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The Effect of an Educational and Visual Inspection with Acetic Acid Interventions on Improving Knowledge and Early Detection of Cervical Cancer

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Abstract: *Cervical cancer is the second most common cancer in women worldwide. Weak health services, and inadequate numbers of trained health care providers made it difficult to cover cervical cancer screening in developing countries.*
Aim*: to provide a comprehensive teaching unit to raise women`s awareness about cervical cancer, and to perform cervical cancer screening using vinegar. The study sample consisted of all women attending obstetrics and gynecology outpatient clinic seeking medical advice or family planning services and agreed to participate in the study during January and February months for 3days per week.*
Design: *A quasi experimental study design was utilized to conduct the current study.*
Tools: Tool (1): *pre and post knowledge assessment tool.* ***Tool (2): cervical assessment sheet*** *which classified into three at negative, VIA-positive, or suspicious for cancer.*
Results*: most of the study sample (81.8 %) lacking knowledge related to human papilloma virus and cervical cancer including its nature, types, and symptoms, mode of transition, diagnosis, vaccination and possible complications. 14.5% of the study sample experiencing VIA-positive for referral to cytological investigations.*
Conclusion*: We could concluded that future directions for the development of a longitudinal, national HPV education program appropriate for different age groups and cultures represented an essential demand to upgrade women`s knowledge and attitude towards HPV. Using vinegar as a simple sheep method as an early detection method to direct the physicians attention towards early detection of cervical cancer.*
Recommendations: *More researches about prevention of cervical cancer are needed. Stressing nursing role in early detection of cervical cancer is a must in the gynecological outpatient's clinics.*
Keywords: *Human papilloma virus, vinegar test, nursing role, HPV vaccination*

I. Introduction

Cervical cancer records the third most common women malignancy, with an estimated global incidence of over 500,000 new cases, and represent the second cause of women deaths world widely, with an estimated 530,000 deaths per year. [(1 & 18)]. Human papillomavirus (HPV) infection appears to be involved in the development of cervical cancer in more than 90% of cervical cancer cases [(4)]. The overall prevalence of HPV in Egypt was 10.4% and was highest (9.2%) amongst women aged 45-54 years [(3)]

The most common symptoms are abnormal vaginal bleeding and discharge; patients with advanced disease may present with pelvic pain and bowel or urinary symptoms [(2)]. The World Health Organization has recommended that testing for high-risk human papillomavirus (hr HPV) infection be incorporated into cervical screening programs in all settings worldwide [(5)].

Visual inspection of the cervix with acetic acid (VIA) in HIV-infected women has been shown to have a similar sensitivity for CIN-2+ to cervical cytology, even though with lower specificity [(6-7)]. HIV-infected women are at significant risk for progression of their cervical dysplasia [(8).] Cervical cancer can be controlled via primary and secondary prevention such as cervical screening and prophylactic HPV vaccination [(9-10).]

Healthcare personnel should be actively involved in the fight against STI by means of educational programs in the general population [(12).]

Among the most important roles of nurses is to implement the screening programs by fulfilling the caregiving, training and consultancy roles for the society and especially, for high risk groups and to increase the awareness of the people [(11).]

Aim of the Study: to provide a comprehensive teaching unit to raise women`s awareness about cervical cancer, and to perform cervical cancer screening using vinegar.

II. Material and Methods

Design: A quasi experimental study design was utilized to conduct the current study.
Setting: obstetrics and gynecology outpatient clinic at Beni- Suef General Hospital City
Sample type and size: the study sample consisted of all women attending obstetrics and gynecology outpatient clinic seeking medical advice or family planning services and agreed to participate in the study during January and February months for 3days per week.

Tools of data collection
Tow tools were used in this study
Tool (1): pre and post knowledge assessment tool. A knowledge assessment tool about the prevention of cervical cancer was designed based on knowledge about risk factors, etiology, symptoms, complications and preventive measures.
Tool (2): cervical assessment sheet which classified into three at negative (VIA-negative means there are no significant acetowhite lesions), VIA-positive, or suspicious for cancer (there are sharp, distinct, well-defined, dense (opaque/dull or oyster white) acetowhite areas, with or without raised margins, close to the squamocolumnar junction near the transformation zone) **as identified by (2004)** [(17)].

Administrative design:
To carry out the study, the necessary approvals were obtained from the General Director of Beni- Suef General Hospital and head of the department of Obstetrics and Gynecology, after explaining the aim of the study in order to obtain permission and help.

Ethical consideration:
For each woman, confident and free choice to participate in the study were explained. Women were included in this study consented verbally and fill the knowledge pretest assessment questionnaire.

III. Method Of Data Collection

Data collection was done in three consecutive steps:
Step 1: women were interviewed and their verbal consent to participate in the study after explaining the aim and type of data obtained and assuring the confidentiality of data was obtained.

Step 2 consists of two parts:
Part I: filling demographic and a pretest questionnaire about knowledge related to cervical cancer (obstetric and gynecological history, general knowledge about cervical cancer, general and topical symptoms, vaccination, risk factors and stages of cervical cancer.
Part II: all women are invited to attend an educational session about cervical cancer through a PowerPoint presentation prepared by the researchers and take a booklet contains the same knowledge distributed at the end of presentation, then the researcher decide the next meeting after one week or at the time of consultation.

Step 3: consists of two parts:
Part I: acetic acid examination:
The researchers provide a careful explanation of the procedure, the aim, the possible findings, as well as necessary follow-up care. Equipment are prepared including 3% to 5% acetic acid (white table vinegar) solution, soak a clean swab in 3% to 5% acetic acid and apply to the cervix liberally. Wait at least 1 full minute for the acetic acid to be absorbed (use a watch). Tell the woman that she might feel a slight burning sensation. Check the transformation zone carefully, especially near the squamo-columnar junction, for any dense, non-movable aceto-white areas in the epithelium. Look around the entire transformation zone for any raised and thickened white plaques or acetowhite. If acetowhite areas are identified, note the location, extension, intensity of whiteness, borders and demarcations, as well as size. Lesions vary in size, thickness, opacity, and border definition. [(17)]
Part II: The researchers' meets the women at the consultation time and fill the post test, cervical cancer questionnaire to assure that the purpose of research is obtained.

IV. Data Analysis

The collected data were tabulated, and analyzed utilizing the (SPSS) program version 19. Descriptive analysis was done to describe socio-demographic factors theses qualitative data were expressed as frequency in tables and using chi- squared and fissure test for significance. All reported P value compared to a significant level of 5% differences were been considered statistically significant at $P \leq 0.05$.

V. Results

Table (1): Number and percentage distribution of the study sample regarding their sociodemographic data before interventions

		N = 117	
		No	**%**
knowledge	Adequate	2	1.7
	Moderate	31	26.5
	Inadequate	84	81.8
Age	30-40	48	41
	41-50	36	30.8
	51-60	33	28.2
Education	read and write	19	16.2
	moderate	39	33.3
	high education	59	50.4
Working condition	Working	84	71.8
	Not working	33	28.2
Source of medical information	TV	42	35.9
	net	17	14.5
	friends	4	3.4
	doctors	37	31.6
	nurses	17	14.5

The table revealed that most of the study sample (81.8 %) lacking knowledge related to human papilloma virus and cervical cancer including its nature, types, and symptoms, mode of transition, diagnosis, vaccination and possible complications. Age almost equally distributed and most of the study sample are highly educated (50.4%). 71.8% are working mothers 53% are satisfied about their monthly income. TV and doctors represent main sources of medical information regarding the study subject.

Table (2): Number and percentage distribution of the study sample regarding their medical history data before interventions

		N = 117	
		No	**%**
Vaginal discharge	▪ Yes	95	81.2
	▪ No	22	18.8
Chronic diseases	▪ Diabetes	9	7.7
	▪ Hypertension	15	12.8
	▪ heart and hypertension	7	6.0
	▪ No	86	73.5
Previous surgery	▪ Yes	71	60.7
	▪ No	46	39.3

Their medical history revealed that 81.2% complaining of vaginal discharge and 73.5% are free from chronic diseases. Most women experiencing menstrual pain (77.8%) and 60.7% of them undergone surgical interventions.

Table (3): number and percentage distribution of women experiencing cervical lesions after inspection using acetic acid (Vinegar)

		N = 117	
		No	**%**
Presence of cervical lesions	**Negative**	**100**	**85.5**
	Positive	**17**	**14.5**

The table explicit that 14.5% of the study sample experiencing abnormal cervical lesions for referral to cytological investigations.

Table (4) shows data of the participated women and their association to vaginal smear results

Parameter		**Acetic Acid Vaginal Smear**		Sig. test	*P*- value
		Negative N =100	Positive N =100		
Knowledge Before	▪ Adequate	3(3.0%)	0(0%)	(χ^2) test= 0.624	0.732
	▪ Moderate	25(25%)	5(29.4%)		
	▪ Inadequate	72(72.0%)	12(70.6%)		
Knowledge After	▪ Adequate	76(76%)	7(41.2%)	(χ^2) test= 9.272	0.01*
	▪ Moderate	23(23%)	9(52.9%)		
	▪ Inadequate	1(1%)	1(5.9%)		
Education	▪ Read and write	18(18%)	1(5.9%)	(χ^2) test=	0.000**

	▪ Moderate	25(25%)	14(82.4%)	21.548	
	▪ High education	57(57%)	2(11.8%)		
Age(years)	▪ 30-40	45(45%)	3(17.6%)	(χ^2) test= 9.6	0.008*
	▪ 41-50	32(32%)	4(23.5%)		
	▪ 51-60	23(23%)	10(58.8%)		
Employment	▪ Employed	74(74%)	10(58.8%)	Fischer-test=0.245	0.160
	▪ Unemployed	26(26%)	7(41.2%)		
Information Source	▪ Television	34(34%)	8(47.1%)	(χ^2) test= 3.175	0.529
	▪ Internet	16(16%)	1(5.9%)		
	▪ Friends	3(3%)	1(5.9%)		
	▪ Physicians	31(31%)	6(35.3%)		
	▪ Nurses	16(16%)	1(5.9%)		
Vaginal Discharge	▪ Yes	78(78%)	17(100%)	Fischer-test=0.04	0.21
	▪ No	22(22%)	0(0%)		
Chronic Diseases	▪ Diabetes	6(6%)	3(17.6%)	(χ^2) test= 5.179	0.159
	▪ Hypertension	12(12%)	3(17.6%)		
	▪ Heart disease & Hypertension	5(5%)	2(11.8%)		
	▪ No	77(77%)	9(52.9%)		

The data were represented as count and percent (%).
***P**-value≤ 0.05* is considered significant.*
Fisher's Test is used when 1 cell has expected count less than 5.

This table showed that the positive acetic acid vaginal screening women showed improvement in their knowledge after the intervention rather than the negative ones. Statistically there was significance difference.

Also there were significant difference regarding age groups and educational levels where as income and working condition have no significance difference. Regarding medical history there was statistically significant difference regarding menstrual pain between the two groups (negative and positive ones)

VI. Discussion

Cervical cancer is one of the world's deadliest – but most easily preventable forms of cancer for women, responsible for more than 270 000 deaths annually, 85% of which occur in developing countries [(13).] Cervical cancer screening with visual inspection of the cervix with acetic acid wash (VIA) is simple and affordable [(14).]

This study aimed at providing a comprehensive teaching unit to raise women`s awareness about cervical cancer and Performing visual inspection for cervical cancer using vinegar.

At the present study women`s knowledge significantly increased after teaching session, and as they seek their medical information through TV media followed by doctors we can stress these roles to improve women`s awareness about human papilloma virus and its possible treatment through using vaccines. These findings agreed with Retire et al [(22)] who added that educational instruction on HPV-related diseases has been demonstrated to effectively raise HPV knowledge and vaccine acceptability in America.

The results revealed that the educational level of the study population has played a vital role in upgrading their knowledge after the educational intervention as half of them were highly educated and the rest were moderately educated. These results were agreed with Uzunlar et al [(23)], who mentioned that education levels, and cultures has been demonstrated to increase the success of large-scale vaccination educational programs

The results of the study revealed that acetic acid represent a simple non expensive method for screening women for cervical lesions as 14.5% of the study sample have positive acetic acid screening test for cervical lesions. **Martin et al**, in his study about cervical cancer screening using acetic acid proved that the single-visit approach-based program is feasible, effective, and when scaled up, likely to have an impact on overall incidence of cervical cancer. Services can be shifted to non-physicians for scale-up of high-quality cervical cancer prevention services nationally [(15).]

Positive acetic acid screening test group in the study sample aged mainly from 51 to 60 years which is the common age group for cervical cancer but it was noted that the positive group included another age category ranged from 41 to 50 years which is not common age for having cervical cancer. Although women aged 40 and above are not specifically considered high risk for HPV infection, many women are testing positive in this age group and are facing the impact of an HPV diagnosis that implicates a sexually transmitted disease and is known to be a precursor to cervical cancer [(16).]

At the present study all positive vinegar test women complaining from vaginal discharge which represent a common symptom of cervical cancer. This result agreed with many studies which concluded that the most common symptoms are abnormal vaginal bleeding and discharge [(19),] the most common symptoms of cervical cancer are post-coital bleeding, inter-menstrual bleeding, and vaginal discharge [(20).]

The present study reported that about half of the positive vinegar test complaining from chronic diseases like hypertension, hear diseases and diabetes compared with negative vinegar test, these results supported by other studies which revealed that, it has now been shown that all-cause mortality as well as cancer-specific mortality is higher for newly diagnosed cancer patients suffering from chronic conditions, even when stage at diagnosis or treatment are taken into account **(21).**

VII. Conclusion

We could concluded that future directions for the development of a longitudinal, national HPV education program appropriate for different age groups and cultures represented an essential demand to upgrade women`s knowledge and attitude towards HPV. Using vinegar as a simple sheep method as an early detection method to direct the physicians attention towards early detection of cervical cancer.

VIII. Recommendations

More researches about prevention of cervical cancer are needed. Stressing nursing role in early detection of cervical cancer is a must in the gynecological outpatient's clinics.

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