Effect of Applying Educational Sessions on the Nurses' Knowledge regarding Cervical Cancer

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Abstract: *This study aimed to assess the effect of applying educational sessions on nurses' knowledge regarding cervical cancer. **Design:** quasi-experimental study. **Setting:** This study was conducted at the obstetrics and gynecology departments in Mansoura University Hospital, Egypt. **Sample:** Convenient sample was used (110 nurses). **Tools of data collections:** Structured interviewing questionnaire which includes three parts were prepared toassess the general characteristics of the nurses, the previous educational & training programs, and the nurses' knowledge about cervical cancer. **The results:** The current study revealed that 45.3% of nurses aged between 31-40 years old with mean±SD 33.90 ± 8.14. It was revealed that 80% of them had not any information about cervical cancer. Also, there was a highly statistical significant difference between the nurses' knowledge pre and post-intervention, whereas, 72.7% of nurses had a poor knowledge score before intervention compared to 83.6% had a good knowledge score after intervention. It also represented that, there was highly statistically significant correlation between nurses' knowledge and their general characteristics. **Conclusion:** This study concluded that there was an improvement in nurses' knowledge about cervical cancer after applying the educational sessions. **Recommendations:** Continuous educational training programs should be apply for nurses, especially for newly appointed in gynecological, obstetric, and oncology departments to increase their awareness about cervical cancer*
Key Words: *Cervical Cancer, Educational Sessions, Knowledge.*

I. Introduction

Cervical cancer is a significant health issue worldwide. It is affecting women under 45 years of age, whereas it also affects a significant number of women over that age **(Tsetsekouetal., 2010).**Cancer of the cervix is the commonest genital tract malignancy in the female, and it has been ranked second to breast cancer **(Awodele et al., 2011).**Globally, there are nearly 1.5 million cases of clinically recognized cervical cancer. There are about 500,000 new cases and 250,000 deaths due to cervical cancer each year. Almost all cervical cancer cases (99%) are caused by human papillomavirus (HPV) infection .American Cancer Society estimated new cases and deaths from cervical cancer in the United States in 2016 that "new cases are about 12,900, and deaths are about 4,100 **(Rashid et al**., 2011).

Egypt has a population of 25.76 million women aged 15 years and older who are at risk of developing cervical cancer. The current estimates indicate that every year about 514 women are diagnosed with cervical cancer and 299 die from the disease **(WHO, 2010)**. In Egypt 80 % of women are prone to cervical cancer and there are 100,000 new cases a year, making it the second most widespread form of cancer in women after breast cancer **(WHO, 2010)**.

The primary underlying cause of cervical cancer is human papillomavirus (HPV). Early sexual debut, multiple sexual partners, HPV infection, smoking, genetic predisposition and compromised immunity are associated with the development of cervical cancer **(Urasa et al., 2011).** Cervical cancer screening is an important health care program where precancerous cases could be treated more successfully than the cancer itself **(Yifru, 2010).**

Cervical cancer in the early stage may not cause noticeable signs or symptoms. Possible signs and symptoms of cervical cancer include the following: "Vaginal bleeding, inter-menstrual bleeding (IMB), post-coital bleeding (PCB), post-menopausal bleeding (PMB), abnormal appearance of the cervix (suspicion of malignancy), vaginal discharge (blood stained) Unusual vaginal discharge, Pelvic pain, Dyspareunia, Post coital bleeding" **(Kumar & Abbas, 2010).**

Cancer of the cervix can be prevented by providing widespread and regular cervical screening services for all

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women who have been sexually active. This is done with the HPV test, Pap test or the Visual Inspection of the Acetic Acid painted cervix (VIA) which is affordable and more sensitive. Vaccination of women against the HPV before the onset of sexual activity also prevents the disease **(Fausto et al., 2010).**

Primary prevention is now also achievable through vaccination HPV, which is responsible for 99.7 % of cervical cancer cases worldwide. The screening test used for many years has been the Papanikolaou test (Pap smear), which made the secondary prevention possible Two safe and efficient vaccines have been in use for over a decade **(Voltyraki et al., 2012).**

Nurses can provide health promotion counseling to the patients they serve in their day-to-day practice. They can fulfill a key role in health promotion and disease prevention, and they are in an ideal position to provide health education programs for young girls and women **(Shah &Vyas, 2012).** It is necessary to improve the nursing staff awareness about cervical cancer, who can impart knowledge regarding cervical cancer and its prevention to the general public **(Yoshino et al., 2012).**

Aim of the Study
This study aimed to assess the effect of applying educational sessions on nurses' knowledge regarding cervical cancer

Research hypothesis:
* There will be statistically significant difference between pre and post-test of the nurses' knowledge score regarding cervical cancer.
* After applying the educational sessions, there will be an improvement of the nurses' knowledge regarding the cervical cancer.

II.   Subjects and Method

Subjects
Study Design:
Quasi-experimental design was used.
Study setting:
This study was conducted at the obstetrics and gynecology departments in Mansoura University Hospital over a period of six months from beginning of March to end of August 2015.
Subjects of the study:
This study included all nurses who working in obstetrics& gynecology departments in Mansoura University Hospital.
Sample type:
Convenient sample was used in the study.
Sample size:
The study included (110 nurses), all nurses who working in obstetrics& gynecology departments in Mansoura University Hospital.
Tools of data collection:
One tool was used for collected data as follows
Structured Interviewing Questionnaire Sheet:
It was designed by the researchers after reviewing the related national and international literatures, its purpose was to collect the necessary data which covers the aim of the study. It will be designed in Arabic form,It was divided into three parts:
*Part one:*This part was used to assess the general characteristics of the study sample, e.g. (name, age, residence, marital status, educational level, occupational position, income, and years of experience).
*Part two:*This part was used to assess the previous training programs for the nurses included in the study, e.g. (attendance or participation in any educational program, having previous information about cervical cancer, the source of this information, and attendance of any educational sessions about cervical cancer before).
*Part three:*This part was used to assess nurses' knowledge about cervical cancer, such as (definition, etiology, symptoms, different risk factor, screening methods, treatment and prevention).
Each correct answer was given a score of one and wrong answers a score of zero,then the score of these answers calculated and divided into three categories (from 1:6 was considered poor, from 7: 12 was considered average and from 13: 18 was considered good).

Method
The Pilot Study:
After preparing the tools, a pilot study was carried out on 10%(11 nurses) of the total sample size of nurses (110 nurses) to evaluate the efficiency and relevance of study tools of data collection. The necessary modifications used according to the analysis of the pilot.

Validity of tools:
The tools used were reviewed for validity by three juries specialized in obstetrics and gynecological nursing and their notices were considered.
Reliability: Reliability of the nurses' knowledge tool was measured by using Cronbache's alpha test, and it was equal 0.867, so it founded highly reliable.
Field Work:
The data collected started from over a period of six months from beginning of (March to end of August 2015)from all gynecological and obstetric departments in Mansoura University Hospital after obtaining an official approval.

Data collection divided into three phases as follows:
First phase:
-The researchers introduced themselves, explained and clarified the aim of the study and instructed the participants that they can withdraw from the study at any time with maintenance the privacy. The nurses' general characteristics and their previous educational and training programs were collected, and then the pretest was distributed to be answered in order to evaluate their level of knowledge regarding cervical cancer.

Second phase:application of the educational sessions
-The researchers sought to facilitate the way of teaching before applying the educational sessions, the nurses were classified into four groups {2groups involved 27 nurses and another two groups involved 28 nurses}, this distribution according to their working hours in order to facilitate their attendance to the sessions and to achieve their work duties.
-The content was divided into four interactive sessions "once per week" for each group of nurses for one month. Each session was conducted for 2 hours. The PowerPoint presentation was done, followed by a group discussion.
-These sessions were applied at the educational lecture hall at obstetrical and Gynecological departments in Mansoura University Hospital. The content included information about cervical cancer, etiology, symptoms, screening methods, prevention and the treatment,.......etc, an educational booklet contains all the updated information about cervical cancer with illustrated images was prepared by the researchers.
-Simple explanation Language, recent teaching strategy and media, role playing, educational booklet were used in addition to pen and note were provided to the nurses for getting feedback to facilitate nurses' understanding and attract their attention.

Third phase:
-At the final session for each group, the researchers asked the nurses to apply post-test by using the same knowledge questionnaires to compare their knowledge regarding cervical cancer before and after applying the educational sessions.

Statistical analysis:
The collected data were coded, computed and analyzed statistically utilizing SPSS (Statistical Package of Social Sciences) version 16.0 (SPSS Inc., Chicago, IL, USA). Parametric data were expressed in mean ± standard deviation. Normality of data was first tested by one sample K-S test. Pearson Chi-square tests were used to compare the categorical variables between two different groups. Wilcoxin test for comparison of non parametric data for two paired groups Pearson correlation used for 2 continuous variable one of them or both are normally distributed while Spearman correlation for other variables.

Ethical consideration:
1) Ethical approval was obtained from the research ethics committee of the Faculty of Nursing – Mansoura University.
2) An official permission was obtained from the head of gynecological and obstetric departments and the director of MUH.
3) Oral concept was obtained from nurses after explaining the purpose of the study. Each nurse has the right to withdraw from the study at any time.
4) Privacy and confidentiality of the collected data assured.
5) Tools of data collection didn't touch religious, cultural or ethical issues among nurses.
6) The nurses were informed about their rights to refuse participation or withdraw at any time.

III. Results

Table (1): Illustrates that 47.3% of nurses aged between 31- 40 years old withmean± SD33.90±8.14. It shows that 90% of nurses were technical nurses, 71.8% out of them graduated from secondary school. Also, it represents that 39.10% of nurses had more than 15 years of experience, 73.6% of them from rural area, 90.9% were married, and 87.3% had enough monthly income.

Table (2): Shows that 92.75% of nurses attended educational programs before, 4.9% out of them attended an educational program about cervical cancer. It also shows that 20% of nurses had information about cervical cancer, 63.6% out of them gain their information from work experience.

Table (3): Shows that there was a highly statistical significant difference between the results of post-test compared to pretest in favor of post-test regarding all items of nurses' knowledge about cervical cancer with $p<0.001$.

Table (1): Frequency Distribution of the Studied Nurses According to their General Characteristics.

| Variable	N0. (110)	%
Age		
18-30	39	35.5%
31-40	52	47.3%
41 – 50	13	11.8%
51 -60	6	5.5%
(mean± SD)	33.90±8.14	
Education level		
Secondary school (Diploma)	79	71.8%
Technical institute education	20	18.2%
University education	11	10%
Occupational Position		
Technical nurse	99	90%
Specialist nurse	3	2.7%
Supervisor nurse	8	7.3%
Years of experience		
< 5 years	11	10%
5-10	19	17.3%
11-15	37	33.6%
>15 years	43	39.10%
Residence		
Rural	81	73.6%
Urban	29	26.4%
Marital Relationship		
Single	7	6.4%
Married	100	90.9%
Divorced	1	0.9%
Widowed	2	1.8%
Income		
Enough	96	87.3%
Not enough	6	5.5%
Enough&Save	8	7.3%

Table (2): Frequency Distribution of the Studied Nurses According to their Attendance of Previous Educational Programs.

Variable	N0.	%
Attendance of any educational program before. N=110		
Yes	102	92.75%
No	8	7.3%
Attendance of any educational sessions about cervical cancer. N=102		
Yes	5	4.9%
No	97	95.1%
Having any information about cervical cancer before. N=110		
Yes	22	20%
No	88	80%
Source of this Information. N=22		
Academic study	6	27.3%
Doctors	2	9.1%
Work experience	14	63.6%

Table (3): Comparison between the Nurses' Knowledge regarding Cervical Cancer pre and post-intervention.

Questions	Pretest		Post test		Wilcoxin	P value
	Correct	Incorrect	Correct	Incorrect		
Knowledge of cervix	10.9	98.1	91.8	8.2	9.834	<.001***
Cervical cancer definition	4.5	95.5	92.7	7.3	9.4	<.001***
Incidence	3.6	96.4	76.4	23.6	8.5	<.001***
Causes and Risk factors	63.6	36.4	92.7	7.3	5.3	<.001***
Stages	49.1	50.9	93.6	6.4	7.3	<.001***
Signs & symptoms	21.8	78.2	91.8	8.2	8.8	.001**
Signs and symptoms of late stage	18.2	81.8	85.5	14.5	6.564	.010**
Signs and symptoms of HPV	3.6	96.4	87.3	12.7	5.5	<.001***
Diagnosis	71.8	28.2	90.9	9.1	7.4	<.001***
Tests for detection	55.5	44.5	90	10	8.2	<.001***
Knowledge about Pap smear	10.9	89.1	91.8	8.2	3.4	<.001***
Practices should be avoided before Pap smear	29.1	70.9	91.8	8.2	7.4	<.001***
How the Pap smear done	34.5	65.5	98.1	10.9	9.2	<.001***
Prevention	40	60	91.8	8.2	9.7	<.001***
Knowledge about HPV	2.7	97.3	83.6	16.4	3.2	<.001***
Knowledge about HPV vaccine	8.2	91.8	81.8	18.2	9.3	<.001***
Ways of treatment	23.6	76.4	90.9	9.1	5.3	<.001***
Side effects of Treatment	78.2	21.8	89.1	10.9	8.1	<.001***

Figure (1): Comparison between Total Knowledge Score of Nurses Pre and Post Intervention.
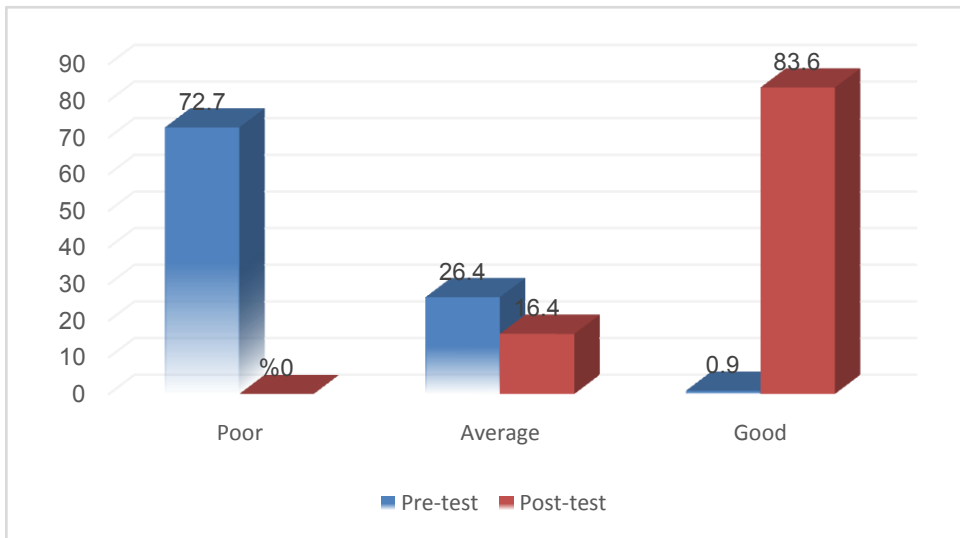
Figure (2): Correlation between nurses' knowledge score post intervention with nurses' age.

Figure (3): Correlation between nurses' knowledge score post intervention with nurses' years of experience.

IV.   Discussion

The current study aimed to evaluate the effect of educational sessions on nurses' knowledge regarding cervical cancer. The findings of this study indicated that, there was statistically significant improvement in the nurses' knowledge about cervical cancer after implementation of the educational sessions in comparison to before. So, the study hypothesis was achieved and it indicates that the educational sessions were effective.

The present study findings showed that the majority of nurses had not previous information about cervical cancer because they did not attend any previous educational sessions about it. This result may be due to nurses' natural workload in their workplace as the numbers of nurses did not had enough time to attend any educational sessions .

This study result came in agreement with **Nottan&Ramling., 2014** in their study about the effect of structured education on knowledge regarding prevention of cervical cancer among nursing students in India as they reported in their study that a large number of study sample had not previous information about cervical cancer.

Meanwhile, the study results contraindicated with **Naik et al., 2012** in their study about awareness of cervical cancer and effectiveness of an educational intervention program among nursing students in India as they mentioned that the majority of nursing students had previous information about cervical cancer and the major source of this information was from teachers. However, in the present study the major source of this information was from work experience. This difference may be due to nurses sample who included in another study were still students and learned from teachers but in the present study the nurses were already employees and had work experience.

The present study showed that there was highly statistical significant difference between the results of posttest compared to pretest regarding all items of nurses' knowledge about cervical cancer whereas their knowledge about signs and symptoms regarding cervical cancer improved from 21.8% to 91.8% and this result came in congruent with **Poonam et al., 2012** who reported in their study about awareness of cervical cancer and effectiveness of the educational intervention program among nursing students in India that nearly a quarter of nurses were aware of symptoms of cervical cancer in pretest are significantly improved in post-test.

Regarding the pretest knowledge of nurses about pap smear. The present study findings revealed that the majority of nurses had incorrect knowledge about pap smear, these findings could be due to that the specimen taken by doctors in most time. So, the opportunity for demonstration this procedure by nurses is very low.

This result came in agreement with **Tiro, 2009** who reflected that only a few numbers of nurses had knowledge of pap smear test pre intervention. Additionally, it came in congruent with **Terefe et al., 2010** in his study about knowledge, practice, and attitude of screening for carcinoma of the cervix among reproductive health clients in hospitals conducted in Ethiopia as they reported that only little number of women had correct knowledge about pap smear test pre intervention. But it contraindicated with **Awodeler&Adenyomoye, 2011** in their result among nurses as observed that half of nurses were aware of pap smear as a screening test for cervical cancer pre intervention.

Regarding to nurses' knowledge about ways of prevention of cervical cancer, there was an improvement in post-test in comparison to pre-test. Similar findings were noted in a study done in Karachi by

Syed et al., 2010 who reported that low level of awareness about cervical vaccine was observed pre intervention.

Moreover, similar findings were noted by **Ahmed, 2010** in the study about awareness and preventive behavior conducted among female university students in South Africa. However, **Nagaraj et al., 2012** came concurrent with this result as he reported that almost of nursing students had correct knowledge about ways of prevention of cervical cancer pre intervention.

The present study results revealed that there were three quarters of nurses had poor knowledge score before the intervention while there was an improvement in their knowledge level as it reported that the majority of them had good knowledge score after intervention which appeared the positive effect of educational sessions According this positive impact the study of **Oluwole et al., 2014** about impact of health education intervention on knowledge and perception of cervical cancer and cervical screening uptake among adult women in rural communities in Nigeria who came in agreement with the present study as they reported that the majority of nurses had poor knowledge about cervical cancer in pre intervention and the knowledge was relatively better and the scores were also improved in post-intervention as the proportion of group participants with very poor knowledge of cervical cancer reduced from 94% to 7.4%. But this result was inconsistent with the findings of **Gerend, 2010.**

The current study showed that there was highly statistically significant correlation between nurses' knowledge with their age, and years of experience after intervention. It came in the same line with **William et al., 2013** and **Moghadam., 2013** as they reported that there was significantly correlated between nurses' knowledge score and their demographic characteristics data.

V.   Conclusion
Based on the results of the present study, the following can be concluded:

The finding of this study concluded that there was statistically significant difference between pre and posttest of nurses' knowledge score. Whereas, there was an improvement in post-test score of the nurses' knowledge regarding cervical cancer after applying the educational sessions in comparison to pre-test score.

VI.   Recommendations
According to the findings of the present study, the following suggestions are recommended:
- Continuous educational programs should be done for the nursing staff to update their knowledge about cervical cancer.
- Encourage and motivate the staff to attend educational programs by offering all facilitation for that.
- Design a nursing guideline of care especially for cervical cancer disease in each gynecological and obstetric departments.
- Set up a counseling room in each department provided with needed resources to enhance quality of life for cervical cancer patients with appropriate referral system.

Further researches
- Replication of this study on large sample in other settings.

References
[1].   **Abiodun, O. A., Olu-Abiodun, O. O., Sotunsa, J. O., &Oluwole, F. A. (2014).**Impact of health education intervention on knowledge and perception of cervical cancer and cervical screening uptake among adult women in rural communities in Nigeria. BMC Public Health, 14(1), 814

[2].   **Addis LB, Hatch KD, Berek JS.(2013).** Intraepithelial disease of the cervix, vagina, and vulva. In: Berek JB (ed). Berek and Novak's Gynecology. 14thed. Philadelphia: Lippincott Williams & Wilkins; 2013: 561-601.

[3].   **Poonam R Naik, K. Nagaraj, AbhaySubhashraoNirgudeGulErtem(2012).** Awareness of Cervical Cancer Risk Factors and Screening Behaviour among Nurses in a Rural Region of Turkey.Asian(Andhra Pradesh). Pacific J Cancer Prev 2012; 10: 735-

[4].   **Baghiany, Moghadam MH. (2013).** Evaluation of knowledge, attitude and practice about Pap smear in married women aged between 15-49 in Yazd. J MazandaranUniv Med Sci. 2013; 40(4): 19-40. (Persian)

[5].   **Dell, D. L., Chen, H., Ahmad, F., & Stewart, D. E. (2010).** Knowledge about human papillomavirus among adolescents. Obstetrics & gynecology, 96(5, Part 1), 653-656.

[6].   **Ertem, G. (2012)** Awareness of Cervical Cancer Risk Factors and Screening Behaviour among Nurses in a Rural Region of Turkey.Asian Pacific J Cancer Prev 2012; 10: 735-738

[7].   **Gerend, M. A., &Magloire, Z. F. (2010).** Awareness, knowledge, and beliefs about human papillomavirus in a racially diverse sample of young adults. Journal of Adolescent Health, 42(3), 237-242.

[8].   **Gesouli-Voltyraki E, aria Labadiari M, et al. (2012).** Comparative assessment of knowledge regarding the Pap test and their receptivity to HPV vaccination between women- health professionals and women of general population, in Greek Province areas. Health Science Journal. 2012; 6 (1), 170-181.

[9].   **Khoo C, TeohS , Rashid A,et al,.(2011).** Awareness of Cervical Cancer and HPV Vaccination and its Affordability in Rural Malaysia. Asian Pacific Journal of Cancer Prevention. 2011; 2:1428

[10]. **Kumar V, Abbas AK, Fausto N, Mitchel RN(2010):** Robbins Basic Pathology. 8 th edition. London: WB Saunders Elsevier; 2010:718–721.

[11]. **McFarland DM, William F.(2013).** Cervical cancer and Pap smear screening in Botswana: knowledge and perceptions. IntNurs Res 2013; 50(3): 167-75.

[12]. **Naik, P. R., Nagaraj, K., &Nirgude, A. S. (2012).** Awareness of cervical cancer and effectiveness of educational intervention programme among nursing students in a rural area of Andhra Pradesh. Healthline, 3(2), 41-5.

[13]. **Nootan R. Mali, Ramling Mali (2014).** Effect of Structured Education on Knowledge Regarding Prevention of Cervical Cancer among A.N.M. Students .International Journal of Science and Research. (JISR) ISSN:3 (3) 2319-7064

[14]. **O. Awodele , A. A. A. Adeyomoye , D. F. Awodele , V. Kwashi, I. O. Awodele, D. C. Dolapo (2011).** A Study on Cervical Cancer Screening Amongst Nurses in Lagos University Teaching Hospital, Lagos, Nigeria. J CancEduc 2011.

[15]. **Olumide A,Oluwatosin O,Abiodun,John O Sotunsa andFrancis A Oluwole (2014).** Impact of health education intervention on knowledge and perception of cervical cancer and cervical screening uptake among adult women in rural communities in Nigeria. BMC Public Health 2014, 14: 814. Available at: http//www.biomedcentral.com/1471-2458/14/814.

[16]. **Shah V., Vyas S., Singh A., and Shrivastava M(2012).** Awareness and knowledge of cervical cancer and its prevention among the nursing staff of a tertiary health institute in Ahmedabad, Gujarat, India. cancer. 2012; 6:270.

[17]. **Syed Faizan Ali, SamiaAyub, NaumanFazalManzoor, Sidra Azim, MuneezaAfif, NidaAkhtar et al., (2010)** Knowledge and Awareness about Cervical Cancer and Its Prevention amongst Interns and Nursing Staff in Tertiary Care Hospitals in Karachi, Pakistan. PLoS ONE 2010; 5 (6): 1-6

[18]. **Tiro, J. A., Meissner, H. I., Kobrin, S., &Chollette, V. (2009).** What do women in the US know about human papillomavirus and cervical cancer?. Cancer Epidemiology and Prevention Biomarkers, 16(2), 288-294.

[19]. **TsetsekouE,Gesouli-Voltyraki E, et al,. (2010).** The knowledge of women in a Greek Province regarding the cervical cancer, its prevention capabilities and the Pap test.Health Science Journal. 2010; 4(2), 101-109.

[20]. **Urasa M, Darj E (2011).** Knowledge of cervical cancer and screening practices of nurses at a regional hospital in Tanzania. African Health Sciences 2011; 11(1): 48-57

[21]. **WHO/ICO,(2010).**Information Centre on HPV andCervical Cancer (HPV Information Centre).Human Papillomavirus and Related Cancers inEgypt. Summary Report. 2010. Available at www.who.int/hpvcentre

[22]. **World Health Organization (2010).** Strengthening the Role of Nursing and Midwifery in Non communicable Diseases (NCDs) (World Health Organization, Geneva, Switzerland). Obstetrics and Gynecology (7th ed.). pp. 408–11. ISBN 9781-4511/44/314.

[23]. **YifruTerefe and AsheberGaym (2012).** Knowledge, attitude and practice of screening for carcinoma of the cervix among reproductive health clients at three teaching hospitals, Addis Ababa, Ethiopia. Ethiopian Journal of Reproductive Health 2012; 2 (1): 14-24.

[24]. **Yoshino Y., Ohta H., Kawashima K., et al; (2012).** The knowledge of cervical cancer and screening adherence among nurses at a university-affiliated hospital in Japan. Kitasato Med J. 2012; 42: 6-14