Nursing Intervention toward Dissemination of Pap Smear Practicing for Prevention and Early Detection of Cervical Cancer

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Abstract: **Cervical cancer is a major cause of death in women around the world. Across the globe, over eighty percent of the deaths from cervical cancer occur in low-income countries and the developing world, where cervical cancer is the most common cancer in women. Human papillomavirus (HPV) are linked to the pathogenesis of cervical cancer and its precursors. Vaccines are now available to prevent the types of HPV that most commonly cause cervical cancer. Effective screening program include pap smear test will help in early detection of the disease and decreasing mortality rate.**

Aim of: the current study is to provide nursing intervention toward dissemination of Pap smear practicing for prevention and early detection of cervical cancer.

Study design: A Quasi-experimental one group pre-test, post-test design was used.

Sampling: purposive sample including one hundred women admitted to family planning clinic in their reproductive age, married and accepted to participate in the study.

Data collection tools: includes three tools; first tool for studied women socio-demographic characteristics, second tool for assessing studied women's knowledge regarding cervical cancer, Pap smear and HPV vaccine and third tool for assessing women's satisfaction.

Results: this study showed that there is highly significant difference in women's level of knowledge between pretest and posttest, regarding Pap smear test, eighty-six percent of study sample had negative Pap smear screening, while five percent of them had positive Pap smear screening result. The most of the studied women were satisfied with the study.

Conclusion: the present study concluded that the studied women had poor level of knowledge regarding cervical cancer, Pap smear and HPV vaccine in pretest, which is conversely changed in posttest, with highly significant statistically between pretest and posttest.

Recommendation: cervical cancer screening rate significantly could be improved by giving women better information and raising their awareness regarding cervical cancer screening, HPV vaccination.

Keywords: **Cervical Cancer- Human papilloma virus- cervical cancer immunization- Pap smear screening.**

1. INTRODUCTION

Cervical cancer remains an important public health problem in developing countries. Worldwide approximately 528,000 women are diagnosed with cervical cancer and266, 000 women die of the disease each year **(Ferlay, 2015).**According to World Health Organization, risk factors for cervical cancer include early marriage, Immune system deficiency, Herpes, Smoking, Race, using Oral contraceptives, exposure to diethylstilbestrol **(WHO,2014).**

Cervical cancer can be effectively controlled through primary and secondary prevention such as, cervical screening and prophylactic HPV vaccination. Since the Pap smear test was introduced for routine screening, a substantial decline has been witnessed in cervical cancer deaths in developed countries in the last four decades **(Abudukadeer, 2015).**

Pap smear tests have decreased annual worldwide mortality rates associated with cervical cancer by approximately 2% each year since its introduction in 1941.The test is considered the most effective cancer-screening technique ever discovered. This approach is simple, cost-effective, and could promote a "screen and treat" mechanism that entails diagnosis and treatment at a single visit **(Mupepi, 2015).**

In 2006, the Centers for Disease Control (CDC) Advisory Committee on Immunization Practices (ACIP) recommended a 3-dose HPV vaccination series as a routine, vaccine for girl's age 11–13 years old. Vaccine administration is optimal at this age because adolescents have the best immunoresponse to the vaccine and likely have not yet been exposed to the virus **(Bodson, 2016).**

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Nurses today assume multiple roles, such as patient advocate, care provider, and research investigator. At International Conference on Cervical Cancer, nurses presented original research describing these roles in the context of cervical cancer screening, prevention, and detection. In the 21st century, nurses interested in cervical cancer control expect to broaden the scope of their care and their research roles further by continuing to improve training, advocating screening, and helping to establish new sources of funding for research (Hiliton ,2016).

Significant of the study:

Cervical cancer is the second most common type of cancer among women worldwide. Egypt has a population of 28.37 million women aged 15 years and older who are at risk of developing cervical cancer. Current estimates indicate that every year 866 women are diagnosed with cervical cancer and 373 die from the disease, this according to Information center on HPV and cancer, March 2013. The fact that cervical cancer rarely present any symptoms in its early stages, highlight the importance of regular screening for the disease. Therefore, this study will be conducted to promote using of Pap smear as screening test to reduce the morbidity &mortality rate from cervical cancer through enhanced prevention, early detection of cases.

Aim of the study:

The aim of current study is to provide nursing intervention toward dissemination of Pap smear practicing for prevention and early detection of cervical cancer. This aim will be fulfilled through the following:

1. Assess of women's knowledge regarding cervical cancer.

2. Assess of women's knowledge regarding Pap smear test.

3. Raise women's awareness regarding Pap smear screening test.

4. Raise women's awareness regarding cervical cancer immunization.

5. Provide guidance for women with negative Pap smear test's result toward cervical cancer vaccination.

Hypotheses:

H1.The studied women will have the willing to participate in Pap smear screening test.

H2. The study will confirm some cases with positive Pap smear result and recommended action for these cases will be referral.

H3.Some studied women with negative result will have the willing to take cervical cancer vaccination.

H4.Nursing intervention will be effective in dissemination of Pap smear practicing among   women and this will be reflected on cervical cancer prevention and early detection.

2. SUBJECTS AND METHODS

I. Technical design

The technical design for this study includes the research design, study setting, subject of the study, and tool s of data collection.

Study design:

A Quasi-experimental design "one group pre-test, post-test" was used for this study.

Study setting:

The study was carried out at carried out in family planning clinic and early detection unit at Ain Shams University for obstetrics and gynecology.

Sampling

Sample type: A purposive sample was selected according to inclusion and exclusion criteria as following:

- **Inclusion criteria:**

1) Women in reproductive age.

2) Married women.

- **Exclusion criteria:**

1) Women with total hysterectomy.

2) Women with any type of cancer.

3) Women with previous history of Human Papilloma Virus.

Sample size: one hundred women were selected according to the criteria of selection to participate in this study. Sample size equation: at 95 confidence, power of the study. The researcher depended on the following equation to calculate the sample size

n= $\frac{NZP(1-P)}{ZP(1-P)}$

n= $\frac{NZP(1-P)}{d\,(N-1)+Z\,P(1-P)}$

n= sample size

N= total society size (650 women)

D= error percentage (0.5)

Z= the crosspanding standard class of significance 95%= 1.96

n= $\frac{650\times3.3\times0.1\times0.9}{0.0025\times649+3.3\times0.1\times0.9}$

n= $\frac{193}{1.91}$ =100 women

Sample technique: the study sample was selected from hospital registration book from May2017 to August 2017.

Tool validity and reliability:

Tools validity and reliability were done by panel of expertise in the field of maternal and newborn health nursing. The tools were reviewed for simplicity of language, comprehensiveness and understandability. The reliability was done by crombach Alpha coefficient test equal 65%

Data collection tools:

The data for this study was collected by using three tools as follows:

I) The first tool: structured interviewing questionnaire

It was designed by the researcher, consisting of two parts;

First part: Socio-demographic data: It's designed to collect data such as: age, level of education, income, occupation, weight, and height.

Second part: Obstetrical history: It was concerned with age of menarche, number of pregnancy, number of abortion, number of deliveries, type of deliveries, previous family planning methods and history of genital infection.

II) The second tool: Knowledge assessment sheet

It was developed by the researcher to assess women's level of knowledge regarding cervical cancer, Pap smear and cervical cancer immunization, this tool was applied before and after nursing intervention to assess the effect of educational session on women's knowledge, it contains a total of 27items, which reflects three dimensions of knowledge:

I. Knowledge about cervical cancer (9items) i.e. "Definition of cervical cancer, symptoms, risk factors, causes and diagnosis of cervical cancer.

II. Knowledge about Pap smear screening test (8items) i.e. "Purpose of pap smear, age of screening, stop practicing Pap smear and berries for Pap smear screening".

III. Knowledge about cervical cancer immunization (10items) i.e. ", age of vaccination, method of administration and its side effects.

Scoring system: it is based on women responses to 27 items on a 3-point Likert scale "poor knowledge, average knowledge, good knowledge". Total score of knowledge was 81. The knowledge level was weighted according to items included in each question, the answer of the questionnaire were classified to three categories score (2) for good knowledge, (1) for average knowledge and (0) for poor knowledge.

The score of total knowledge was classified as the following:

- Good ≥ 75%, which equal 62 to 81 from total score of knowledge.

- Average 50%-75%, which equal 41 to 61 from total score of knowledge.

- Poor <50% which equal 40.5 from total score of knowledge.

The third tool: Assessment of women satisfaction:

This tool was adopted form of Albert cervical cancer screening program used at the end of the study to assess women's satisfaction. It contains 8 items i.e. "keeping privacy during the period of study, given hard copy, way of communication, and information about the next follow up".

Scoring system: it is based on women responses to 8 items on a 3-point Likert scale "1=satisfied, 2=Neutral, 3=Dissatisfied. Score (1), indicating a higher level of satisfaction among the studied women regarding nursing intervention. Conversely, score (3), indicating low satisfaction. Higher scores reflect more positive perceptions regarding prevention of cervical cancer, Pap smear practicing, cervical cancer immunization

Pilot study:

A pilot study was conducted on 10% of subject which was 10 women of study's sample. The aim of the pilot study was to determine the clarity, feasibility and applicability of the study tools, and estimate the time needed for completing the questionnaires and also to test the clarity of questions and simplicity of language. Necessary modifications were done. Those participants of pilot study were excluded from the study sample.

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A) Field work:

The field work started at the beginning of May 2016 after obtaining all official permissions. It was completed by the end of June 2017, consuming 12 month.

The study was carried out in the following stages.

- Preparing and planning stage: at this stage tools of data collection were developed, and the administrative permissions were obtained to carry out the study. The researcher reviewed international & national articles and text book related to the research point, then an educational booklet was prepared. This stage takes about 3 month.

- Implementation stage: This stage takes about 9 month, the researcher visited the study setting one day per week from 9 am to 2 pm as the studied women were selected, and the researcher explained the aim of the study and obtained a verbal consent from the studied women to participate in the study. Then the data collection stage was carried out in 4 steps as following:

I) Pre-test knowledge assessment interviewing questionnaire was distributed to assess women's knowledge about cervical cancer, Pap smear screening test and cervical cancer immunization. Fulfilling of the pretest consumed 15 minute by educated woman. For illiterate women, the researcher fulfilled the questionnaire instead of them according to their answer and response.

II) The educational session was given about cervical cancer (causes symptoms, risk factors, method of diagnosis and prevention), Pap smear screening test (definition of Pap smear, importance of Pap smear, timing of screening, when to stop screening) and HPV vaccine (, method of vaccine administration, side effects of HPV vaccine, contraindication). The duration of the session consumed around 2 hours. Simple Arabic language was used to fit all women's level of knowledge.

The researcher used an audiovisual material "video" for showing the studied women Pap smears screening procedure. A previously prepared educational booklet was distributed as guidance for them for any further information.

III) Posttest knowledge assessment interviewing questionnaire was distributed to assess women's knowledge about cervical cancer, Pap smear screening test and cervical cancer immunization. Fulfilling of the posttest consumed 30 minute by the woman. For illiterate women, the researcher completed the questionnaire for them according to their answer and response.

The results of posttest was used to evaluate the effect of the educational session on women's knowledge

IV) Pap smear practicing:

After posttest assessment sheet was applied, Pap smear test was done to the women who accepted to perform the test at oncology early detection unit in Ain Shams hospital for obstetrics and gynecology. The researcher followed up the Pap smear results and every participant was reported with the result of the test. Women with negative Pap smear results were guided to have HPV vaccination, educational booklet was redistributed for women for further information. Women with positive Pap smear results were advised to seek medical care and undergoing more diagnostic tools, Health teaching regarding the importance of regular Pap smear screening was provided for the studied women.

V) Assessment of women satisfaction

After Pap smear practicing, studied women satisfaction was assessed regarding the nursing intervention.

III. Administrative design:

Official letters were obtained from the dean of faculty of nursing Helwan University, deans of 5 faculties in Helwan University to carry out this study and the directors of Ain Shams hospital for obstetrics and gynecology hospital.

Ethical consideration

The study protocol was approved by the ethics and research committee in the faculty of nursing, Helwan University. Official permissions to conduct the study were secured. All participants gave their oral informed consent to participate in the study sample. The studied women were informed about the study purpose, procedure and about their rights to refuse or withdraw without giving reasons. They were reassured about the anonymity of the information collected, and that it would be used only for the purpose of scientific research. They also informed that Pap smear screening test have no harm or risks for them.

Statistical design:

Data entry and quantitative data analysis was done by the IBM - SPSS (Statistical Package for the Social Sciences) software (Version 20.0) and AMOS 20.0.0 (Build 817).

Data were presented, analyzed and tabulated using descriptive statistics in the form of frequencies and percentage for qualitative variables, means and standard deviations for qualitative variables, test of significance(Chi-Square test and T test) were applied to test the study hypothesis, correlation coefficient(r-test) was calculated between knowledge and practice and high Statistical significant was considered at P value <0.000.

Limitation of the study:

1- Changing the study setting more than one time due to difficulty in obtaining administrative letters so or some women refused to perform Pap smear test.(setting changed from Helwan university, 5 faculties were selected " faculty of education, faculty of law, faculty of commerce, faculty of social services , faculty of computer science" and administrative building inside Helwan university to Helwan university to maternal and child health center at Ezbet Elwalda).

2- Cost of the test.

3. RESULTS

Table (1): Distribution of the studied women according to their socio demographic characteristics (N= 100).

Items	Studied women	
	no	**%**
Age		
18 < 24	13	13.0
25 < 34	43	43.0
35 < 45	43	43.0
More than 45 years	**1**	1.0
Mean ± SD	33.09 ± 7.66	
Women's occupation		
Working	30	30.0
Not working "House wife"	70	70.0
Studied women's education		
Illiterate	5	5.0
Read and write	12	12.0
Primary school	5	5.0
Diplome	45	45.0
Bachelor degree	29	29.0
Post graduate	4	4.0
Husband's level of education		
Illiterate	5	5.0
Read and write	7	7.0
Primary school	5	5.0
Diplome	52	52.0
Bachelor degree	26	26.0
Post graduate	5	5.0
Husband's occupation		
Worker	35	35.0
Employee	25	25.0
Private work	40	40.0
Income		
Satisfied	34	34.0
Not satisfied	66	66.0
Studied women's weight		
Mean ± SD	**79.40 ± 15.64 (Kg)**	

Table 1: shows that 86% of studied women aged from 25-45 years, with Mean ± SD of age 33.09 ± 7.66 years. Seventy percent of studied women were house wives. Regarding husband's level of education high percentage 52% had a secondary school education. According to husband's occupation, 40% of them had private work. Regarding studied women's education, 45% of them had a secondary school education, followed by 29% of them had bachelor degree, 5% of them were illiterate.

Table (2): Distribution of the studied women according to their obstetrical history (N= 100).

Items	Studied women (n= 100)	
	No	**%**
Menarche		
Mean ± SD	13.4 ± 1.61 years	
Duration		
Mean ± SD	5.86 ± 2.43 day	
Interval		
Mean ± SD	27.3 ± 7.3 day	
Marital age		
18 – 25	89	89 .0
26 – 30	11	11.0
Marital Duration		
Mean ± SD	11.4 ± 7.20 years	
Pregnancy Age		
Less than 25 years	83	83.0
More than 25 years	17	17.0
Numbers of pregnancy times		
1-4	81	81.0
More than 5	19	19.0
Numbers of abortion		
None	57	57.0
one	24	24.0
two	16	16.0
3 times or more	3	3.0
Numbers of delivery		
1 – 3	84	84.0
4 and more	16	16.0
Type of delivery		
Normal delivery	36	36.0
Cesearn section	64	64.0
Family planning method		
Intrauterine device	52	52.0
Hormonal methods	40	40.0
Natural method	8	8.0
History of genital infection		
Yes	59	59%
No	41	41%

Table 2: shows that the mean ± SD of menarche was 13.4 ± 1.61 years, for menstrual duration was 5.86 ± 2.43day and for menstrual interval was 27.3 ± 7.30day.eighty-nine percent of studied women were married in the age of 18<20 years old, with mean ± SD of 11.4 ± 7.20. Eighty-three percent of studied women were pregnant at less than 25 years old, 81%of them get pregnant from 1 to 4 times. Regarding abortion times, 57% of studied women never experienced abortion, followed by (24%) of them had one abortion, while 19% of them experienced abortion 2 times or more. In addition, 16% of studied women had delivered ≤3 .Approximately, 64% of studied women had Cesearn section. 52% of studied women utilizing intrauterine device, while 40% of them utilizing hormonal method. 59% of studied women had genital infection.

Table (3): Distribution of the studied women according to their level of knowledge regarding cervical cancer, Pap smear and HPV immunization (N=100).

Items	Studied women(N=100)				Chi-square	P Value
	pretest		posttest			
	no	%	No	%		
Definition of cervical cancer						
Correct and complete	1	1.0	67	67.0	178.69	.000
Correct and incomplete	5	5.0	33	33.0		
Incorrect and incomplete	94	94.0	0	0.0		
Risk factors of cervical cancer						
Early marriage	8	8.0	6	6.0		
Multiple partners	0	0.0	4	4.0	172.869	**.000**
Genital infection	6	6.0	2	2.0		
Hormonal family planning method	1	1.0	7	7.0		
Smoking	14	14.0	0	0.0		
Immune deficiency	24	24.0	0	0.0		
All the above	0	0.0	80	8.0		
Don't know	47	47.0	1	1.0		
Symptoms of cervical cancer						
Vaginal bleeding	18	18.0	3	3.0		
Pain during intercourse	5	5.0	1	1.0		
Vaginal discharge	5	5.0	1	1.0	160.581	
Menorrhagia	0	0.0	1	1.0		
Pelvic pain	4	4.0	4	4.0		.000
Bleeding after intercourse	3	3.0	2	2.0		
Bleeding after menopause	2	2.0	5	5.0		
All of the above	1	1.0	83	83.0		
Don't know	62	62.0	0	0.0		
Diagnosis of cervical cancer						
Laboratory investigation	27	27.0	4	4.0		
Cervical biopsy	12	12.0	0	0.0		
Pap smear	2	2.0	18	18.0	172.007	.000
Colposcopy	4	4.0	3	3.0		
All of the above	0	0.0	75	75.0		
Don't know	55	55.0	0	0.0		
Purpose of Pap smear						
Detect of sexually transmitted disease	2	2.0	2	2.0		
Detecting of female genital infection	8	8.0	4	4.0		
Prevention and detecting of cervical cancer	9	9.0	23	23.0	159.458	.000
All of the above	0	0.0	71	71.0		
Don't know	81	81.0	0	0.0		
Starting of Pap smear practicing						
Less than 18 years old	0	0.0	7	7.0		
More than 18 years old	4	4.0	93	93.0	184.660	.000
Don't know	96	96.0	0	0.0		
Stopping of Pap smear Practicing						
45 years old	0	0.0	2	2.0		
55 years old	0	0.0	6	6.0	196.040	.000
More than 68 years old	0	0.0	91	91.0		
Don't know	100	100.0	1	1.0		
Practicing of Pap smear after partially hysterectomy						
Yes	6	6.0	85	85.0	158.916	.000
No	7	7.0	14	14.0		
Don't know	87	87.0	0	0.0		
Age of having the vaccine						
Girls less than 13 years old	0	0.0	12	12.0		
Girls from 13 to the 16 years old	0	0.0	83	83.0	196.667	**.000**

More than 26 years old	1	1.0	5	5.0		
Don't know	99	99.0	0	0.0		
Contraindication of the vaccine					132.322	.000
Woman who has sensitivity from vaccine ingredient	15	15.0	6	6.0		
Pregnant woman	23	23.0	3	3.0		
Lactated woman	3	3.0	0	0.0		
All of the above	10	10.0	90	90.0		
Don't know	49	49.0	1	1.0		
Should women stop practicing Pap smear after vaccination?					181.408	.000
Yes	3	3.0	18	18.0		
No	1	1.0	81	81.0		
Don't know	96	96.0	1	1.0		

This table 3: illustrates that there was highly significant improvement between pre- post educational sessions regarding women's level of knowledge (P value .000). Regarding definition of cervical cancer, there was a gap in women's knowledge between pretest and posttest. As in pretest 94% of them didn't know the right answers, while in posttest 67% of them gave correct and complete answer. As in pretest, 47% of studied women didn't know any risk factors for cervical cancer, while in posttest 80% of them gave all the above answer. Regarding symptoms of cervical cancer 83% of them gave all the above answer, while in pretest 62% of them didn't know any symptoms of cervical cancer. Regarding diagnosis of cervical cancer, in posttest, 18% of them selected Pap smear while 75% of them selected all of the above. Regarding purpose of Pap smear, 81% of studied women didn't know the answer, while in posttest 71% of then gave all the above answer. in pretest, 96% of studied women didn't know when to start Pap smear, while in posttest 93% of them selected ≤18 years. Hundred percent of studied women didn't know when to stop Pap smear practicing, while in posttest 91%% of them selected ≤ 68 years old. Eighty five percent of studied women agreed to stop Pap smear practicing in posttest, while 87% gave didn't know answer in pretest. Related to the age of vaccination, 99% of studied women didn't know the answer at pretest, while at posttest 83% of them selected from 13-16 years old. A according to vaccine's contraindication, at pretest 49% of studied women didn't know the answer, while at posttest 90% selected all of the above. Regarding stop Pap smear practicing after vaccination, at pretest 96% of studied women didn't know answer, while at posttest 81% of them disagree.
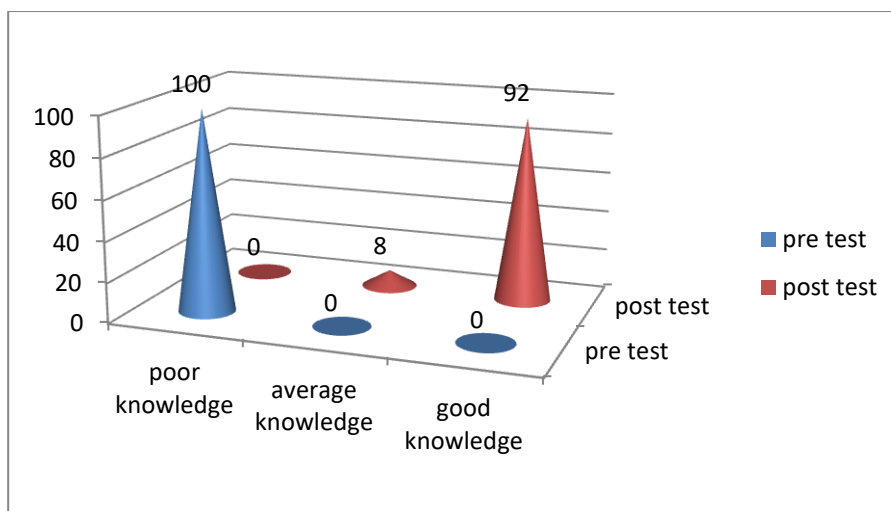

Figure (1): Women's level of total knowledge "pre- post educational sessions" (N=100).

This figure shows that there is highly significant difference in studied women's total knowledge between pre and post nursing intervention with value 0.000.As 100% of studied women had poor knowledge at pre education test, while 92% of them had good level of knowledge and few percentages of them (8%) had an average knowledge at post education test.
In addition, the mean total score of knowledge was highly significant increased from 11.5 to 68.2 in pre and post nursing intervention respectively (P=0.000)

Table (4): Distribution of the studied women according to their level of satisfaction regarding the nursing educational program (N= 100). (Post- test)

Items	Intervention group n= 100	
	no	%
Educational session		
Satisfied	91	91.0
Neutral	9	9.0
Not satisfied	0	0.0
Answering questions		
Satisfied	91	91.0
Neutral	9	9.0
Not satisfied	0	0.0
Educational booklet		
Satisfied	89	89.0
Neutral	10	10.0
Not satisfied	1	1.0
Keeping privacy		
Satisfied	94	94.0
Neutral	6	6.0
Not satisfied	0	0.0
Information about how to obtain test's result		
Satisfied	90	90.0
Neutral	7	7.0
Not satisfied	3	3.0
Information about next fellow up		
Satisfied	87	87.0
Neutral	13	13.0
Not satisfied	0	0.0
Communication with the researcher		
Satisfied	93	93.0
Neutral	7	7.0
Not satisfied	0	0.0

This table 4 shows that an appreciable number of studied women had satisfaction regarding educational sessions, educational booklet, keeping privacy, information related to Pap smear results and communication with the researcher, while only few percentages of them were neutral and dissatisfied.
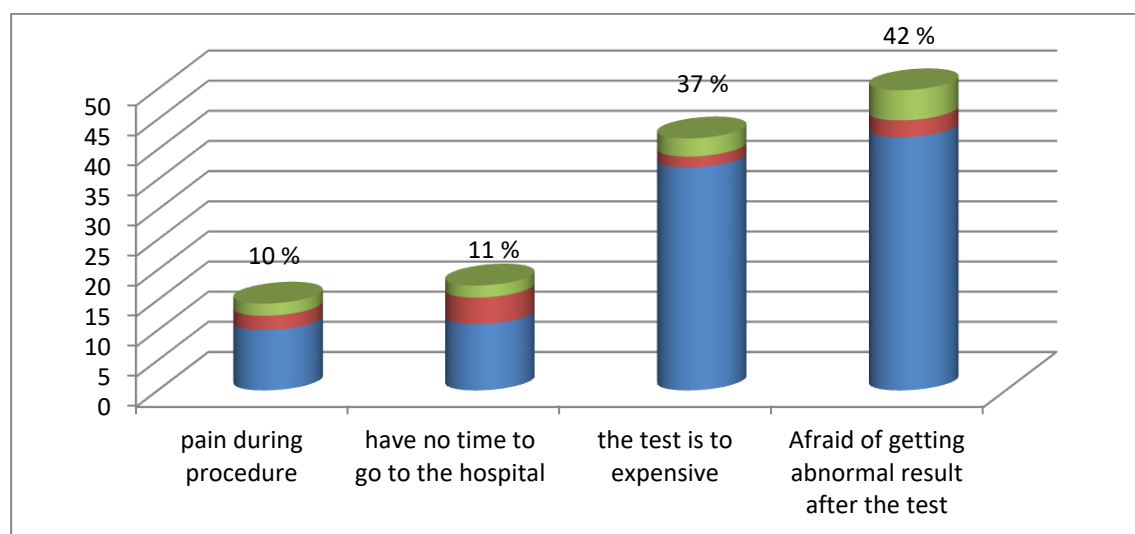
Part IV: Pap smears practicing

Figure (2): Women's barriers for Pap smear practicing (N=100)

As regard women's barriers for Pap smear practicing, this figure shows that 42% of studied women reported that they were afraid of getting abnormal results, and 10% of them reported pain during procedure as barriers for Pap smear practicing.
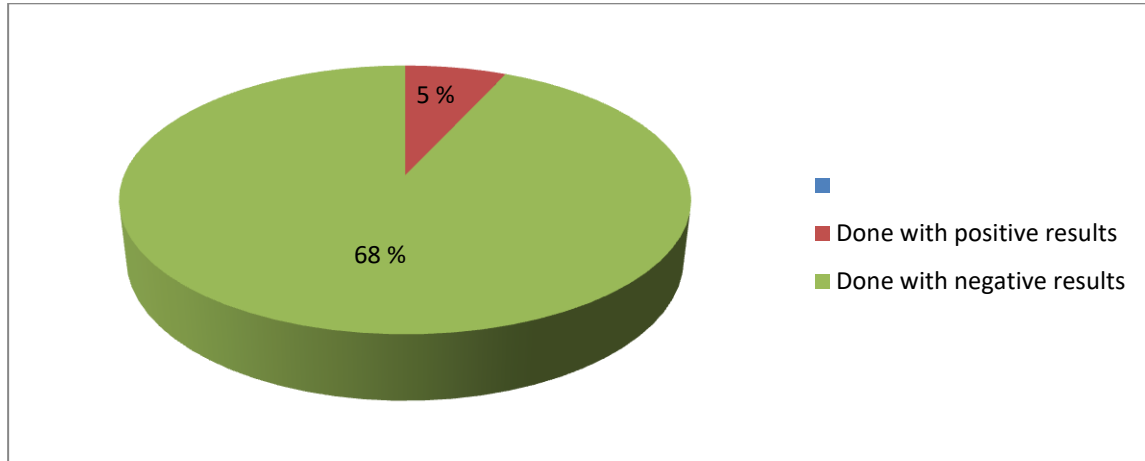

Figure (3): Women's Pap smear practicing (N= 100).

This figure shows that the direct effect of nursing educational sessions on women's Pap smear practicing, as 86% of studied women participate in Pap smear screening.

Table (5): Correlation coefficient (r) association between studied women's total score of knowledge and their age & their level of education (N=100).

Variables	Age		Level of education	
	r	Sig. 2 tailed	r	Sig. 2 tailed
Level of knowledge (pretest)	-0.043	0.67	0.17	0.1
Level of knowledge (posttest)	*0.21-	.03	*0.23	0.02

*correlation is statistically significant at the 0.01 level (2 tailed).

*correlation is statistically significant at the 0.05 level (2 tailed).

This table 5 illustrates: the pattern of correlation association between studied women's total score of knowledge (pretest) and their age & their level of education. It's clearly that there is weak non-significant correlation between total score of knowledge and level of education(r=0.17, p=0.1). In addition there is weak negative non-significant correlation between women's total score of knowledge (pretest) and their age (r=-.043) at P value 0.67.There was a negative statistically significant correlation between studied women's total score of knowledge (posttest) and their age (r= - 0.21) at P value .03. In addition there was positive significant correlation between women's total score of knowledge and their level of education (r=.23) at P value.02.

4. DISCUSSION

Cervical cancer is the most common gynecologic cancer in women. There were an estimated 528,000 new cases and 266,000 deaths from cervical cancer worldwide in 2012, 87 % cervical cancer deaths occur in the less developed regions **(Uzun, 2014).** Cervical cancer starts out very slowly and initially begins as a precancerous. Woman who have not had a routine Pap smear or have not followed up on an abnormal Pap smear are more likely to develop cervical cancer **(Youngkin, 2013).**

The findings of the current study revealed that the majority of studied women were aged from 25-34 years old, while the minority aged 18- 24 years old and about one third of them aged from 35- 45 years with Mean ± SD of age 32.20 ± 7.10. There was a statistically significant direct (positive) correlation between studied women's level of knowledge and their age.

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Regarding women's level of education, the present study find out that there was no statistically significant correlation between their level of education and their level of knowledge. Despite of the majority of studied women had a middle level of education, about one quarter of them had a bachelor degree, it is worrisome that great proportions of them were not aware with Pap smear and cervical cancer. Conversely **(Al-Kudairi, 2017),** found that there was directly proportion correlation between the between level of knowledge and level of education.

According to the obstetrical history, the current study figured out that the mean of menarche's age was 13.4, the mean of menstrual duration was 5.86 and the mean of menstrual interval was 27.3.

The current study showed that the majority of studied women were belong to the age between 18-25 years when they were married, while the minority of them get married in age between 26-30 years old, which is similar to **(Goyal,2013),** who found that the majority of women get married between 21-30 years old. This similarity may be due to the age of respondents is more than 20 years old and marital age according to Egyptian laws is 18 years old or more.

This study show that, about the majority of studied women get pregnant for the first time at the age less than 25 years old, while tweenth of them became pregnant at the age more than 26 years old. The majority of studied women experienced pregnancy more than 3 times. On the line **(American cancer association, 2012)**, ensuring that having pregnancy for three times or more is accepted to as a risk factor for cervical cancer for a reason couldn't be understood yet.

This study figured out that less than two third of studied women had scerean section, while more than one third of them experienced vaginal delivery. Conversely **(Ebril, 2012),** about three quarters of participants had vaginal delivery. This difference may be due to in Egypt, CS becomes a trend, a lot of women prefer it rather than vaginal delivery.

According to numbers of delivery, a study determined that the majority of studied women gave birth 2-3 times, while only few percentages gave births more than 4 times, which agreed with **(public health agency of Canada, 2012),** which published that women who gave birth more than 3 times are at risk for cervical cancer.

Regarding level of women's knowledge The present study revealed that there was highly statistically significance in women's knowledge with P value .000 .As In pretest, The level of women's total knowledge regarding cervical cancer, Pap smear and cervical immunization was low as the majority of them have poor level of knowledge, while in posttest there was an improvement in their level of knowledge as the most of studied women had good knowledge and minority of them had an average level of knowledge. This figuring out an alarm concern with the importance of educational and raising awareness sessions for prevention and early detection of cervical cancer.

According to symptoms of cervical cancer, the present study revealed that there was highly statistically significance in women's knowledge with P value .000. As in response to pretest less than one quarter of studied women identified vaginal bleeding, minority of them identified vaginal discharge; the majority of them didn't know any signs of cervical cancer and only few percentages linked pain during sexual intercourse and pelvic pain as a frequent signs for cervical cancer. Conversely, **(Verrna,2013),** found that the most of studied women identified foul smelling discharge, Post coital bleeding and post-menopausal as the most frequent signs. These differences may be due to the differences between the study's samples as at this study the sample was ordinary women, while other study's sample was nurses who should have better knowledge of preventable disease like cervical cancer.

According to diagnosis of cervical cancer, the present study revealed that there was highly statistically significance in women's knowledge with P value .000. The study showed that in pretest, around half of studied women didn't know how cervical cancer could be diagnosed, and less than one third of them thought that the disease could be diagnosed through routine laboratory investigation; the minority of them gave Pap smear as a diagnostic tool. After educational session, there was improvement in their level of knowledge as the majority of them gave correct complete answer, while less than one quarter of them gave correct incomplete answer.On the same line **(Ericson, 2016),** reported that cervical cancer could be diagnosed through a combination of Pap smear "as a tool of choice for cervical cancer for cervical cancer detection", colposcopy and cervical biopsy.

Regarding the purpose of Pap smear, the present study revealed that there was highly statistically significance in women's knowledge with P value .000. In pretest the current study figured out that, the majority of studied women didn't know the main purpose of Pap smear, while few percentages of them gave one or more correct answer. While in posttest, there was

improvement in their level of knowledge, as the majority of studied women gave correct answer, while less than one third of them gave correct incomplete answer. This highly significant difference between pre, posttest indicates the presence of misconception about the disease and its preventive measures in the community.

According to women's level of knowledge regarding stating of Pap smear. The present study revealed that there was highly statistically significance in women's knowledge in pretest compared to posttest with P value .000. The study finding revealed that the majority of studied women the most didn't know when to start Pap smear practicing and total study sample didn't know when to stop practicing Pap smear. On the same line **(Abu-Zaid, 2017),** showed that 82% of women didn't know when to start Pap smear practicing, while 93.9% of them didn't know when to stop the screening.

According to women's level of knowledge regarding cervical cancer immunization. The present study revealed that there was highly statistically significance in women's knowledge in pretest compared to posttest with P value 0.000. This study showed that, the studied women had limited knowledge regarding cervical vaccination. As in pretest, less than two third of studied women didn't know about cervical vaccine and the age of up taking the vaccine. Only few percentages of them gave the correct answer. Conversely, **(Al-Naggar 2012)** determined that the knowledge prevalence of HPV vaccination was 77.9% among school girls. This difference may be due to the government in Malaysia now offer a free vaccine for girls aged 13 years old and the government in the recent years has heavily promoted the vaccine in the media and public campaigns.

Regarding contraindication of the vaccine, the present study revealed that there was highly statistically significance in women's knowledge in pretest compared to posttest with P value .000. This study showed that studied women had limited knowledge regarding contraindication of cervical cancer vaccination. As in pretest, less than half gave don't know answer, about one quarter select pregnancy as contraindication for vaccine, less than tweenth of them select sensitivity from vaccine ingredient, the minority of them select lactated women. In posttest, the most of the studied women gave correct answer, while only few percentages gave correct incomplete answers. This reinforces the importance of educational session on raising awareness. On the same line **"world health organization, 2017",** reported that HPV vaccination shouldn't be given to the pregnant women, during lactation and to women who has sensitivity from vaccine ingredients.

In response to stop Pap smear after vaccination, the present study revealed that there was highly statistically significance in women's knowledge in pretest compared to posttest with P value .000. The study confirmed that the most of the studied women didn't have knowledge regarding stopping practicing of Pap smear after cervical cancer vaccination, while minority of them gave wrong answer. In posttest, there was marked change in their level of knowledge as, about four fifth of studied women gave correct complete answer, while only one fifth gave correct incomplete answer. On the same line **"National cancer institute, 2015**", published that routine Pap smear practicing should be done after vaccination. As vaccine's immunity efficiency is around 70%, as well as vaccine should be given to infected women to protect the women from other types of HPV.

In this study, the majority of studied women were interested to be enrolled in the screening of cervical cancer. Which emphasis on the effectiveness of nursing intervention on dissemination of Pap smear practicing for prevention and early detection of cervical cancer. Given the least proportion one quarter of studied women who reported that they were refusing to have Pap smear test.

According to barriers of Pap smear screening, The present study indicate some barriers regarding cervical cancer screening, As less than one half were afraid to get abnormal results, about one third of them reported the cost of the test as a barrier, while there was equal few percentage of studied women were afraid from the pain during the procedure and some of them had no time to go to the hospital. On the same line, **(Wardle, 2017),** showed some perceived barriers to cervical cancer screening which include; afraid of having abnormal results, lack of knowledge regarding the screening program, fear of pain and embarrassment , cost of the test.

According to women satisfaction, the current study confirmed that the majority of studied women were satisfied with the educational session, given hard copy, information related to when to get the test's results and way of communication, while only few percentage were neutral or dissatisfied. This could be considered as a good indicator for the effectiveness of health educational session regarding cervical cancer prevention and early detection.

5. CONCLUSION

The present study concluded that the majority of studied women had poor level of knowledge regarding cervical cancer, Pap smear and HPV vaccine in pretest which is conversely changed in posttest. Some of the studied women had a positive Pap smear results and they recommended to undergoing more diagnostic tool, while some of them had a negative Pap smear result as reported in research hypothesis and they were recommended to have HPV vaccine. So it was clear from the findings that hypotheses were supported.

6. RECOMMENDATION

Based on the study finding, the following recommendation were suggested in order to promote using of pap smear practicing regarding prevention and early detection of cervical cancer;Health awareness convoys in universities, schools, Hospitals, Maternal and child health centers regarding cervical cancer, HPV virus, and Pap smear and HPV vaccine, Ministry of health should adopt and start screening program for cervical cancer all over Egypt to detect the disease in early stage which will help in early treatment of the disease, HPV vaccine should be added to immunization schedule for children" considering that vaccine should be given to girls from 9 to 13 years".

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