Effectiveness of Educational Intervention Program about Cervical Cancer on Working Women's Knowledge, Attitude, and Practice at Beni-Suef University

Doaa Shehta Said Farag[1], Samar Shaban Abdelazim Mohamed[2], Rasha Nabil Malk[3], Hanan Elzeblawy Hassan[2]

1- Maternal and Newborn Health Nursing, Faculty of Nursing, Helwan University

2- Maternal and Newborn Health Nursing, Faculty of Nursing, Beni-Suef University

3- Medical Surgical Nursing, Faculty of Nursing, Beni-Suef University, Egypt

Abstract

Background: Cervical cancer is the most common malignant tumor in women around the world. Hence, there is a need for a public education program to encourage and inform people about cervical cancer and the benefits of screening, as well as to dispel myths and misconceptions. **Aim:** To evaluate the effectiveness of an educational intervention program about cervical cancer on knowledge, attitude, and practice among working women at Beni-Suef University. **Subject and method:** *Research designs:* quasi-experimental design *Sample:* A purposive sample of 150 women's was included. *Setting:* The current study was conducted at Beni-Suef University. *Tools:* Two tools were used, namely, an assessment questionnaire sheet and a modified Likert scale. **Results:** The mean age of the studied women was 34.21 ± 10.71 years old. There has been a general progress in knowledge, attitude, and practice among the studied women about cervical cancer during the different measurement periods compared with before the program, with a highly statistically significant difference. There was a highly significant positive correlation between total knowledge and attitude scores as well as total knowledge and practice scores at different times of assessment. **Conclusion:** The educational intervention program is effectively improving women's knowledge, attitude, and practice regarding cervical cancer. **Recommendations:** There is a need for a public education program on wider samples of all different ages in Egypt and for developing health education initiatives for women to improve their knowledge, attitudes, and practices about cervical cancer, as well as to encourage and inform about cervical cancer and the benefits of screening, as well as to dispel myths and misconceptions.

Key word: Educational intervention Program, cervical cancer, knowledge, attitude, practice

Introduction

Cervical cancer, though largely preventable, is the second most common women's cancer internationally and a leading cause of cancer deaths among women in developing countries (Qalawa et al., 2015; Hassan et al., 2016). Cancer of the cervix is the second most common cancer in women worldwide, with about 500.000 new cases and 250.000 deaths each year. Almost 80% of cases occur in low-income countries (Phianmongkhol & Srisomboon, 201; Nady et al., 2018).

Each year, approximately 10.000 women develop cervical cancer, and about 8.000 women die from cervical cancer in Nigeria (Airede et al., 2008). Spayne reported that over half the study population was less than 50 years of age, suggesting the disease is responsible for a

disproportionately greater loss of life years (Spayne et al., 2007). Evidence of a decline in incidence has been observed in countries like the United States where there are established screening protocols (Kim et al., 2008).

Virtually all cervical cancer cases (99.0%) are linked to genital infection with human papillomavirus (HPV), which is the most common viral infection of the reproductive tract (Hassan et al., 2021; Mohammed et al., 2018; Hassan et al., 2021; Said et al., 2018). The development of cervical cancer is a multi-stage process that generally occurs over many years and nearly always begins with a woman's infection with an oncogenic type of the human papillomavirus (HPV) (Nady et al., 2018; Masaud et al., 2021; Hassan, 2020). The human

papilloma virus is one of the most common sexually transmitted infections, and types 16 and 18 are responsible for approximately 70.0% of all cervical cancers (Nootan et al., 2014).

The other known risk factors are the early onset of sexual activities, multiple sex partners, and long-term use of oral contraceptives, immunosuppressants, smoking, and specific dietary factors (Abd El Salam et al., 2021; Hassan et al., 2021; Elzeblawy et al., 2021). High parity and a large number of pregnancies have been correlated with the development of cervical cancer for a long time. Multiple pregnancies may have a cumulative traumatic or immunosuppressive effect on the cervix, thereby promoting the progression of HPV infection. Pregnancy could also induce a hormonal effect on the cervix, which further increases the risk of oncogenic progression (Mwaka et al., 2016; Hassan et al., 2021; Atwa et al., 2019).

Early stages of cervical cancer do not have any symptoms. Although cervical cancer can be diagnosed in its early stages by a routine Pap smear, usually no apparent symptoms indicate cancer is present. If symptoms of cervical cancer in later stages, such as discharge, irregular bleeding, or pain or bleeding after sexual intercourse, occur, the disease may be advanced. As the cancer advances, vaginal discharge gradually increases, becomes watery, and finally becomes dark and foul-smelling from necrosis and infection of the tumor. The bleeding, which occurs at irregular intervals between periods or after menopause, may be slight and usually occurs after mild trauma or pressure. As the disease continues, the bleeding may persist and increase. Leg pain, dysuria, rectal bleeding, and edema of the extremities signal advanced disease (Mohamed et al., 2019; Masaud et al., 2021; Ramadan et al., 2021; Kamal et al., 2021).

Cervical cancer is both a preventable and treatable disease. Early detection and treatment have caused a marked decrease in mortality from cervical cancer. Early detection through pap smear testing is recommended because 8 to 9 years are generally required for precancerous changes to progress to invasive carcinoma, also known as infiltrating cancer. Almost all early-stage cancers can be effectively treated; pap smears can detect precancerous changes years before invasive cancers (WHO, 2011; Nady et al., 2017; Ali et al., 2021; Ali et al., 2021).

The World Health Organization (WHO) recognizes the importance of cervical cancer and other human papillomavirus (HPV)-related diseases as global public health problems and recommends that routine HPV vaccination should be included in national immunization programs, provided that prevention of cervical cancer or other HPV-related diseases, or both, constitutes a public health priority; vaccine introduction is programmatically feasible; sustainable financing can be secured; and the cost effectiveness of vaccination strategies in the country or region is considered (Hoque, 2015).

Routine follow-up Pap tests are recommended at varying intervals, ranging from every three to six months to annually or every three years. Physicians can improve women's adherence to follow-up testing by engaging women in a dialogue to accommodate the sociocultural environment, exploring concerns regarding the partner's reactions, emphasizing the importance of follow-up, and providing a clear understanding of the process and timeline surrounding follow-up recommendations (Del Giudice et al., 2009).

Knowledge is a necessary predisposing factor for behavioral change and plays an important role in improving health-seeking behavior. Not only might knowledge dramatically improve attitudes, disbelief, and misconceptions, but it might also enhance screening. Healthcare professionals are a direct source of information for women and for the general public at large, and since they hold such a pivotal role, they help build additional awareness (Prakash et al., 2017).

Maternity nurses have a golden role in the prevention of cervical cancer. Maternity nurses are key players in the health care delivery system. Advanced practice maternity nurses in the oncology setting are ideal healthcare providers to assess patients' risk of cervical cancer, determine physical findings that can influence that risk, provide risk education, synthesize existing data, and make recommendations for lifestyle changes, counseling, and testing (Smita & Prativa, 2017).

Significance of the study:

Cervical cancer, though largely preventable, is the second most common women's cancer internationally and a leading cause of cancer deaths among women in developing countries. In 2010, the global incidence of cervical cancer was 454.000 cases, of which about 50.0% resulted in death. More than 85.0% of global cervical cancer deaths occur in low- and middle-income countries (Phianmongkhol & Srisomboon, 2011), reflecting poor control and early detection measures in these countries. In Egypt, this represented 0.12% of total deaths (Mohammed et al., 2018). Rising general public awareness about the cervical cancer problem and the mechanisms to control it, as well as advocating for appropriate policies and programs, are key strategies for population-based cervical cancer control.

Cervical cancer, unlike many other cancers, is largely preventable through screening and vaccination. Therefore, it is necessary for nurses to educate women about cervical cancer, raise awareness of the mortality rates associated with cervical cancer, and promote the cervical cancer screening program. One of the barriers to cervical cancer screening is the attitude of some women. Generally, a low level of knowledge, acculturation, and modesty are factors resulting in the low acceptability of screening. Hence, there is a need for a public education program to encourage and inform people about cervical cancer and the benefits of screening, as well as to dispel myths and misconceptions. So the present study was conducted to evaluate the effectiveness of an educational intervention program about cervical cancer on knowledge, attitude, and practice among working women at Beni-Suef University.

Aim of the Study

The study was conducted to evaluate the effectiveness of an educational intervention program about cervical cancer on knowledge, attitude, and practice among working women at Beni-Suef University.

Specific objectives:
1. Assess women's knowledge about cervical cancer.
2. Assess women's attitudes regarding cervical cancer.
3. Assess women's practices toward cervical cancer.

4. Design an educational program about cervical cancer.
5. Implement an educational intervention program about cervical cancer.
6. Evaluate the effectiveness of the educational intervention program about cervical cancer on knowledge, attitude, and practice among working women at Beni-Suef University.

Research hypothesis:-

Women's knowledge, attitude, and practice about cervical cancer will improve after the application of the program.

Subject and Method:

Design: a quasi-experimental intervention study
Setting: This study was conducted at Beni-Suef University.
Subject:
Sample type: simple random sample
Sample size: 150 working women at Beni-Suef University during the period from July to the end of December 2023.

Inclusion criteria:
- Educated women
- Age: 20 to 59 years
- Who agreed to participate in the study?
- Do not have a history of cervical cancer and are not under radiotherapy treatment.

Tools for data collection:

1. Assessment Questionnaire Sheet for Women:

This questionnaire sheet was developed by researchers in Arabic based on current related literature (Roland, 2016). Included were socio-demographic data such as age, level of education, obstetrical data such as parity, current family planning methods, and women's practices for early detection measures for cervical cancer such as the ap smear test (through asking questions), as well as questions related to women's knowledge about cervical cancer such as definitions, abnormal signs and symptoms, risk factors, treatment, early detection methods, and prevention of cervical cancer.

Scoring: For the knowledge items, a correct complete answer was scored (2), a correct incomplete answer was scored (1), and incorrect or don't know was scored (0).

The score of total knowledge was classified as follows:

- Good: (≥75% correct answers)
- Average: (50 < 75% correct answers)
- poor: (<50% correct answers)

2: Modified Likert Scale:

It is used to assess the attitude of working women at Beni-Suef University toward cervical cancer. The scale was developed from nine statements about several issues related to cervical cancer and early detection measures. The responses were on a three-point Likert scale: "agree", "sometimes", and "disagree."

The score of total attitude was classified into:

- Positive attitude: > 75%.
- Uncertain attitude: 60–75%
- Negative attitude: <60%

A guide booklet: It was prepared under the researcher's guidance after reviewing the related literature. The booklet used simple Arabic language and different illustrated pictures in order to facilitate women's understanding.

Reliability

Test-retest was repeated with the same sample of studied women on two occasions, and then the scores were compared. The Cronbach's alpha was 0.765 for the cervical tool.

Ethical considerations:

Ethical approval was obtained from the Research Ethics Committee at the Faculty of Medicine at Beni-Suef University. Each woman was informed about the purpose and benefits of the research at the beginning of the interview. Oral consent was obtained from each woman before starting the data collection. Confidentiality was ensured throughout the study process; personal data were not disclosed, and the women were assured that all data was used only for research purposes. Each woman was informed that participation is voluntary and her withdrawal will not affect her care.

Operational Design:

Field of work
The study was carried out in six phases.

Phase I: Preparatory Phase

This phase involved reviewing current and past local and international-related books, journals, and periodicals to get acquainted with various aspects related to cervical cancer and early detection measures, and then developing study tools and the content of the program. Tools were reviewed by a jury of six experts in the field of obstetrics and gynecological nursing. A pilot study was carried out on 10% of the total sample of 15 working women in Beni-Suef University faculties to test the applicability of tools and determine the time needed to fill out the questionnaire. Accordingly, the necessary modifications were made in the form of adding or omitting some questions. Women involved in the pilot were excluded from the study. The field work lasted six months, from the beginning of June 1 to the end of November 2023.

Phase II (baseline assessment): During this phase, the data was collected from the women using tools designed in the previous phase. The data collected at this stage was considered pre-program database information.

Phase III (Program Development): An educational program for women was designed based on the baseline data collection in Phase II. The program was developed as an educational booklet for cervical cancer with simple Arabic language to enhance women's understanding using the self-administrated questionnaire, attitude Likert scale, and literature review, which aimed to improve women's knowledge, attitude, and practice toward cervical cancer.

Phase IV: Program Implementation:

A program was implemented over a period of six months, beginning from July 1 to the end of December 2023. Implementation of the program was carried out in the previously mentioned setting. The material used has been sequenced through eight sessions for theoretical knowledge. Each session took about one hour, including a period of answering the questions and discussing the booklet according to women's achievements, progress, and Sessions contain cervical cancer definition, prevalence, risk factors, and abnormal signs and symptoms of cervical cancer. Pap smear test as well as the importance of early detection and preventive measures for cervical cancer. The previously mentioned setting was visited by researchers three days a week, from 9.00 a.m. to 2.00 p.m. The number of women who attended each session ranged between three and four. At the beginning of the first session, an orientation to the educational intervention and its aims took place. At the end of this phase, knowledge (posttest) was assessed using a questionnaire sheet.

Phase V (follow-up evaluation):

Three months after phase IV, researchers evaluated the effectiveness of the educational intervention program about cervical cancer on knowledge, attitude, and practice among women. Using the same tools previously used in pre- and post-test assessments to find out the retention of the information given

Phase VI: Program Evaluation: Testing Results and Writing the Final Report

Statistical Analysis:

The collected data was processed and analyzed using the statistical package for social science (SPSS) version 20. Data were presented in tables by using the mean, standard deviation, number, percentage distribution, correlation coefficient (r), and paired T-test.

Results

Table 1 points out that more than half of the women studied had ages ranging from 30 to 39 and had middle education (55.3% and 54.0%). About one-sixth of women (65.4%) lived in rural areas. Added to this is the fact that nearly three-quarters of women (73.3%) are married.

Table 2 demonstrates that more than one-sixth of the women's (68.7%) had 1-3 times of delivery, and only 4.7% of them had more than three times of abortion. Regarding the history of menopause, one third of the women (30.0%) mentioned had a history of menopause, and more than one tenth (15.6%) of them had an age at menopause of more than 51 years.

Figure 1 reveals that most women (70.0%) use family planning methods, compared to only one third (30.0%) of women who do not use any family planning method, mainly IUDs (42.0%), hormonal methods (18.7%), and traditional methods (6%).

Table 3 illustrates the knowledge of the studied women about cervical cancer at different times of assessment. Results indicated that the mean scores of women's knowledge before the program's implementation were generally deficient. Also, there was a highly statistically significant improvement in the knowledge score regarding all items of knowledge about cervical cancer at different times of assessment (p 0.001).

Figure 2 points out that the minority (8.0%) of the studied women had a good level of total knowledge about cervical cancer before the

program, compared to more than three quarters (80.0%) at the post-program level, more than three quarters (76.0%) at the post-program level, and after three months of program implementation (the follow-up phase).

Table 4 displays that there was a highly statistically significant difference (P 0.001) at different times of assessment in relation to the attitude of the studied women about cervical cancer.

Figure 3 reveals that the majority of women (81.2%) had a negative attitude about cervical cancer and early detection measures before program implementation. The studied women's attitude was highly positive after the implementation of the educational intervention program and after three months of program implementation.

Figures 4 and 5 indicate the practices of the Pap smear test among the studied women. The great majority of women (94.7%) had never gone for a pap smear screening test before. As regards obstacles to doing a Pap smear test, as reported by the women, nearly one third (28.1%) don't know where the test is performed, and less than one quarter (23.9%) are worried about finding early signs of cancer.

Figure 6 points to a statistically significant improvement in women's practices regarding ap smears at three times of assessment. Despite the fact that 26.7% of women didn't perform the test at the follow-up,

Table 5 illustrates that there was a positive, highly statistically significant correlation between total knowledge and attitude scores as well as total knowledge and total practice scores regarding cervical cancer at different times of assessment, which means increased knowledge is positively associated with increased attitude and practice.

Table (1): Socio-Demographic characteristics of the studied women (n=150)

Items	N = (150)	%
Age (years)		
20- 29	18	12.0
30-39	83	55.3
40-49	30	20.0
50-59	19	12.7
Mean ± SD	**34.21 ± 10.71**	
Residence		
Urban	57	38.0
Rural	93	62.0
Marital Status		
Single	19	12.7
Married	110	73.3
Widowed	14	9.3
Divorced	7	4.7
Level of Education		
University education	52	34.7
Middle education	81	54.0
Diploma	17	11.3

Table (2): Distribution of studied women according to their obstetrics history (n=150)

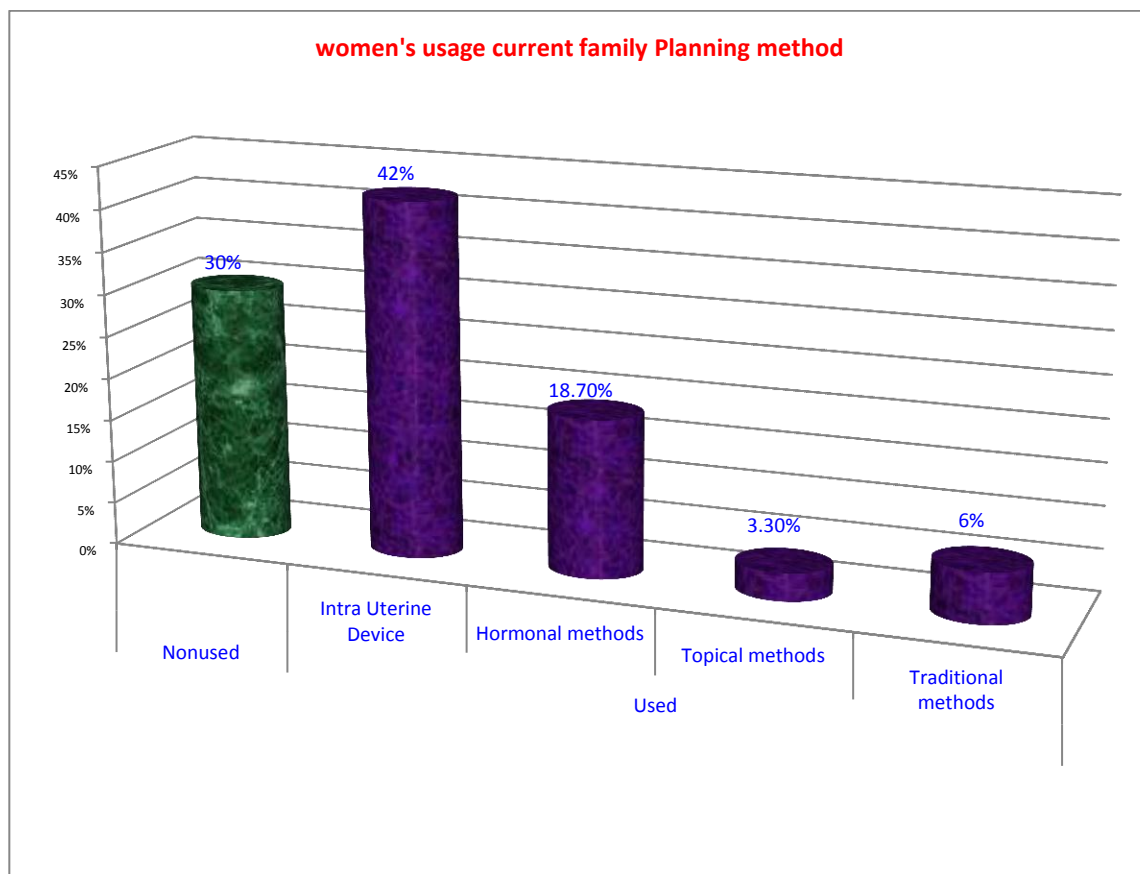| Items	N = (150)	%
Parity		
1-3	103	68.7
4-5	44	29.3
6 and above	3	2.0
Number of abortions		
None	82	54.7
one	43	28.7
two	18	12.0
three and above	7	4.7
Menopause		
Yes	45	30.0
No	105	70.0
Age at menopause (years) (N =45)		
40-45	11	24.4
46-50	27	60.0
51 and over	7	15.6
Mean ± SD	**46.63 ±1.43 years**	

Figure (1): Women's usage current family Planning method

Table (3): Distribution of studied women according to their mean knowledge scores about cervical cancer at different times of assessment (n=150)

Knowledge	Pre-program	Immediately Post-program			After three months		
	Mean ±SD	Mean ±SD	Paired (t1)	P value	Mean ±SD	Paired (t2)	P value
Definition of cervical cancer	0.33±0.52	1.50±0.55	33.8	<0.001**	1.31±0.66	7.17	<0.001**
Stages of cervical cancer	0.07±0.26	0.92±0.26	38.3	<0.001**	0.75±0.43	7.46	<0.001**
Symptoms of cervical cancer	0.31±0.46	1.50±0.60	30.88	<0.001**	1.24±0.67	7.89	<0.001**
Risk factor of cervical cancer	0.29±0.45	1.43±0.58	28.3	<0.001**	1.19± 0.69	7.90	<0.001**
Diagnostic for cervical cancer	0.28±0.45	1.66±0.53	33.42	<0.001**	1.43±0.58	6.95	<0.001**
Preventive methods of cervical cancer	0.22±0.41	0.87±0.32	21.93	<0.001**	0.62±0.48	9.29	<0.001**
Ways to treat cervical cancer	0.14±0.35	0.92±0.26	27.96	<0.001**	0.69± 0.46	8.71	<0.001**

A highly statistical significant difference (P ⩽ 0.001)

Paired (t1): Before program and immediately after; Paired (t2): immediately after and after 3 months
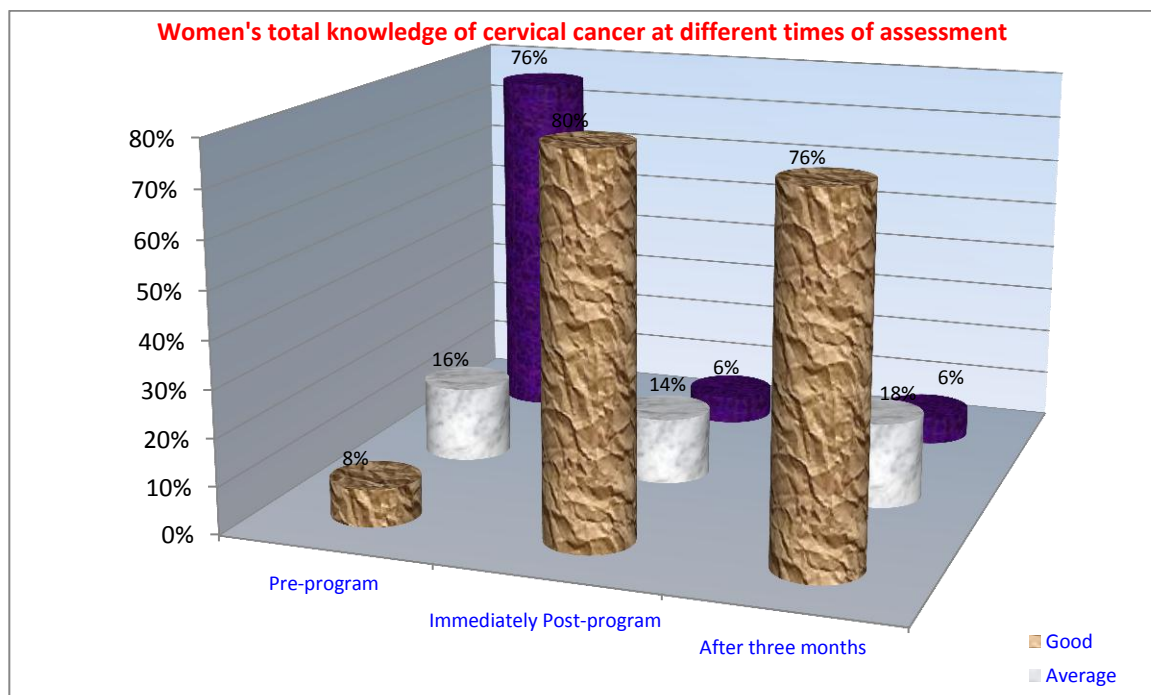
Figure (2): Women's total knowledge of cervical cancer at different times of assessment

Table (4): Distribution of studied women according to their mean attitude scores about cervical cancer at different times of assessment (n=150)

Attitude	Pre-program	Immediately Post-program			After three months		
	Mean ±SD	Mean ±SD	Paired (t1)	P value	Mean ±SD	Paired (t2)	P value
Cervical cancer is curable if detected early	5.09±1.42	6.77±1.36	20.73	<0.001**	6.78±1.28	0.13	<0.001**
Cervical cancer can be detected in the earliest stages.	0.21±0.41	0.95±0.21	27.04	<0.001**	0.73±0.44	8.52	<0.001**
Carcinoma of the cervix is highly prevalent	0.35±0.53	1.64±0.56	29.1	<0.001**	1.43±0.63	7.75	<0.001**
Cervical cancer has no symptoms in the precancerous lesions period	0.33±0.50	1.33±0.59	27.92	<0.001**	1.15±0.63	6.97	<0.001**
Early sexual activity is one of the risk factors for cervical cancer.	0.12±0.32	0.84±0.36	26.00	<0.001**	0.67±0.46	7.26	<0.001**
Postmenopausal women still have a higher risk of getting cervical cancer	0.61±0.24	0.95±0.21	46.32	<0.001**	0.80±0.39	6.76	<0.001**
Maintaining sexual hygiene can prevent cervical cancer	0.20±0.40	1.60±0.52	35.90	<0.001**	1.38±0.60	7.75	<0.001**
Cervical smear cytological examination is a major method for cervical cancer screening.	0.06±0.24	0.89±0.31	35.65	<0.001**	0.76±0.42	6.02	<0.001**
Women should be screened for cervical cancer at least every 3 years	0.78±0.48	1.81±0.42	31.57	<0.001**	1.56±0.58	8.51	<0.001**

A highly statistical significant difference (P ≤ 0.001)

Paired (t1): Before program and immediately after; Paired (t2): immediately after and after 3 months
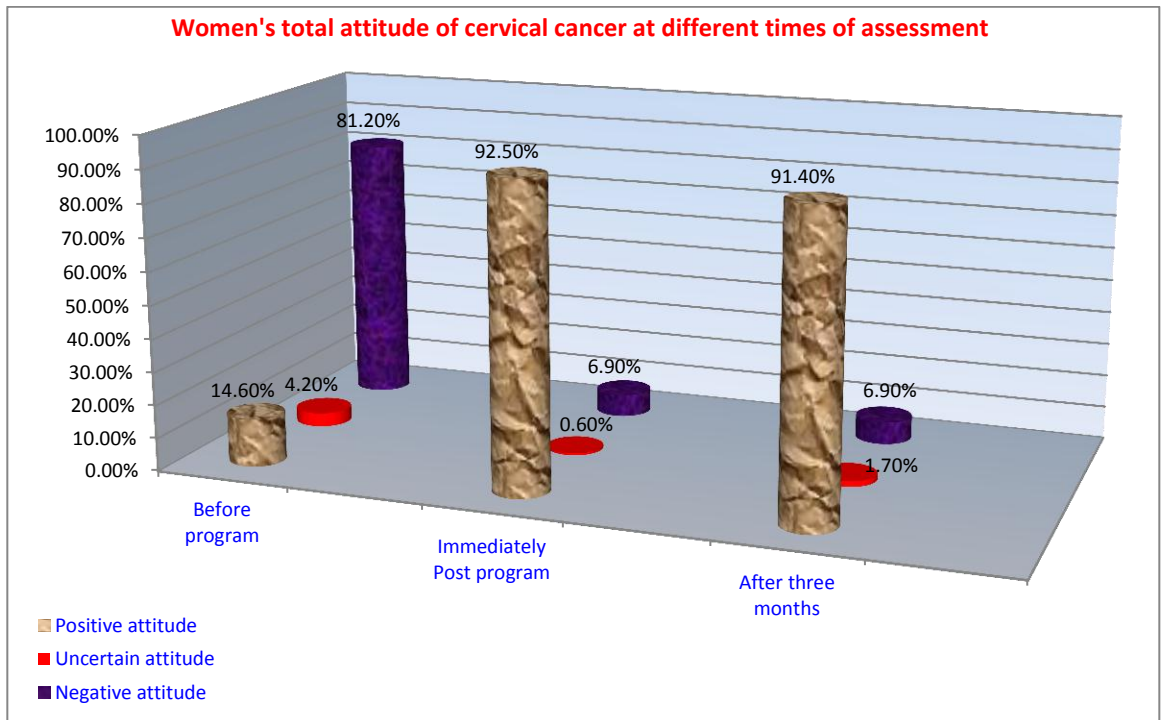
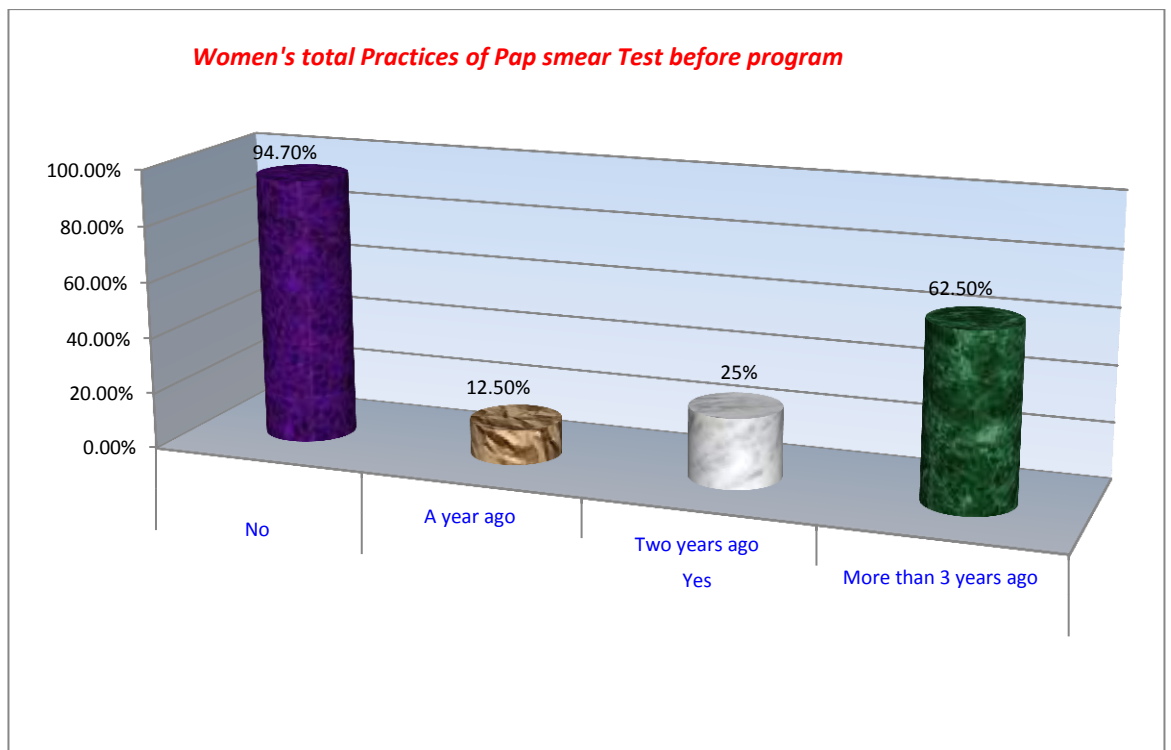*Figure (3): Women's total Attitude of cervical cancer at different times of assessment*

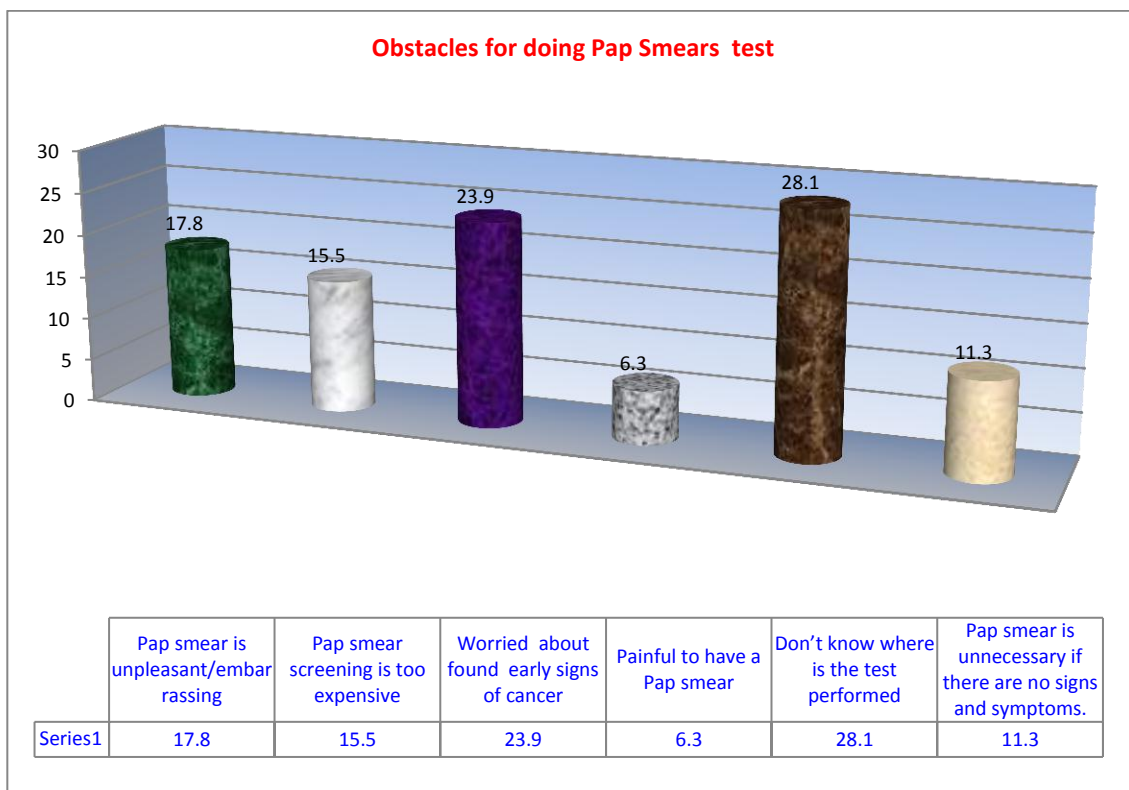*Figure (4): Women's total Practices of Pap smear Test before program*

Obstacles for doing Pap Smears test

	Pap smear is unpleasant/embar rassing	Pap smear screening is too expensive	Worried about found early signs of cancer	Painful to have a Pap smear	Don't know where is the test performed	Pap smear is unnecessary if there are no signs and symptoms.
Series1	17.8	15.5	23.9	6.3	28.1	11.3

Figure (5): Women's Obstacles for doing Pap Smears test

Women's practices of pap smear test at different times of assessment
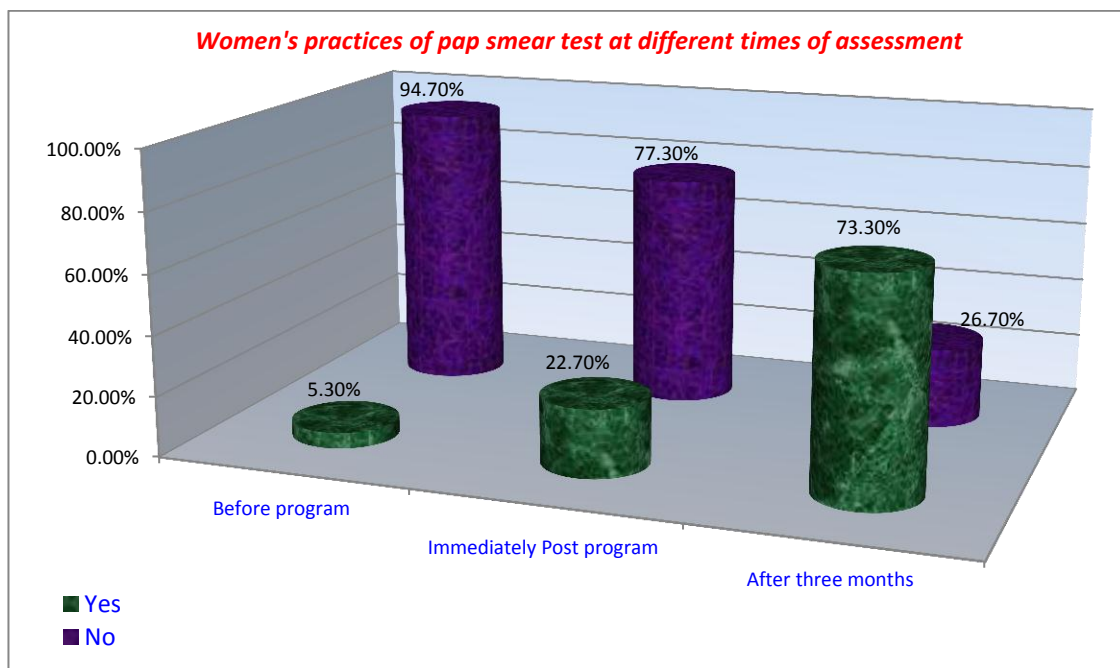
- Yes
- No

Figure (6): Women's practices of pap smear test at different times of assessment

Table (5): Correlation coefficient between women's total knowledge score, attitude & practice scores regarding cervical cancer at different times of assessment

Variables		Knowledge					
		Pre-program		Immediately after program		After three months	
		r	p	r	p	r	p
Attitude	Pre-program	0.122	<0.005				
	Immediately after			0.395	<0.001		
	After three months					0.628	<0.001
Practice	Pre-program	-	-				
	Immediately after			0.362	<0.001		
	After three months					0.266	<0.001

A statistical significant difference (P≤0.05); A highly statistical significant difference (P≤0.001)

Discussion:

Cervical cancer screening is important for the reduction of cancer-related mortality. Early diagnosis of cervical cancer has resulted in a decline of approximately 40% in the incidence and mortality associated with invasive cervical cancer. Different factors influence Arabic women's decisions about going or not going for screening and are thus related to the delay in seeking help for cervical screening. These factors are related to cultural or other factors such as lack of knowledge, fear, and social influence. Strategies to reach these women include a variety of recommended methods, such as educational sessions at clinics and/or community sites (Hassan & Atwa, 2017; Zagloul et al., 2020; Hassan et al., 2021; Bayrami et al., 2015).

Among factors that may influence women's attention to cancer symptoms and participation in screening programs are women's socio-demographic characteristics, such as age, educational level, and marital status; also, women's obstetrical history, such as parity; and late age at menopause. The present study revealed that more than half of the women studied had ages ranging from 30 to 39 and had a middle education. About one-sixth of women resided in rural areas. Added to this is the fact that nearly three-quarters of women were married. This finding agrees with Arshad et al., (2010), who has reported that participants were mainly married women and had secondary education. In fact, factors such as educational level, marital status, and late age at menopause are important factors in improving women's knowledge, attitudes, and practices regarding cervical cancer.

In this respect, Torres-Mejía & Angeles-Llerenas, (2009) stated that consideration of women's educational status and late age at menopause, which has been associated with an increased risk of cervical cancer, is an important factor in planning educational programs to improve knowledge on cervical cancer screening and prevention. This is supported by the findings of the present study, where more than one tenth (15.6%) of women's age at menopause was more than 51 years.

According to the mean knowledge scores of the studied women about cervical cancer, the present study findings indicated that the women's knowledge before the program's implementation was generally limited. This may be due to the absence of a well-designed educational program that is provided to women. Also, there was a highly statistically significant improvement in the knowledge score regarding all items of knowledge about cervical cancer at different times of assessment. This could be attributed to the ability of women to gain knowledge easily and the effectiveness of the program. This finding finds support in the study of Ali et al., (2010) in Karachi, Pakistan, which mentioned that the majority of study subjects were not adequately equipped with knowledge concerning cervical cancer. The study emphasized initiating a continuing medical education program at work to spread knowledge about cervical cancer.

Likewise, Wright et al., (2010) highlighted that

knowledge level was low on cervical cancer at baseline; only about 15.0% and 6.9% of participants in the intervention and control groups, respectively, had heard of cervical cancer, whereas a significant increase in proportions was found in the intervention group on awareness of cervical cancer. Similarly, Elrufie et al., (2017) stated that a well-designed health education program on cervical cancer and the benefits of screening would increase awareness among women. Similar findings supported the present study findings and showed the posttest mean was significantly higher than that of the pretest mean.

In relation to the mean attitude scores of the studied women about cervical cancer at different times of assessment, the great majority of women (81.2%) had a negative attitude about cervical cancer and early detection measures. This negative attitude may be attributed to the horrible feelings women have toward diseases of unknown cause and poor prognosis. These findings may be due to a lack of awareness programs for cervical cancer prevention and a lack of mass media coverage of cervical cancer prevention.

These findings were corroborated with those reported by Fouda et al., (2013) in Egypt in the study to evaluate "the effect of educational intervention on women's knowledge and perception about cervical cancer and human papillomavirus vaccines in Tanta City. This result was contraindicated Korfage et al., (2011), who found that the attitude towards cervical screening was overwhelmingly positive (99.0%) and, also, reported that the key reasons for attendance were early detection of abnormalities and reassurance in the case of a normal smear. The present study findings revealed that the studied women's attitude was highly positive after the implementation of the educational intervention at different times of assessment.

Concerning women's practices of the studied Pap smear test before program, the current study revealed that only 5.3 percent did Pap smear tests throughout their lives before program. Despite this, 26.7% of women didn't perform the test at the follow-up. This is attributed to many obstacles, such as socio-economic factors, whereas the coverage of cancer screening services is still limited in Egypt. In addition, women don't know where the test is performed, and they are worried about finding early signs of

cancer.

Similarly, Matejic et al., (2011) documented that open communication, social networks, and improving the social-economic status of women are the most prominent factors, most of which are mainly outside the health services' domain and require multispectral collaboration to improve women's reproductive health. On the same line, Al-Naggar et al., (2010a) stated that although knowledge about cervical cancer screening is adequate, women have a very poor practice of Pap smear testing.

On the other hand, Nuño et al., (2010) reported that women in the intervention group were 1.5 times more likely to report having a pap smear within the last year when compared with the usual care group. In fact, it may be because of a lack of knowledge about the importance of the pap smear test. In addition, the coverage of cancer screening services is still limited in Egypt due to the absence of a screening culture in Egyptian culture.

The results of the current study indicated that there was a highly significant positive correlation between total knowledge and total attitude scores, as well as between total knowledge and total practice scores at different levels. This may be due to the effect of educational intervention on knowledge, attitude, and practice for women regarding cervical cancer. The findings are in line with Jia et al., (2013) in Wufeng County. In China, it was reported that there was good knowledge and a positive attitude in a study about evaluating knowledge about cervical cancer and barriers to screening programs among women.

On the other hand, Shrestha & Dhakal, (2017) in Bharatpur, Chitwan, reported that there was a strong negative correlation between knowledge score and practice score regarding cervical cancer screening among women. in a study to evaluate knowledge, attitude, and practice regarding cervical cancer screening among women attending a teaching hospital.

Conclusion

According to the findings, it can be concluded that the educational program is effectively improving women's knowledge, attitudes, and practices regarding cervical cancer. That means the current study's results support the stated hypothesis.

Recommendations:

On the basis of the most important findings of the study, the following recommendations are suggested:

1. There is a need for a public education program with wider samples of all different ages in Egypt and for developing health education initiatives for women to improve their knowledge, attitudes, and practices about cervical cancer, as well as to encourage and inform about cervical cancer and the benefits of screening, as well as to dispel myths and misconceptions.

2. More rigorous research focuses on educating women with information to explore the long-term effects of cervical cancer and plan an individualized educational system for early detection and prevention to enhance uptake of cervical cancer.

References

Abd El Salam., Ali R., Hassan H., Kamal H. (2021): Outcome of an Educational Program on Body Image Distress Associated with Cervical Cancer. Journal of Advanced Trends in Basic and Applied Science, 1(1): 12-20

Airede L.R., Onakewhor J. E., Aziken M.E., And ABA, Aligbe J.U. (2008): Carcinoma of the uterine cervix in Nigerian women: The need to adopt a national Prevention strategy. Sahel Medical Journal, 11(1):1–11.

Ali R., Abd El Salam S., Kamal H., Hassan H. (2021): Women with Cervical Cancer: Impact of an Educational Program their Knowledge. Journal of Obstetrics Gynecology and Reproductive Sciences, 5(2): 1-8. DOI: 10.31579/ 2578-8965/063

Ali R., Kamal H., Hassan H., Abd El Salam S. (2021): Impact of an Educational Program on Sexual Distress Associated With Cervical Cancer. Journal of Applied Health Sciences and Medicine, 1(1): 30-42

Ali S.F., Ayub S. Manzoor N.F., Azim S. Afif M. Akhtar N. Jafery W.A., Tahir I., Farid-Ul-Hasnian. And Uddin N. (2010): Knowledge and awareness about cervical cancer and its Prevention amongst interns and nursing staff in tertiary care hospitals in Karachi, Pakistan. Public Library of Science one, 5(6): p. E11059

Al-Naggar R.A., Low W.Y. and Isa Z.M. (2010a): Knowledge and barriers towards cervical cancer screening among young women in Malaysia. Asian Journal of Cancer Prevention, 11(4): pp. 867-873.

Arshad S., Williams K.P., Mabiso A., Dey S. and Soliman A.S. (2010): Evaluating the Knowledge of cervical cancer screening and Prevention among Arab-American Women in Michigan. Journal of Cancer Education, 26(1): pp.135-8.

Atwa A., Hassan H., Ahmed S. (2019): The impact of a hospital-based awareness program on the knowledge of patients about breast cancer and cancer cervix. International Journal of Studies in Nursing, 4(1): 20-29. doi:10.20849/ijsn.v4i1.537.

Bayrami R. Taghipour A. And Ebrahimipour H. (2015) : Personal and socio-cultural barriers to cervical cancer screening in Iran, patient and provider perceptions: A qualitative study. Asian Pac. J. Cancer Prev.), 16, 3729-3734.

Bayrami R. Taghipour A. And Ebrahimipour H. (2015) : Personal and socio-cultural barriers to cervical cancer screening in Iran, patient and provider perceptions: A qualitative study. Asian Pac. J. Cancer Prev.), 16, 3729-3734. Masaud H., Hassan H., Mohammed R., Ramadan S. (2021): Women's Sexual Distress Associated with Cervical Cancer. Sumerianz Journal of Medical and Healthcare, 4(1): 28-34. doi.org/10.47752/sjmh.41.28.34

Del Giudice M.E., Grunfeld E., Harvey B.J., Piliotis E. And Verma S. (2009): Primary Care Physicians' Views of Routine Follow-Up Care of Cancer Survivors. Journal of Clinical Oncology, 27(20), pp. 3338 - 3345.

Elrufie E.S., KI1 Y. And Kambal A. M. (2017): Effect of educational Program on Saudi, Women' knowledge, attitude regarding cervical cancer and early detection by Pap test. Nursing & Health care International Journal., Volume 1(, issue 2).

Elzeblawy H., Kamal H., Abd El Salam S., Ali R. (2021): Survivors from Cervical Cancer: Impact of an Educational Program

on Self-Knowledge and body-Image. Public Health Open Access, 5(2):1-9. DOI: 10.23880/phoa-16000175

Fouda L. M And Elkazeh A. E (2013) The impact of an educational intervention on women's knowledge and Perception regarding cervical cancer and human papillomavirus vaccines in Tanta City: Applying Health Belief Model.Life Science Journal; 10(12s)

Hassan H. (2020): Early Stage Cervical Cancer: Survivorship and Fertility preservation. American Research Journal of Oncology, 2(1): 1-3.

Hassan H. And and Atwa A. (2017) : Occupational stress, job satisfaction and cervical screening. Intention of Maternity Oncology Nurses, Medical Science & Healthcare Practice, 1(1),): 48-59.https://doi.org/10.22158/mshp.v1n1p48.

Hassan H., Ali R., Abd El Salam S., Kamal H. (2021): Impact of an Educational Program on Sexual Dysfunction Associated With Cervical Cancer. Journal of Cancer Research and Treatment, 9(2): 22-31. DOI: 10.12691/jcrt-9-2-1

Hassan H., Masaud H., Mohammed R., Ramadan S. (2021): Self-Knowledge and Body Image among Cervical Cancer Survivors' Women in Northern Upper Egypt. Journal of Applied Health Sciences and Medicine, 1(1): 1-12

Hassan H., Mohammed R., Ramadan S., Masaud H. (2021): Call for Alleviating Sexual Issues among Cervical Cancer Survivors' Women in Northern Upper Egypt. Journal of Obstetrics Gynecology and Reproductive Sciences, 5(3): 1-11. DOI: 10.31579/2578-8965/066

Hassan H., Mohammed R., Ramadan S., Masaud H. (2021): Impact of an Educational Program on Sexual Issues among Cervical Cancer Survivors' Women in Northern Upper Egypt.

Journal of Obstetrics Gynecology and Reproductive Sciences, 5(1): 1-16. DOI: 10.31579/ 2578-8965/061

Hassan H., Ramadan S., Ali R., Kamal H. (2021): Sexual Issues among Cervical Cancer Survivors' Women in Northern Upper Egypt. Journal of Advanced Trends in Basic and Applied Science, 1(1): 1-11.

Hassan, H., Bayoumi, M., & Atwa, A. (2016): Emotional Distress Associated with Gynecologic and Breast Cancer in Beni-Suef City. International Journal of Science and Research, 5(2): 1118-1129.

Hoque M.E. (2015): Cervical cancer awareness and preventive behaviour among female university students in South Africa. Asian Pacific Journal of Cancer Prevention.;.,11,: 127-130.

Jia Y. Li S. Yang R. Zhou H. Xiang Q.Y., Hu T. Zhang Q. Chen Z. Ma D. Feng L. (2013): Knowledge about cervical cancer and barriers of screening program among women in Wufeng countyCounty, a high-incidence region of cervical cancer in China. PLoS ONE, 8, e67005.

Kamal H., Ali R., Abd El Salam S., Hassan H. (2021): Self-Knowledge among Women with Cervical Cancer. Journal of Cancer Research and Treatment, 9(1): 12-21. DOI: 10.12691/jcrt-9-1-2

Kim J.J., Brisson M. Edmunds W.J., And Goldie S.J.(2008): Modeling cervical cancer Prevention in developed countries. vaccine, 26(10):K76–K86.

Korfage, I. J., Van Ballegooijen, M., Wauben, B., Habbema, J. D., & Essink-Bot, M. L. (2011): Informed choice on pap smear still limited by lack of knowledge on the meaning of false-positive or false-negative test results. Patient Education Counsel.

Masaud H., Abd Rabo R., Ramadan S. Hassan H. (2021): Impact of Protocol of Nursing Intervention on Sexual Dysfunction among Women with Cervical Cancer. Journal of

Nursing Science Benha University, 2(2): 203-224

Matejic B. Vukovic D. Pekmezovic T. Kesic V. And Markovic M. (2011): Determinants of Preventive health behavior in relation to cervical cancer screening among the female Population of belgrade. Health Education Research. , 26(2): pp. 201-211.

Mohamed A., Hassan H., Gamel W., Arafa A. (2019): Awareness about breast and cervical cancers among nursing students in Beni-Suef University. Journal of Nursing Education and Practice, 9(5): 44-51. doi.org/10.5430/jnep.v9n5p44

Mohammed F., Shahin M., Youness E., Hassan H. (2018): Survivorship in Women Undergoing Gynecological and Breast Cancer Treatment in Upper Egypt: The Impact of Quality of Life Improvement Educational Program". American Research Journal of Gynaecology, 2(1): 1-28. doi:10.21694/2577-5928.18001

Mwaka A.D., Orach C.G., Were E.M., Lyratzopoulos G., Wabinga H., And` Roland M. (2016): Awareness of cervical cancer risk factors and symptoms: Cross-sectional community survey in post-conflict Northern Uganda. Health Expect.); 19(4): 854-67.

Nady F., El-Sherbiny M., Youness E., Hassan H. (2018): Effectiveness of Quality of Life Planned Teaching Program on Women Undergoing Gynecologic Cancer Treatment. American Research Journal of Oncology, 1(1): 1-17.

Nady F., Said M., Youness E., Hassan H. (2017): Impact of Tailored Educational Program of Quality of Life Improvement on Women Undergoing Breast Cancer Treatment at El-Minia Region, Egypt. American Research Journal of Gynaecology, 1(1): 1-17. doi:10.21694/2577-5928.17001

Nady F., Said M., Youness E., Hassan H. (2018): Effect of Nursing Intervention Program on Quality of Life Improvement for Women Undergoing Gynecological

and Breast Cancer Treatment. Assuit Scientific Nursing Journal, 6(15): 62-77.

Nootan R. Mali1, And Ramling Mali. (2014): Effect of structured education on knowledge regarding prevention of cervical ccancer among A.N.M. Students. International Journal of Science and Research (IJSR), 3 (3) ISSN (Online): 2319-7064 volum 3, issue 3.

Nuño T. Martinez M.E., Harris R. And García F. (2010): a Promotora- administered group education intervention to promote cervical cancer screening in a rural community along the U.S.-Mexico Border: A randomized controlled tTrial. Cancer Causes Control. 22(3) pp.): 367-374

Phianmongkhol Y., And Srisomboon J. (2011): Knowledge about Human papillomavirus infection and cervical cancer prevention among nurses in Chiang Mai university hospital, Thailand. Asian Pacific Journal of cancer Prevention.;., 12, : 823-825.

Prakash M .l., Vaishali R .M., Anagha V. Katti p.H., And Mahesh C. (2017) : Effectiveness of planned teaching programme on knowledge regarding cervical cancer among women. Asian journal of pharmaceutical and clinical research. Vol 10, Issue 2.

Qalawa, Sh., Eldeeb, A., & Hassan, H. (2015): Young Adult Women's intention regarding breast and cervical cancer screening in Beni-Suef. Scientific Research Journal, 3(3): 11-24.

Ramadan S., Hassan H., Masaud H., Mohammed R. (2021): Women's Body Image Distress Associated with Cervical Cancer. Journal of Obstetrics Gynecology and Reproductive Sciences, 5(3): 1-6. DOI: 10.31579/2578-8965/062

Roland M. (2016) : Awareness of cervical cancer risk factors and symptoms: Cross-sectional community survey in post-conflict Northern Uganda. Health Expect ; 19(4): 854-67.

Said S., Hassan H., Sarhan A. (2018): Effect of an Educational Intervention on Women's

Knowledge and Attitude Regarding Cervical Cancer. American Journal of Nursing Research, 6(2): 59-66. doi: 10.12691/ajnr-6-2-4.

Shrestha S. And Dhakal p. (2017): Knowledge, attitude and Practice

Smita S. And Prativaand Prativa D. (2017): knowledge, attitude and practice regarding cervical cancer screening among women attending a teaching hospital. Bharatpur, Chitwan. Journal of Family and Reproductive Health, 11(1).

Spayne Y., Ackerman I., Milosevic M., And Seindefield (2007) : Cancer: A Failure of screening. European formal of Public Health, 18(2):162–165.

Torres-Mejía, G. & Angeles-Llerenas A. (2009) : Reproductive factors and cervical cancer: principal findings in Latin America and the world. Public Health Mexico, 51(2),): 165-171.

regarding cervical cancer screening among women attending a teaching hospital, Bharatpur, Chitwan. Journal of Family and Reproductive Health, 11(1).

WHO (2011): Cervical cancer: Prevention and control, available at Http://Www.Who.Int/Cancer/Detection / cervical cancer/En/Index3.Html

Wright K.O., Kuyinu Y.A., and Faduyile F.A. (2010): Community education on cervical cancer amongst market women in an urban area of Lagos. Nigeria. Asian Journal of cancer prevention, 11(1), pp.): 137-140.

Zagloul M., Naser E., Hassan H. (2020): Cervical Cancer Knowledge, Attitude, and Practices: Educational Program Management for Female Workers at Port Said University. International Journal of Studies in Nursing, 5(3): 1-16. doi:10.20849/ijsn.v5i3.776.