemeshowm (1991): Sample Size Determination in Health Studies. WHO Library, ISBN 92-41544068. World Health Organization 1991.

National Cervical Cancer Coalition (NCCC) (2010): "Cervical cancer" <http://www.nccc-online.org/index.php/cervicalcancer>.

National Population Commission (NPC) [Nigeria] and ICF Macro. (2014): Nigeria Demography Health Survey (NDHS) 2013. Abuja, Nigeria, and Rockville, Maryland, USA.

Nwozor C.M. and Oragudosi A.L., (2013). Awareness and Uptake of Cervical Cancer Screening among Women in Onitsha, South-East, Nigeria. *Greener Journal of Medical Sciences* Vol. 3 (8), pp. 283-288.

Onyije F.M., Eroje M.A. and Fawehinmi H.B. (2010). Trends in cervical cancer incidence in University of Port Harcourt Teaching Hospital (UPTH), Rivers State,

Nigeria. *C Continental J. Tropical Medicine* 4:1-5, ISSN: 2141-4167.

Pedro,T., Raminez, M.D., David, M. and Gershenson (2013). Cancer of the female reproductive system. *Merck manual home health handbook*.

Sherris, J., Wittet, S., Kleine, A., Sellors, J., Luciani, S., Sankaranarayanan, R. and Barone, M. A. (2009): Evidence-based, alternative cervical cancer screening approaches in low-resource settings. *Int Perspect Sex Reprod Health* 35, 147-54.

Sirovich, B. E. and Welch, G. H. (2004): The Frequency of Pap Smear Screening in the United States. *J Gen Intern Med*, 19, 243-250.

Tebeu, P. M., Major, A. L., Rapiti, E., Petignat, P., Bouchardy, C., Sando, Z., De Bernis, L., Ali, L. and Mhaweche-Fauceglia, P. (2008): The attitude and knowledge of cervical cancer by Cameroonian women; a clinical survey conducted in Maroua, the capital of Far North Province of Cameroon. *Int J Gynecol Cancer*, 18, 761-5.

Twinn, S., Shiu, A. T. Y. and Holroyd, E. (2002): Women's knowledge about cervical cancer and cervical screening practice. *Cancer Nursing*, 25, 377-383.

Utoo B. T., Ngwan S.D. and Anzaku A. S. (2013). Utilization of screening services for cancer of the cervix in Makurdi, Nigeria. Herbert Publications Ltd available at <http://creativecommons.org/licenses/by/3.0>, 2054-0841-1-2.

Van Ballegooijen, M. (2000). Overview of important cervical cancer screening process values in European Union (EU) countries, and tentative predictions of the corresponding effectiveness and cost-effectiveness. *European Journal of Cancer*, 36, 2177-2188.

WebMD, (2014). Cervical cancer, WebMD Health Services, First Aid, WebMD Magazine, WebMD Health Record, WebMD Mobile Newsletters, Dictionary, Physician Directory. Available on: www.WebMD.com.

Wright K.O, Aiyedehin O., Akinyinka M.R and Ilozumba O. (2014): Cervical Cancer: Community Perception and Preventive Practices in an Urban Neighbourhood of Lagos (Nigeria). *ISRN Preventive Medicine Volume 2014 (2014), Article ID 950534, page 9.*