

Uptake of Cervical Cancer Screening Among Female Staff at the University College Hospital, Ibadan

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Abstract

Background

This study aim to assess the factors affecting uptake of cervical cancer screening programmes among female staff of the University College Hospital (UCH), Ibadan in 2014.

Method

A descriptive cross-sectional study involving 375 participants selected using a stratified random sampling technique with proportional allocation to population size and interviewed using a pre-tested self-administered semi-structured questionnaire. Information on their basic knowledge on cervical cancer were scored to determine good knowledge. Patients' attitudes toward cervical cancer screening as well as factors affecting uptake were also assessed. Data analysis was done in 2014 using descriptive statistics while screening uptake predictors were determined using logistic regression at $p \leq 0.05$.

Results

Completed questionnaires were returned by 360 respondents; 13.3% were clinical while 86.7% were non-clinical staff of age range 20 to 58 years (38.2 ± 0.42 years). Majority of the respondents, (95.5%), had heard about cervical cancer with 61.9% having "good knowledge", but only few (34.2%) had been screened. Averagely, 47.5% displayed positive attitude to cervical cancer screening with Pap smear being the most reported screening procedure. The common barriers to screening uptaking include indecision, inadequate information and feeling of good health. Others were staff hostility, lack of privacy, and cost. Using logistic Regression at $p \leq 0.05$, females with negative attitude and those with children were less likely to uptake cervical cancer screening services.

Conclusion

The knowledge-uptake gaps of cervical cancer screenings were high as revealed in this study. Therefore, there is a need to further educate eligible women on uptake of cervical cancer screening.

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Introduction

Cancers are a leading cause of morbidity and mortality among non-communicable diseases globally¹, and require highly sensitive test procedures to detect². Local research has revealed an alarming increase in morbidity and mortality from cervical cancers, being only second to breast cancer as the commonest cancers among Nigerian women in 2009–2010 and basically due to late presentation at advanced stages of cancer to the hospital^{1,3}. However, some of the common cancers have standard screening programmes, especially cervical cancer in women^{4,5}.

There is low uptake of cervical cancer screening programmes in this environment, which is partly due to lack of a national policy for uptake and partly to poor awareness, knowledge and attitudes of healthcare personnel on the available screening programmes which may result in poor or passive campaign and enlightenment from the health workers to the people^{4,5}. In Nigeria, data to assess the burden of the diseases which can attract political will for the formulation of national policy to enable standard screening programmes and to encourage uptake of the programmes is lacking.

Also in the absence of an established national screening programme in Nigeria, healthcare providers are expected to routinely inform, educate and screen all eligible women they encounter for cervical cancers. Thus, it becomes important to assess the health providers on their level of awareness on the available individual facility-based local programmes, their knowledge, attitude and practice towards the screening programme locally available, and the factors affecting their uptake of the programmes. These could explain the reasons for the very low uptake of screening programmes among the few centres where it is available in Nigeria.

This study will determine the factors responsible for poor uptake of cervical cancer screening programmes among female health workers in this environment which may reflect some association with low level of screening among the women in this environment. However, the report of this study could be used in formulating an institutional based, local, state or national policy that will ensure full participation of both

female health providers and eligible women in the available screening programmes to reduce the cancer burden.

Methodology

This study was a descriptive cross-sectional study conducted at the University College Hospital (UCH) Ibadan, among female staff of both clinical and non-clinical departments of UCH, Ibadan, within the age group of 18 and 60 years with a percentage ratio of clinical to non-clinical female members of staff of 9.8% to 90.2%.

The inclusion criteria included all female members of staff, aged 18 – 60 years old who gave their consent to participate while selected members of staff who are unavailable throughout the period of study e.g. for maternity leave, study leave etc. and all the female members of staff on contract and female temporary workers were excluded. Leslie Kish formula for determining single proportion (for descriptive studies) was used to determine sample size resulting into 372 participants.

A stratified random sampling technique was adopted for the selection of the participants. The female staff were stratified into clinical and non-clinical female staff members, then a proportional allocation to population size in each stratum based on the approximate calculated sample size of 375 resulting in approximately 40 clinical staff and 335 non-clinical staff. The proportional allocation was repeated among each subgroup to arrive at the number of participants to be interviewed per department. Finally, a simple random sampling method was used to select the participants that eventually participated in the study from each department

This study was conducted between June and December 2014. A pre-test of the instrument was carried out at a state tertiary hospital for validation before the onset of the research. All obstacles encountered were then considered and questionnaire was subsequently reviewed with some modification. The data collected in the field were primarily from the respondents, through interview with the help of the self-administered semi-structured questionnaire. Three hundred and seventy five (375) questionnaires were administered out of which 360 participants responded

with 15 non-respondents, resulting in only 4% non-response rate. All ethical issues were duly considered and ethical approval was obtained from appropriate Local Ethical Committee

The questionnaires were serialized, edited and safely stored; thereafter, SPSS version 20 was used for data entry. Descriptive statistics were used to illustrate the sociodemographic variables, occurrence of the knowledge and attitude of participants to cervical cancer and the available screening programmes and factors influencing the uptake of the screening programmes. Chi-square statistics was used to determine the association between some selected categorical variables while non-parametric correlation analysis was used to determine the relationship and strength of the uptake of the screening programmes with some selected variables. All analysis were done in 2014.

Good knowledge of participants on cervical cancer was assessed by the number of responses that each participant got correctly. A score of '1-point' was allotted to each correct answer, while '0-point' was allotted each wrong answer. At the end, the percentage score for each respondent was derived. Knowledge scores of less than 50% were classified as "poor knowledge" while 50% and above were classified as "good knowledge".

For the attitude, the Likert scale was used. For a direct positive question, each response was rated 1-5, while a reverse coding was used for negative questions. The scores ranged from 10-50, and the average score of 30 was used as the cut-off.

Uptake of cancer screening services by participants was assessed using the question "Have you ever screened for cancer of the cervix?" to determine uptake of cervical cancer screening.

Logistic regression analysis was performed to predict the uptake of cervical cancer screening service. The selection of explanatory variables for "barrier" was based on correlation analysis, and variables which had correlation coefficient that were statistically significant ($p < 0.05$) with the outcome variable were selected.

Results

Socio-Demographic Characteristics

Among the 375 participants recruited into this

study, 360 returned a completed questionnaire giving a response rate of 96%.

Result from Table 1 below shows the distribution of the study participants into 48 (13.3%) clinical and 312 (86.7%) non-clinical staff members and the socio-demographic characteristics of the respondents. The largest proportion of the respondents 177 (49.2%) were within the age group 30-39 years while the lowest proportion 39 (10.8%) were within 20-29 years. The mean age of all respondents was 38.2 ± 0.43 years, with age range of between 20 and 58 years. All the respondents were females, the highest educational status was first degree, (43.3%) while 21.4% had postgraduate degrees, the majority were married (87.2%), while the remaining 25.3% had no child and included those that were single and those that were married but with no children yet.

Awareness and Respondents' Sources of Information on Cervical Cancer

A larger proportion, 351 (97.5%) of the respondents had heard of cervical cancer while 9 (2.5%) were ignorant of the disease. Most of respondents got their information from the health workers, 182 (50.6%); other sources included Teachers (59, 16.4%), media (53, 14.7%), printed materials (32, 8.9%), family and friends (22, 6.1%) and religious leaders (2, 0.6%). There were others (10, 2.8%) who claimed to have been informed at work and at school.

Knowledge Issues Related to Cervical Cancer

Majority of the respondents reported vaginal bleeding (69.4%) and vaginal foul smelling discharges (67.8%) as the common symptoms of cervical cancer, while others (27.5%) considered abdominal pain, headache as a symptom. Some reported other symptoms including painful sexual intercourse, post coital bleeding and weight loss.

Concerning the knowledge of the respondents on the risk factors of cervical cancer, majority rightly indicated that multiple sexual partners (72.2%) and early sexual debut (63.6%) were the two most important risk factors among others.

Majority (86.1%) also displayed a good knowledge of the cured of cervical cancer in its earliest stage following screening. Most of the respondents

Table 1. Distribution of Study Population and socio-demographic characteristics of the respondents

Distribution of Study Population	Frequency	Percentage
Professional group Non-clinical	312	86.7
Clinical	48	13.3
Total	360	100.0
Age (years)20 – 29	39	10.8
30– 39	177	49.2
40– 49	98	27.2
50 and above	46	12.8
Total	360	100.0
Education SSCE	5	1.4
Ordinary diploma	122	33.9
First degree	156	43.3
Postgraduate	77	21.4
Total	360	100.0
Marital Status Single	42	11.7
Married	314	87.2
Separated	1	0.3
Divorced	1	0.3
Widow	2	0.6
Total	360	100.0
Number of Children0	91	25.3
1-2	128	35.6
3-4	130	36.1
5 and Above	11	3.1
Total	360	100.0

indicated that radiotherapy (64.2%), specific cancer drugs (56.1) and surgery (52.5%) were mode of treatment while about 4.7% reported herbal remedies as a treatment modality. The cost of cervical cancer treatment was said to be very expensive in 57.8%, 20.8% said that the cost is moderately expensive, while 0.8% thought it's free of charge.

Knowledge of Respondents on Screening for Cervical Cancer

Among the respondents, 77.8% stated that there were screening procedures to detect premalignant cervical lesion, and 53.3% rightly said that screening should be yearly but only 38.3% responded that sexually active women should be screened while 61.7% had poor knowledge on eligible persons for cervical cancer screening. Majority of the respondents (82.8%) identified Pap smear as the main procedure used in screening cervical cancer, while others also identified Visual Inspection with Lugol's Iodine (VILI) (35.6%) and Visual Inspection with Acetic Acid (VIA) (18.3%) as shown in table 3. Most of the respondents (61.7%) agreed that cancer of the cervix is highly prevalent in Nigeria and is a leading cause of death amongst all malignancies. On overall, the average score on the knowledge of the respondents on cervical cancer identified 65.5% having good knowledge of the cervical cancer while 34.5% had poor knowledge.

Attitude Towards Cervical Cancer Screening

Table 2 below gives a summary of responses of respondents on their attitude to cervical screening. Fewer number of respondents 171 (47.5%) displayed positive attitude to cervical cancer screening.

Practice of Cervical Cancer Screening

As shown in Table 3, majority of the respondents (65.9%) had never been screened for cervical cancer, and out of the 34.1% screened, 60.2% of them had it once, while 39.8% had screened more than once with most having their last screening done less than a year ago. The major barriers to non-uptake included undecided (21.9%), ignorance of the available screening methods (16.1%) and cost (9.2%), while others included feeling of good health and may be painful. Other factors affecting their uptake of screening services are shown in Table 3 below. Only 32.8%

claimed to have utilized the available facility based screening services before while most respondents had not. The major reasons for not using the services varied among the respondents and included Staff hostility (28.6%), cost (20%), and pain (8.9%), others as shown in Table 3 below. Pap smear was reported as the main available screening test in their centre in 68.6%.

Factors Associated with Uptake of the Screening Programmes

Socio-Demographic Characteristics of Respondents Versus Uptake of Cervical Cancer Screening

Table 4 shows that there is a significant relationship between age of respondents and their uptake of cervical cancer screening ($p=0.036$) with the higher uptake among age group 30 to 39 years (44.7%). Though uptake increased with higher level of education but this relationship was not significant ($p=0.406$). The association between uptake of screening programme and the number of children they owned by respondents was significant ($p<0.001$) with the highest proportion among respondents that had 3 to 4 children (49.6%) and uptake was slightly higher among clinical staff than non-clinical staff.

Awareness of Cervical Cancer and Uptake of the Screening Programme of Respondents

There is a higher proportion of the respondents, (56.6%) who have had information on cervical cancer but did not take up its screening services. This difference though, was not statistically significant ($p =0.190$). There was a negative significance relationship between the knowledge of locally available cervical cancer screening services and the utilization of the services ($p <0.001$), for instance, majority of the respondents, (76.7%) were aware of the availability of Pap smear services, but only (30.2%) utilized the service.

The majority of the respondents, 72.5% had positive attitude toward cervical cancer screening out of which only about a half of them, (52.9%) have been screened while majority of those with negative attitude (83.5%) also failed to uptake the screening programme ($p< 0.001$).

Determinants of Cervical Cancer Screening Uptake

Table 5 shows the result of the logistic

Table 2. Attitude of respondents towards Cervical Cancer Screening

Attitude		Frequency	Percentage		
Negative Attitude		99	27.5		
Positive attitude		261	72.5		
Total		360	100		
Attitude	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
	(%)	(%)	(%)	(%)	(%)
Any adult woman including myself can acquire cervical cancer.	61(16.9)	116(32.2)	34(11.1)	63(17.5)	80(22.2)
Procedure may be very Painful.	45(12.5)	130(36.1)	37(10.3)	79(21.9)	69(19.2)
I don't need to get Pap Smear done after I stop having children.	43(11.9)	50(13.9)	42(11.7)	102(28.3)	123(34.2)
Screening may likely cause harm to me.	36(10.0)	42(11.7)	51(14.2)	119(33.1)	112(31.1)
Screening for Premalignant cervical lesions is not expensive.	36(10.0)	75(20.8)	62(17.3)	89(24.7)	98(27.2)
I don't need to get Pap Smear done after reaching menopause.	36(10.0)	34(9.4)	46(12.8)	113(31.4)	131(36.4)
Only women who are sexually active should get Pap Smears.	28(7.8)	45(12.5)	29(8.1)	128(35.6)	130(36.1)
I don't think screening helps in prevention of cancer of the cervix.	20(5.6)	31(8.6)	37(10.3)	109(30.3)	163(45.3)
I was encouraged but not convinced to get Pap Smears done.	19(5.3)	82(22.8)	41(11.4)	95(26.4)	123(34.2)
I am too busy to get Pap Smears.	13(3.6)	31(8.6)	58(16.1)	127(35.3)	131(36.4)
If screening is free and cause no harm I won't go for it.	9(2.5)	18(5.0)	52(14.5)	106(29.4)	175(48.6)

Table 3. Proportion of respondents previously screened for Cervical Cancer, Barriers to Screening and available Screening Services

Ever Screened	Frequency	Percentage (%)
Yes	123	34.2
No	237	65.9
Barrier to uptake	Frequency	Percentage (%)
Undecided	79	21.9
Not informed	58	16.1
High cost	33	9.2
Feeling of being healthy	31	8.6
Fear of result	20	5.6
Being shy	18	5.0
Painful	18	5.0
Husband won't agree	8	2.2
Barrier for service utilization		
Staff Hostility	103	28.6
High cost	72	20.0
Pains	32	8.9
Lack of privacy	25	6.9
Time consuming	24	6.7
Available Screening Services	Frequency	Percentage (%)
Pap Smear	247	68.6
Biopsy	132	36.7
Visual Inspection with Lugol's Iodine	121	33.6
Visual Inspection with Acetic acid	68	18.9

Table 4. Socio-Demographic Characteristics of Respondents versus uptake of Cervical Cancer Screening

Sociodemographic	Uptake of Cervical cancer screening			χ^2	p-value
Age(yrs.)	Yes (%)	No (%)	Total (%)	8.675	0.036
20-29	7(5.7)	20(12.2)	27(9.4)		
30-39	55(44.7)	84(51.2)	139(48.4)		
40-49	36(29.3)	43(26.2)	79(27.5)		
50& Above	25(20.3)	17(10.4)	42(14.6)		
Level of Education				5.155	0.406
SSCE	1(0.8)	4(2.4)	5(1.2)		
OND	7(5.7)	17(10.4)	24(8.4)		
HND	34(27.6)	34(20.7)	68(23.7)		
BSc.	41(14.3)	63(38.4)	104(36.2)		
MBBS	12(33.3)	13(7.9)	25(8.7)		
Postgraduate	28(22.8)	33(20.1)	61(21.5)		
No. of Children				21.987	<0.001
0	14(11.4)	48(29.3)	62(21.6)		
1-2	42(34.1)	67(40.9)	109(38.0)		
3-4	61(49.6)	45(27.4)	106(36.9)		
5 & Above	6(4.9)	4(2.4)	10(3.5)		
Staff designation				0.200	0.729
Clinical staff	18(46.2)	21(53.8)	39(13.6)		
Non-clinical	105(42.3)	143(57.7)	248(86.4)		

Table 5. Determinants of Cervical Screening uptake

Uptake	Variables	Co-efficient	Standard error	p-value	O.R
Determinants					
Barriers	Feeling of good health	-1.012	0.605	0.095	0.364
	Lack of privacy	-1.629	1.27	0.2	0.196
	Staff hostility	0.867	0.568	0.127	2.381
Attitude	Positive attitude				1.0
	Negative attitude	-1.457	0.47	0.002*	0.233
Age group	20-29				1.0
	30-39	-0.582	0.947	0.539	0.559
	40-49	-0.786	0.98	0.422	0.456
	50 and above	-1.34	1.051	0.202	0.262
Number of children	0				1.0
	2-Jan	-1.727	0.792	0.029*	0.178
	4-Mar	-2.561	0.795	0.001*	0.077
	5 and above	-2.345	1.158	0.043*	0.096
Education	Completed secondary				1.0
	Ordinary diploma	-1.284	1.703	0.451	0.277
	Degree	-0.907	1.691	0.592	0.404
	post graduate	-1.173	1.735	0.499	0.309
Awareness	No				1.0
	Yes	-19.459	18910.28	0.999	<0.001

*Statistically significant at $p \leq 0.05$

regression performed to ascertain the effects of socio-demographic factors, attitude, and awareness of cervical cancer on the likelihood that respondents will go for cervical cancer screening. The model explained 53.2% (Nagelkerke R^2) of the variance in cervical cancer screening uptake and correctly classified 83.0% of cases.

We observed from Table 5 that attitude and number of children added significantly to the model at $p \leq 0.005$. That of age, education, barriers, and awareness was not statistically significant at $p \leq 0.05$. This implies that females with negative attitude and those with children (no matter the number of children they have), are less likely to take up cervical cancer screening services (co-efficient is negative).

Discussion

Discussion of Findings

The findings from this study highlight the major factors affecting the uptake of cervical cancer screening by the respondents. The study clearly demonstrated a high level of awareness on cervical cancer (93.1%), knowledge on symptoms and the risk factors of acquiring cervical cancer and the availability of a screening programme (85%). These high percentages may be because the respondents were hospital staffs with majority of them having basic medical or paramedical training and exposures. This cannot be compared with poor awareness, (20%) among tertiary school female students in Ibadan and among women in a local community in Ibadan (40%) and Lagos^{6,7,8}. However, in the United Kingdom, USA (California) and other developed countries, awareness was found to be high among the entire populace as over three quarters of the respondents were aware of carcinoma of the cervix^{9,10}.

Fewer than half of the respondents (47%) identified health workers as the main sources of information on cancers screening, these may reflect the low drive for information dissemination among the health workers on cancer screening despite high knowledge. This is unlike in the developed areas where the health workers have a mandate to ensure provision of more effective health education and information about preventive and screening in order to be able to elicit the fears, prejudices and priorities of patients that

may serve as barriers to uptake of the programmes¹¹.

Attitude Towards Screening

This study also shows a good attitude of the respondents to the screening programmes. On overall, more than half of the respondent had a positive attitude towards the screening which was similar to the finding in the study in Tunisia¹². Perception of susceptibility to the cancer development also affect screening behaviour. Less than one quarter of the respondents wrongly expressed lack of personal susceptibility to cancer and therefore believed it was unnecessary for them to have any screening done. Unlike in the Tunisia study which showed more women expressing lack of susceptibility to cervical cancer preventing them from uptaking the screening programmes¹².

Practice of Screening Programmes

In this study, only one third of the respondents had undergone cervical cancer screening. This pattern of low uptake of pap smear is usually observed across African countries including among the health workers in spite of their good knowledge and among Vietnamese women^{10,13}. The situation was worse in the study by Udigwe in 2006 that showed that only 5.7% of respondents had undergone a Pap smear test.

In this study, the majority of women in age group 30-39 years uptake the screening more whereas in developed countries, the younger women in the age group 20-29 years tend to be screened earlier based on the high level of awareness and standard national programmes on screening available.

The relationship between level of knowledge of cervical cancer screening, attitude towards the screening programmes and uptake of the screening programmes by respondents in this study is very worrisome because the respondents had good knowledge of the disease, associated risk factors and the available screening programmes, they also had positive attitude toward the screening programmes but uptake was still very poor. This is alarming because their knowledge and attitude did not translate to actual utilization of the programme. This result can partly explain the reason why there are poor uptake among women in this part of the world, the health workers who supposed to flag-off the campaign for proper and regular screening and advocate for the

establishment of a national screening programme, are careless about their own screening and this will lead to poor sensitization of their patients and clients on the locally available screening programmes and hence resulting in poor or non-uptake. Surprisingly similar pattern is seen in some studies done among the health workers especially in Africa^{11,14,15}.

A significant relationship is observed between age of respondents and uptake of cervical cancer screening. The practice of cervical cancer screening is higher among the married respondents, despite their relatively poor attitude, although still more than half of the married are yet to be screened.

Factors Affecting Uptake of the Screening Programmes

The greatest barriers identified against the screening in this study was indecision of respondents, and believe of being healthy. Other factors include shyness in being screened by a male doctor, disagreement of their husband, fear of positive result, high cost of the screening, fear of infection from equipment used for the procedure, busy schedule at work, delay in conception and logistic reasons. Similar barriers are common to several local and hospital based studies even in this environment^{6,16,17}.

It is therefore obvious from these findings that a concerted effort is needed to actively remove these barriers by repeated education, training and re-training strategies to improve their uptake and level of advocacy in campaigning for screening among their patients and clients.

Conclusions

The result of this study provide a comprehensive picture of the knowledge, attitude and practise of the screening programme for cervical cancer, the locally available screening procedures, various barriers to uptake of the screening programmes and the barriers to the utilization of the locally available screening procedures.

Various factors identified in this study that affect the screening programme are actually modifiable factors. This could be addressed through multiple channels which may include detailed and regular sensitization and awareness programme for all staff on epidemiology, risk factors, symptoms and management

of common cancers especially with special emphasis on the importance and necessity of the available screening programmes with a primary aim of addressing the barriers.

References

1. Jedy-Agba, E., Curado, M.P., Ogunbiyi, O., Oga, E., Fabowale, T., Igbino, F., Osubor, G., Otu, T., Kumai, H., Koechlin, A., Osinubi, P., Dakum, P., Blattner, W., Adebamowo, C.A. Cancer incidence in Nigeria: A report from population-based cancer registries. *Cancer Epidemiol.* 2012;36(5):271-278. doi:10.1016/j.canep.2012.04.007
2. Billette, D., Agathe, E., Garnier, C., Ancelle-Park, A., Ferley, R., Jestin, J.C. Evaluation of a combined screening programme for breast, cervical and colorectal cancers in France. *Eur J cancer Prev.* 2007;16(1):26-35. <http://www.ncbi.nlm.nih.gov/pubmed/17220701>.
3. Wilson, J.M.G., Junger G. Principles and Practice of Screening for Disease. WHO. *Public Heal Pap.* 1968.
4. Ayinde, O.A., Omigbodun, A.O., Ilesanmi AO. Awareness of cervical cancer, Papanicolaou's smear and its utilisation among female undergraduates in Ibadan. *Afr J Reprod Health.* 2004;8(3):68-80.
5. Chigbu, C.O., Aniebue, U. Why Southeastern Nigerian Women Who Are Aware of Cervical Cancer Screening Do Not Go for Cervical Cancer Screening. *Int J Gynecol Cancer.* 2011;21(7):1282. http://journals.lww.com/ijgc/Abstract/2011/10000/Why_Southeastern_Nigerian_Women_Who_Are_Aware_of.19.aspx.
6. Asuzu, C., Inegbeniki D. Assessing the cancer screening behaviours of female healthcare workers in the University College Hospital (UCH): Ibadan. *PsychoOncology.* 2011;20:158.
7. Asuzu, C., Unegbu J. Knowledge, attitude and behaviour of university of ibadan women toward cancer of the cervix and its prevention. *PsychoOncology.* 2009;18:99.
8. Okunowo AA, Daramola ES, Soibi-Harry AP, et al. Women's knowledge of cervical cancer and uptake of Pap smear testing and the factors influencing it in a Nigerian tertiary hospital. *J Cancer Res Pract.* 2018. doi:10.1016/j.jcrpr.2018.02.001

9. Weller, D.P., Campbell, C. Uptake in cancer screening programmes: a priority in cancer control. *Br J Cancer*. 2009;101(S2):S55-S59. <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2790712&tool=pmcentrez&rendertype=abstract>.
10. Dang, J., Lee, J., Tran, J.H. Knowledge, Attitudes, and Beliefs Regarding Breast and Cervical Cancer Screening among Cambodian, Laotian, Thai, and Tongan Women. *J cancer Educ*. 2010;25(4):595-601. <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2992127&tool=pmcentrez&rendertype=abstract>.
11. Bowling, A. Implications of preventive health behaviour for cervical and breast cancer screening programmes: a review. *Fam Pract*. 1989;6(3):224-231.
12. El Mhamdi, S., Bouanene, I., Bouslah, A., Sriha, A., Salem, K.B., Letaief, M., Soltani MS. Breast and cervical cancer screening: Knowledge, attitudes and practice of health personnel in the region of Monastir (Tunisia). *Trop Med Int Heal*. 2011;16:318. <http://www.embase.com/search/results?subaction=viewrecord&from=export&id=L70589843>.
13. Pham, C.T., McPhee SJ. Knowledge, attitudes, and practices of breast and cervical cancer screening among Vietnamese women. *J cancer Educ*. 1992;7(4):305-310.
14. Owoeye IO., Ibrahim . I. Knowledge and attitude towards cervical cancer screening among female students and staff in a tertiary institution in the Niger Delta. *Int J Med Biomed Res*. 2013. doi:10.14194/ijmbr.219
15. Ndikom CM, Ofi BA. Awareness, perception and factors affecting utilization of cervical cancer screening services among women in Ibadan, Nigeria: a qualitative study. *Reprod Health*. 2012;9:11.
16. Plourde N, Brown HK, Vigod S, Cobigo V. Contextual factors associated with uptake of breast and cervical cancer screening: A systematic review of the literature. *Women Heal*. 2016. doi:10.1080/03630242.2016.1145169
17. Arulogun OS, Maxwell OO. Perception and utilization of cervical cancer screening services among female nurses in University College Hospital, Ibadan, Nigeria. *Pan Afr Med J*. 2012;11:69.