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The Awareness and Uptake of Cervical Cancer Screening Among Female Nurses in Enugu, South-East, Nigeria

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Abstract

Introduction: *Cervical cancer is a major cause of morbidity and mortality in women especially in developing countries. Cervical cancer screening is a cost-effective method of detecting pre-malignant and malignant lesions of the cervix. Nurses could serve as health educators on cervical cancer screening hence the need to determine their knowledge and uptake of the screening. The objective of the study was to determine the level of awareness and uptake of cervical cancer screening among female nurses in Enugu.*

Methods*: A cross-sectional analytical study of 182 eligible female nurses in different health facilities in Enugu was undertaken. A structured self-administered questionnaire was used for data collection. Data was analyzed using SPSS version 20.*

Results: *Majority of the respondents was aware (98%) and had good knowledge (95.6%) of cervical cancer screening. Only a small proportion (19.8%) of the nurses had cervical cancer screening. More so, a paltry 3.3% of the nurses had cervical cancer screening for the second time. Most (68.7%) of the respondents were aware of the availability of cervical cancer screening facilities in Enugu. Major reasons for non-screening were fear of complications (36.3%) and high cost of screening (16.4%). The respondents suggested that uptake of the cervical cancer screening could be achieved through workshops/seminars (51.1%), religious activities (49.5%), mass media (31.9%) and conferences (28.0%).*

Conclusion*: Despite the high awareness of cervical cancer screening among female nurses in Enugu, the uptake of cervical cancer screening was low. There is need for policy formulation that is aimed at reversing this ugly trend.*

Keywords: *awareness, uptake, cervical, cancer, screening, female nurses.*

Introduction

Cervical cancer is a major cause of morbidity and mortality in women and it is the fourth most common cancer worldwide after breast, lung and colorectal cancers.[1]In the developing countries it is the second commonest female cancer and the leading cause of gynecological cancer related morbidity and mortality.[1,2] Cervical cancer is a preventable human cancer because of its slow progression from the pre-cancerous stage to cancer. An estimated 528, 000 new cases and 266, 000 deaths occur every year in the world and 80% of these deaths occur in developing countries.[1,3] Sub-Saharan Africa habours one of region with the highest burden for this disease and was responsible for the death of about 60,098 women annually.[2] Africa habours one of the highest cervical cancer rates globally with Southern Africa and East Africa having a rate as high as more than 40 cases per 100, 000.[4]

High rates of cervical cancer in Africa was attributed to lack of planned and implemented organized screening services for cervical cancer in the continent and the same applies to other developing countries.[1] The prevalence of cervical cancer between developing and developed countries of the world is attributed to lack of effective cervical screening program in developing countries.[3] Cervical cancer is estimated to contribute to 35% of adult female death and currently the number one leading cause of cancer deaths in Nigeria and other developing countries[5]. The incidence of cervical cancer in Nigeria s about 250/100, 000 and 250, 000 new cases are recorded annually.[6]

Cervical cancer screening is a cost-effective screening method of detecting pre-malignant and malignant lesion of the cervix. Nurses serve as health educators to the public on the usefulness of cervical cancer. Despite this fact, the proportion of nurses who have screened themselves was previously poor.[7] With many options of cervical cancer screening now available in the study area, there is need to review the awareness and uptake of these procedures among nurses in the study area. This research may impact on the policy on cervical cancer screening in the study area as well as in other resource poor countries.

Methods

Study design and setting

This study was a cross-sectional analytical study involving trained nurses in selected hospitals in Enugu. The two teaching hospitals in the metropolis (University of Nigeria Teaching Hospital (UNTH), Ituku-Ozalla, Enugu and Enugu State University of science and Technology Teaching Hospital (ESUTTH), Parklane, Enugu) and the busiest faith based specialist hospital (Mother of Christ specialist hospital (MOC), Enugu) were purposively selected for this research since they habour majority of the nurses in the state. The study population consisted of all the nurses working in the three selected hospitals in Enugu Metropolis. The number of nurses picked from each of the study centres was based on the proportion of their population in the centres.

Sample size calculation

The minimum sample size (n) was 182 nurses and was determined by using the formula: $n = Z^2PQ/E^2$, where Z = coefficient of Z statistics obtained from the standard normal distribution table; P = Prevalence rate, Q= 100 – P and E = sample error tolerated. Using an uptake rate (p) of 12.2% of cervical cancer screening among nurses in a similar study[7] in the same study area, at a confidence limit of 95%, and sampling error of 5%.The calculated sample size (n)was 165 female nurses and assuming a non-response rate of 10% (17), the minimum sample size was 182 female nurses.

Study instruments

A structured self-administered questionnaire was used to obtain relevant information on awareness and uptake of cervical cancer screening among the nurses in the selected hospitals. Data collection was done over 3 months between May and August 2018. Written informed consent was gotten from the participants before the questionnaires were administered on the participants. Confidentiality was ensured throughout the course of the study.

Sampling

After introduction of self to the nurses in charge of the wards and clinics, the sample frame of the nurses was identified and consent of the nurses obtained from the willing participants. Using a simple random sampling the number of nurses allotted to that department was chosen and self-administered questionnaires were distributed to those that were selected for the study. The responses of the participants were collected for analysis. A total number of two hundred and ten questionnaires were distributed to the respondents by hand.

Statistical analysis

The data collected was analysed using the Statistical Package for Social Sciences (SPSS) version 22. The results were presented as frequency tables, graphs and percentages as appropriate. Analysis was both descriptive and inferential with values set at 95% confidence level, a p-value of 0.05 was considered significant. Proportions were compared with Pearson's Chi-square while means were compared with Student's t-test and cross tabulation.

Ethical Consideration

The ethical clearance certificate of number ESUTHP/C-MAC/RA/034/VOL.1/215 for this

research was obtained from Enugu State University of Science and Technology Teaching Hospital, Enugu. Also, institutional permission for the study was obtained from the other hospitals.

Results

Socio-demographic characteristics of participants

This research was conducted among 210 participants and a total of 182 questionnaires were adequately completed giving a recovery rate of 86.67%. The participants were working at UNTH 45.6% (83), ESUTTH 42.9% (78) and MOC 11.5% (21). The mean age of the participants was 37±9years while age range was 22-58years. The details of the socio-demographic characteristics of the participants is shown in table 1

The awareness and level of knowledge of cervical cancer/screening among the participants

Majority of the respondents (98%) were aware of cervical cancer screening and had a very good knowledge of cervical cancer screening (95.6%). Sources of information were mainly through seminars (58.8%) and trainings (41.2%). Respondents identified three methods of cervical cancer screening and Pap smear was the method known by the majority of the respondents (95.1%). Details of the awareness and knowledge of cervical cancer /screening is shown in table 2.

Uptake of cervical cancer screening among the respondents

Only a small proportion of the respondents (19.8%) had ever screened themselves for cervical cancer in the past. Out of these nurses who had screened themselves in the past, only 3.3% of them were re-screened for the second time and none had done the screening for the third time. The major reason for screening was for early detention of cervical cancer. Most (68.7%) of the respondents were aware of the availability of cervical screening facilities in Enugu and they identified three groups of health workers involved in cervical cancer screening (doctors (33.0%), nurses (48.9%) and laboratory scientists (18.1%)). The other details are as shown in table 3.

Challenges to cervical cancer screening among the participants

The major reasons for non-screening were fear of complications (36.3%) and high cost of screening (16.4%). The majority of the respondents suggested that the awareness and uptake of the cervical cancer screening among the nurses can be improved through workshops/seminars (51.1%), religious organizations activities (49.5%), mass media (31.9%) and conferences (28.0%). The details of reasons for poor uptake and means of improving uptake is shown in table 4.

Among the respondents who have done cervical cancer screening in the past, only (38.9%) participants had some challenges during their screening. Most of the respondents identified pain and vaginal bleeding as major challenges after their cervical cancer screening with Pap smear. Generally, the respondents believed that women do not come for cervical cancer screening because of fear of complication (25.3%) and cost of screening (17.6%). Details of challenges to cervical cancer screening among the respondents and women population in Enugu metropolis is shown in table 4.

Factors associated with cervical cancer screening among the respondents

The factors that were identified to positively determine the likelihood of screening among the respondents were marital status (P = 001), multiparity (P = 033), rising cadre of the nurses (P = 0.011) and having good knowledge of cervical cancer screening (P = 0.000). Details of factors associated with cervical cancer screening by respondents are shown in table 5.

Discussion

The awareness of cervical cancer screening among the respondents (98.9%) as recorded in this research was high. The reason for this high level of awareness may be connected to the environment where these respondents worked (hospital), lectures they had on cervical cancer and its prevention, and also their level of education. The high level of awareness was similar to that recorded in a similar study in Lagos among nurses where the level of awareness

of Pap smear as a screening tool was as high as 91%.[8] Other similar studies in Enugu[7] and Yaounde[9], also recorded high level of awareness among nurses.

In addition, it was expected that by being exposed to lectures and workshops on cervical cancer and its prevention that all the nurses would have a full grasp of cervical cancer screening but some of the participants did not know about cervical cancer screening. This calls for the nurses and other medical workers to practically demonstrate the wealth of knowledge they have on cervical cancer and its prevention by making practical demonstration of cervical cancer screening the agenda of their Nursing Week/Medical week programmes. During this week all nurses will be educated and encouraged to get a cervical cancer screening done; this attitudinal change can easily be transferred to the patients and the general population.

Furthermore, this high level of awareness can be utilized in ensuring that patients and other people that come in contact with the nurses are continuously educated on cervical cancer screening. In contrast the level of awareness was different from a low level of awareness (37%) that was recorded among nurses and interns in a cross-sectional study in Karachi, Pakistan. The low level of awareness in the Karachi study[10] was also in keeping with a very low level of awareness of cervical cancer screening (5%) among the general population in Pakistan.

The main sources of information to the respondents were mainly through hospital-based means of health education like seminars, conferences, trainings, mass media, fellow nurses etc. These sources of information available to the respondents in this study were consistent with that in other similar studies in Nigeria.[7,8] It is important to know that 20% of the respondents utilized the social media as source of their information on cervical cancer screening. Social media is one of the quickest means of information dissemination of all sorts and can be utilized by government, ministries of health and donor agencies in spreading information on cervical cancer and cervical cancer screening. Some studies have recognized social media as a good social marketing tool for increasing awareness of cervical cancer and cervical cancer screening.[11,12]

On the other hand, to demonstrate the high level of awareness of cervical cancer screening, the respondents also demonstrated awareness for colposcopy (26.9%) and Visual inspection with acetic acid (VIA) (1.6%) as means of screening for cervical cancer. The raised awareness and availability of colposcopy and poor utilization of VIA in the study sites may have positively affected the proportion of respondents who were aware of these methods of screening for cervical cancer. This report was slightly a reverse of the findings among nurses in a Lagos study[8] where 3.5% and 10.0% of the nurses were aware of the use of colposcopy and VIA respectively as a means of screening for cervical cancer. The level of awareness of other screening methods was also comparable to the findings in a study among nurses in a rural tertiary institution in Etawah, India where 19.6 and 6.8 % of the nurses were aware of the use of colposcopy and VIA respectively as means of cervical cancer screening.[13] However, it is important to note that the respondents in this study were unaware of other screening methods probably due to their limited availability in the study area.

The uptake of cervical cancer screening was low as only 19.8% of the respondents ever screened for cervical cancer and this finding was slightly higher than the value obtained among certified nurses in an institutional-based cross-sectional study in the same study area where only 12.2% of the study participants did cervical cancer screening in 2008[7]. The institutional nature of the study area and possibly gradual increasing level of awareness (as 92.2% of the respondents (certified nurses) in that study were aware of cervical cancer screening)[7] may have affected the findings in these two studies. Other studies in Nnewi and Lagos, Nigeria also recorded similar poor uptake of screening[8].

However, comparing the findings in this study among nurses with that found among the general population (women), other similar studies in the same geographical location noted very low screening rates in studies in Afikpo (0.6%)[14], Enugu (mean rating =1.4)[15] and Owerri (7.1%)[16] all in south eastern part of Nigeria. Even similar studies in other regions of Nigeria (Ogun (1.4%, Ilorin (8.0%)[17])) recorded poor screening rates among women in the general population. Also, another study in Enugu among female medical workers also noted low uptake (14.1%) of cervical cancer screening among them. Likewise a similar study in Nnewi[18] also recorded a low uptake (5.7%) of cervical cancer screening among nurses. In contrast, the finding of this

study was low compared to an uptake rate of 71.8% among nurses that were involved in institutional based study involving medical workers in Port Harcourt, Nigeria.[19] The high uptake rate was surprising considering what was obtainable in most of the studies from developing countries.

Furthermore, it was identified that only 3.2% of the respondents repeated the screening for the second time. No respondent did the cervical cancer screening for the third time. This finding depicts the general poor in-depth understanding of details of cervical cancer screening and poor attitude of the respondents to cervical cancer screening. This calls for a change of attitude by nurses for them to better appreciate the need to start and complete their cervical cancer screening programmes as also suggested in other similar studies.[7]

The reasons for non-screening as identified in this study included cost of the screening, non-availability of screening services, fear of complications, indecision, forgetfulness etc. This finding is consistent with some of the identified challenges to cervical cancer screening in the Lagos study[8] among a similar population where similar socio-economic factors were associated with non-screening. Other challenges as indecision, forgetfulness and inability to identify places where these tests were done may be related to the reasons proffered in previous studies where women were said to be unserious with issues concerning their health and this partly explains presentation of most cases of cervical cancer in their advanced stages.[20] Public-hospital-based cervical cancer screening centers in government owned hospitals have failed to increase the uptake of cervical cancer screening as noted in this study. Despite the fact that these nurses work in these facilities with availability of cervical screening capabilities, uptake of cervical cancer screening was still poor. Therefore, increasing the number of friendly cervical cancer screening centers close to where people reside and different from the ones obtainable in our tertiary public hospitals may help increase the uptake of cervical cancer screening.

The persistent issue of high cost of the screening services militating against screening can be tackled by some suggestions noted in other studies like increasing the coverage of National Health Insurance Scheme (NHIS) and making most of the cervical cancer screening measures to be covered by the NHIS.[88] Community health insurance can also be utilized by women in communities so as to help them engage in subsidized widespread community cervical cancer screening. Equally, subsidizing the cost of screening and use of outreach programmes by governments, Non-governmental Organizations (NGOs) etc. targeted at cervical cancer screening will increase the uptake of cervical cancer screening. When screening is done among women groups, women tend to serve as reminders for their fellow women and also serve as encouragement for their colleagues to go for cervical cancer screening. Faith-based organizations could also get involved in screening for cervical cancer as women are most likely to believe in cervical cancer screening organized by their different religious bodies than when it is done by government and politicians.
Education alone may not be enough to increase both knowledge and uptake of cervical cancer screening among women.[21] There must be interventions which should be multipronged targeting socio-cultural (attitude), economic (cost) and physical barriers to cervical cancer screening.[21,22] Similarly, social marketing and aggressive campaign involved in Human immunodeficiency virus /Acquired Immunodeficiency Syndrome (HIV/AIDS) that grossly reduced the spread in Sub-Saharan Africa can equally be employed in cervical cancer prevention to raise both the knowledge and uptake of cervical cancer screening measures.

Furthermore, identified factors positively associated with uptake of cervical cancer screening among the participants were marital status and increasing parity. This showed that the married participants and those with children were more likely to be screened for cervical cancer. These two factors are related to a change in attitude imbibed over time which positively affected the rate of uptake of cervical cancer screening.

The continuous reminders/recommendations by doctors and midwives to the participants each time they go through pregnancy may affect their positive change of attitude towards cervical cancer screening as was equally noted among nurses in a Singapore study.[23] Similar findings were also noted in similar studies in Portland, Jamaica.[24] Also increasing cadre of the nurses and the high level of knowledge of the participants positively affected cervical cancer

screening. Increasing knowledge has also been noted to positively affect the uptake cervical cancer and this factor should not be treated in isolation. Other studies on uptake of cervical cancer screening among women also noted similar finding.[25,26]

Strengths and limitations of the study

This study is strengthened by the multi-centre design and recruitment of the study participants based on the population of nurses at each of the centres. However, the study is weakened by the cross-sectional design in which some of the information sought for were prone to recall bias. This was also a hospital-based study in which its finding may not a true reflection in the wider society.

Conclusion

Awareness of cervical cancer screening among female nurses in Enugu was high, but the uptake was low due to fear of complications and high cost. Uptake can be increased by allaying the fear of complications during counseling and reducing the cost of the procedure.

Recommendation

Multi-sectoral and multipronged approach is necessary to change the attitude and improve uptake of cervical cancer screening services by nurses. This attitudinal change among nurses can hopefully indirectly be transferred to other women who live with and access the services of nurses.

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Competing interests

The authors declare that they have no competing interests

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Tables

Table 1. Socio-demographic characteristics of the participants

Age group category (years)	Frequency (n=182)	Percent
15-25	17	9.3
26-35	68	37.4
36-45	56	30.8
46-55	37	20.3
56-65	4	2.2
Mean=37.41 SD=9.22, Range=22-58		
Religion	Frequency(n=182)	Percent
Christianity	181	99.5
Islam	1	0.5
Parity	Frequency(n=182)	Percent
Nulliparous	57	31.3
Primiparity	20	11.0
Multiparous	85	46.7
Grand-multiparous	20	11.0
Cadre of nursing	Frequency (n=182)	Percent
N/SR	61	33.5
SNS	36	19.8
PNO	49	26.9
ACNO	9	4.9

CNO	27	14.8
Level of Education	Frequency (n=182)	Percent
Trained nurse midwife	98	53.8
Trained nurse	24	13.2
BSC nurse	52	28.6
MSC nurse	8	4.4
Marital status	Frequency (n=182)	Percent
Single	42	23.1
Married	137	75.3
Divorced	1	0.5
Widowed	1	0.5
Separated	1	0.5

N/SR-Nursing sister, SNS- Senior nursing sister, PNO- Principal nursing officer, ACNO- Assistant chief nursing officer, CNO- Chief nursing officer, BSc- Bachelor of Science, MSc – Master of Science.

Table 2. Awareness and knowledge of cervical cancer screening among respondents

Heard of cervical cancer screening?	Frequency (n=182)	Percent
Yes	180	98.9
No	2	1.1
Knowledge of cervical cancer screening	Frequency (n=182)	Percent
Very good knowledge	174	95.6
Good knowledge	8	4.4
Sources of information	Frequency (n=182)	Percent
Mass media Yes	44	24.2
No	138	75.8
Seminar Yes	107	58.8
No	75	41.2
Conference Yes	27	14.8
No	155	85.2
Training Yes	75	41.2
No	107	58.8
Fellow nurses Yes	43	23.6
No	139	76.4
Doctors Yes	21	11.5
No	161	88.5
Social media Yes	37	20.3
No	145	79.7
Others Yes	3	1.6
No	182	98.4
Cervical screening method	Frequency (n=182)	Percent
Pap smear Yes	173	95.1
No	9	4.9
Colposcopy Yes	49	26.9
No	133	73.1
VIA Yes	3	1.6
No	179	98.4

Table 3. Uptake of cervical cancer screening by respondents

Uptake of cervical cancer screening	**Responses**	**Frequency (n=182)**	**Percent**
Availability of facilities for cervical cancer screening	Yes	125	68.7
	No	57	31.3
Who carries out the cervical cancer screening	Response	Frequency (n=182)	Percent
Doctor	Yes	60	33.0
	No	122	67.0
Nurse	Yes	89	48.9
	No	93	51.1
Laboratory scientists	Yes	33	18.1
	No	149	81.9
Ever screened for cervical cancer	Yes	36	19.8
	No	146	80.2
How many times screened	Responses	Frequency (n=182)	Percent
	0	146	80.2
	1	30	16.5
	2	6	3.3
Reasons for screening	Response	Frequency (36)	Percent
Early detection of cervical cancer	Yes	25	69.4
	No	11	30.6
Intermenstrual bleeding	Yes	5	13.9
	No	31	86.11
Post coital bleeding	Yes	2	5.6
	No	34	94.4
Post-menopausal bleeding	Yes	1	2.8
	No	35	97.2
Abnormal vaginal discharge	Yes	3	8.3
	No	33	91.7
Unaware of reason	Yes	6	16.7
	No	30	83.3

Table 4. challenges to practice of cervical screening by respondents

Complications during screening	**Response**	**Frequency (n=36)**	**Percent**
	Yes	14	38.9
	No	22	61.1
Type of complication during screening	Response	Frequency (n=36)	Percent
Pain	Yes	7	19.4
	No	29	80.6
Bleeding	Yes	4	11.1
	No	132	88.9
Lack of privacy	Yes	0	0
	No	36	100
Poor attitude of health personnel doing the procedure	Yes	1	2.8
	No	35	97.2
Wrong result	Yes	3	8.3
	No	33	91.7

Barriers to practice of cervical cancer screening generally	Response	Frequency (n=182)	Percent
Cost	Yes	32	17.6
	No	150	82.4
Fear of complication	Yes	46	25.3
	No	136	74.7
Religion	Yes	6	3.3
	No	176	96.7
Husbands influence	Yes	3	1.6
	No	179	98.4
Male health worker as attendant	Yes	7	3.8
	No	175	96.2
Fear of result / anxiety	Yes	3	1.6
	No	179	98.4
Others eg lack of spare time	Yes	14	7.7
	No	168	92.3

Table 5. Factors associated with cervical screening by respondents

Variable		Cervical cancer screening		Chi square	P value
		Yes	No		
Age group category	15-25	1	16	1.731	0.885
	26 -35	11	57		
	36-45	12	44		
	46 – 55	12	25		
	56 -- 65	0	4		
Marital status	Single	1	41	17.973	0.001
	Married	33	104		
	Divorced	0	1		
	Widowed	1	0		
	separated	1	0		
Religion	Christianity	36	145	0.248	0.619
	Islam	0	1		
Level of education	Staff nurse midwife	21	76	3.106	0.376
	Staff nurse	5	20		
	B. Sc nursing	7	45		
	M.Sc nursing	3	5		
Parity	Nulluparity	7	50	8.734	0.033
	Primiparity	2	18		
	Multiparity	19	66		
	Grand-multiparity	8	12		
Current cadre of nursing	N/SR	4	57	13.128	0.011
	SNS	11	25		
	PNO	11	38		
	ACNO	4	5		
	CNO	6	21		
Place of work	ESUTTH	10	68	4.190	0.123
	Mother of Christ	5	16		

	UNTH	21	62		
Ever heard of cervical cancer screening	Yes	36	144	0.499	0.480
	No	0	2		
Knowledge category	Very good knowledge	174	0	43.983	0.000
	good	6	2		

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