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Research Article

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Efficacy of Educational Program on Knowledge and Practice of Cervical Screening-Pap Smear Test Among Female Healthcare Workers in Al Falah & Banyas Healthcare Centres, United Arab Emirates

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Abstract

Objective: *This study evaluated the efficacy of educational program on knowledge and practice of pap smear test among female healthcare workers in Al Falah & Banyas healthcare centers, UAE*

Design: *Pre-test post-test quasi-experimental study was conducted on efficacy of educational program on knowledge and practice of pap smear test*

Methods: *108 female health workers were selected using convenience sampling in Al Falah & Banyas healthcare centers, UAE. Data was collected using a self-administered structured questionnaire, analyzed by SPSS version 25.*

Results: *42.6% work in Al Falah, while 57.4% are in Baniyas healthcare center. The pre-education program shows that 80.6% of female health workers had low and middle knowledge scores regarding cervical cancer and 78.7% about a pap smear test. Post-training, all the study participants had good knowledge scores regarding cervical cancer (p=0.001) and pap smear tests (p=0.030). Poor knowledge score was found among young female health workers (p=0.030) and fewer years of experience (p=0.011) in health workers, physicians, and nurses (p=0.000).*

Conclusion: *The study showed gaps in knowledge among female health workers regarding cervical cancer and Pap smear test. In-service training program about cervical cancer and its screening is an effective educational method to provide an effective base for cervical cancer prevention and improve female health workers' knowledge and uptake. Practice guarantees quality of life of women*

Keywords: Pap smear test, female health workers, cervical cancer, cancer screening

Introduction

Cervical cancer is the second most common cancer in women worldwide; early detection can significantly reduce the associated morbidity [1]. Cervical cancer results from abnormal growth of cervical cells; malignant cells usually continue growth till it develops a tumour [1]. In some of the patients, the tumour grows and becomes invasive cancer, spreading to other tissue and nearby organ. According to cervical cancer will be responsible for the deaths of about 474,000 women yearly by 2030, and 95% of these deaths will occur in low- and middle-income countries [2]. Cervical cancer progress slowly; first, the lesion starts as precancerous lesions. If the lesion is not diagnosed early and properly treated, it can lead to cervical cancer development; screening of precancerous lesions is an easy procedure and its essential because it is an asymptomatic disease [3].

Cervical screening decreases the morbidity and mortality of cervical cancer; precancerous lesions and cervical cancer are sexually transmitted diseases [4]. Human Papillomavirus (HPV) is associated with these conditions; it causes more than 99% of cervical cancers. However, cervical cancer is a preventable gynaecological cancer [5]. A pap smear test is one of the commonest cervical cancer screening tests, which looks for precancerous cell changes on the cervix that might become cervical cancer if not treated appropriately. It is a procedure in which cells and mucus are collected from the cervix, smeared onto the slide, and placed into 95% ethyl alcohol or sprayed before it can air dry. An adequate amount of spray should be used to cover the whole surface with a thick coating and transported to the laboratory for cytological examination. According to the American Cancer Society, a Pap smear test should be started at 21 regardless of sexual initiation or other risk factors. According to the updated guidelines, women ages 21 through 29 should be screened with a Pap smear test every three years [6, 7].

Several studies were conducted in other countries that assessed healthcare workers' knowledge and practices regarding cervical cancer screening. In Ethiopia, a study was conducted in 2015 to determine knowledge of cervical cancer aetiology, risk factors, and screening, as well as attitudes and practices regarding cervical cancer screening among women's health care providers. The study found high overall knowledge about cervical cancer, even though the nurses and midwives had low awareness regarding the causes and risk factors. Most healthcare providers showed that cervical cancer screening is essential to women's health. A limited number of health care providers had experience performing cervical cancer screening on a routine basis, and lack of in-service training and resources are the main barriers to performing cervical screening, hence the obvious need for in-service training and the needed resources to implement appropriate cervical screening [8]. Another cross-sectional facility-based study was conducted to assess the knowledge and practice of cervical cancer screening among 367 female healthcare workers in southern Ethiopia [9]. The participants showed that the health workers had a good knowledge level about cervical cancer and a low knowledge level about cervical screening, and a limited number were screened for cervical cancer [10].

Moreover, a cross-sectional study was conducted to determine the knowledge, attitude and practice of cervical cancer and its screening amongst community health workers of Varanasi district, Uttar Pradesh; revealed that the community health workers had good knowledge about cervical cancer and its screening, while less than 10 % of them had undergone screening [11]. The level of knowledge was associated significantly with their practice of cervical screening; it was concluded that there is a need to provide an educational program for female workers [12]. All these studies are in agreement with the result of this study. Cervical cancer prognosis can be improved if cervical screening is widely accepted and implemented [13]. Therefore, it is important to train healthcare workers as they can influence the patients' beliefs and attitudes, subsequently improving women's general health. The aim of this study evaluated the efficacy of educational intervention programs on the level of knowledge and practices of female health workers at Al Falah and Banyas healthcare centers regarding cervical screening (Pap smear test).

Material & Methods:

Research design:

The research design was a pre-test post-test quasi-experimental study; the population were all female health workers who are working in the two health centers, Al Falah and Baniyas healthcare centers; both centers provide a combination of family medicine, specialty health services in addition to screening, diagnostic services and public health facilities following the international standard and safest quality. The centers are part of SEHA, Abu Dhabi healthcare company, the largest and most comprehensive healthcare network in the United Arab Emirates; Al Falah provides health services to an average of 15.422 patients per month, while Baniyas health care center offers 18.300 patients per month. The average Pap smear test performed is 25 smears and 10 Pap, respectively, which confirms low uptake of pap smear services irrespective of the number of patients presented to the health centers per month [14].

Study Population:

The total study population was 108 female health workers; 46 from Al Falah, and 62 were from Banyas healthcare centres.

Sample Size:

The total number of study population were 108 female health workers; 46 of them worked in Al Falah healthcare centre while 62 were from Banyas healthcare centers.

Sampling Technique

Convenience sampling-which means that participants were not assign randomly. All the participants who fulfilled the inclusion criteria were included in the study.

Data Collection:

The questionnaire consists of socio-demographic data about the participant; Knowledge about cervical cancer; Knowledge and practices about cervical screening (Pap smear test); Educational program materials, and post-education program information. The study tool variables used the Likert scale; knowledge related to cervical cancer and pap smear tests were 3-point scale questions (Yes-1, No -0 & I don't know). For each variable related to cervical cancer and Pap smear test knowledge and practices, the right choice is considered as one score. In contrast, the wrong answer is regarded as a 0 score; the maximum score is 15, while the poor knowledge score is less than 8), the fair knowledge (score is 8-11), and the good knowledge (is 12–15). The questionnaire was tested for validity and reliability, and items were reviewed based on the PCA and CA. The Cronbach's Alpha is 0.805.

Data Analysis

Data was analyzed using SPSS – version 25. and interpretation is based on the objectives of the study. descriptive and inferential statistics at p value<0.05 significance

Results

Distribution of female health workers per the healthcare centers; the study investigated 46 (42.6%) in Al Falah healthcare center and 62 (57.4%) in Baniyas healthcare center.

Table 1: Distribution of socio-demographic data in Al Falah and Baniyas healthcare centers (n=108)

Socio-demographic variables		Number (n)	Percentage (%)
Age	>30 years	21	19.4%
	31-40 years	46	42.6%
	41-50 years	34	31.5%
	51-60 years	7	6.5%
	Mean age + SD	36 + 7.24	
Marital status	Single	24	22.2%
	Married	80	74.1%
	Widow	3	2.8%
	Divorced	1	0.9%
Profession	Nurse/midwife	61	56.5%
	Physicians	18	16.7%
	Pharmacists	12	11.1%
	Dentists	8	7.4%
	Dietitians	6	5.6%
	Other professions	3	2.7%
Years of experiences	**>5 years**	18	16.7%
	5-10	39	36.1%
	< 10 years	51	47.2%
	Mean	9 + 3.82	

Table 1: shows the socio-demographic data of studied female health workers,] The mean age + SD was 36 + 7.24 years, while the mean years of experience were 9 + 3.82 years.

Knowledge About Cervical Cancer Pre And Post-Education Program:

In analyzing respondents' right answers about cervical cancer were added together and analyzed based on: Good knowledge score (13-16), Middle knowledge (score of 9-12) and Poor knowledge (a score less than 9).

Table 2: Distribution of knowledge about cervical cancer pre and post-education program (n=108)

Items		Pre -Education				Post -education			
		Right answer		Wrong answer		Right answer		Wrong answer	
		N	%age	N	%age	N	%age	N	%age
1	Cervical cancer is a curable disease	64	59.3	44	40.7	105	97.2	3	2.8
2	It is a leading cause of death in the UAE	41	38	67	62	108	100	0	0
3	It is progressing slowly	78	72.2	30	27.8	104	96.3	4	3.7
4	Cervical screening decreases the morbidity and mortality of cervical cancer	66	61.1	42	38.9	108	100	0	0
5	It causes bleeding after menopause	78	72.2	30	27.8	108	100	0	0
6	It causes foul-smelling vaginal discharge	65	60.2	43	39.8	107	99.1	1	0.9
7	It causes bleeding/pain after sexual intercourse	60	55.5	48	44.5	108	100	0	0
8	It causes abnormal vaginal bleeding between the period	62	57.4	46	42.6	106	98.1	2	1.9

Table 2: shows the pre and post-education program knowledge of female health workers regarding cervical cancer; the majority of respondents, 78 (72.2%), knew that cervical cancer progress slowly with bleeding after menopause, while the minor causes are bleeding / pain after sexual intercourse. Post-education shows the changes in knowledge regarding cervical cancer. The study found all the participants knew that cervical cancer is a leading cause of death in the UAE

Table 3: Distribution of knowledge about cervical cancer risk factors pre and post-education program (n=108)

Items		Pre -Education				Post -education			
		Right answer		Wrong answer		Right answer		Wrong answer	
		N	%age	N	%age	N	%age	N	%age
1	Multiple sexual partners	71	65.7	37	34.3	108	100	0	0
2	Early sexual intercourse	70	64.8	38	35.2	108	100	0	0
3	HPV infection (Human Papillomavirus)	84	77.8	24	22.2	108	100	0	0
4	Infection with HIV	65	60.7	43	39.8	106	98.1	2	1.9
5	Cigarette smoking	46	42.6	62	57.4	107	99.1	1	0.9
6	Using contraceptive pills	42	38.9	66	61.1	108	100	0	0
7	Having multiple deliveries	37	34.3	71	65.7	108	100	0	0
8	Avoiding unprotected sexual intercourse	38	35.2	70	64.8	108	100	0	0

Table 3: shows pre and post-education programs of health workers' knowledge about cervical cancer risk factors. In the pre-education program, the majority, 84 (77.8%), knew that HPV infection (Human Papillomavirus) is a risk factor for cervical cancer; while the least identified was multiple deliveries, 37 (34.3%). Post education shows that all the study participants identified all the risk factors, with the least being 106 (98.1%).

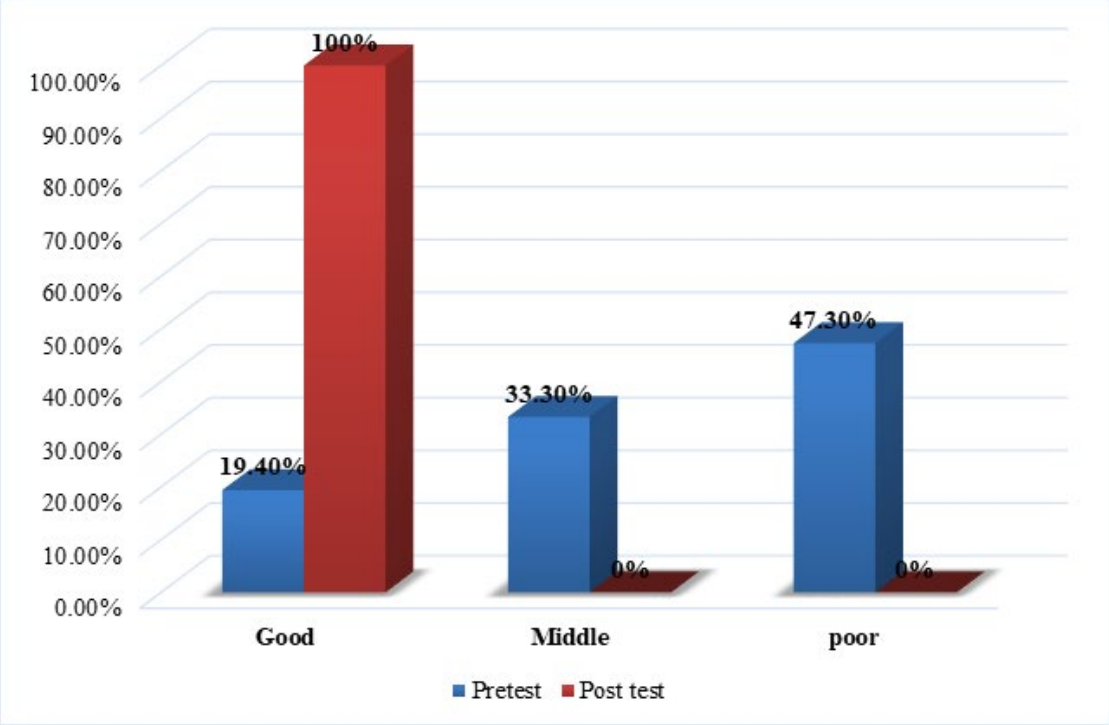

Figure 1: Cervical cancer knowledge score pre and post-test (n=108) at p-value =0.001 summarizes that before the educational program, the study found 21 (19.4%) of participants had good knowledge, while 51 (47.3%) had poor knowledge. After receiving the educational program, significantly, the knowledge of all participants became at a good level [16-12].

Table 4: Distribution of pre and post-education programs on Knowledge and practices about pap smear tests (n=108)

Items	Right answers		Wrong answers	
	n	%	n	%
1-Hear about Pap smear test for cervical screening	88	81.5%	20	18.5
2- A pap smear test is useful for the early detection of cervical cancer	100	92.6%	8	7.4
3- Causes harm to the client	34	31.5%	74	68.5%
4- Painful manoeuvre	35	32.4%	73	67.6%
5-Age Pap smear test be started	58	53.7%	50	46.3%
6- The intervals for doing a Pap smear test	74	68.5%	34	31.5%
7- The best time for doing a Pap smear test	76	70.4%	32	29.6%
8-Who does Pap smear test	78	72.2%	30	27.8%
9- pap smear test manoeuvre	79	73.2%	29	26.8%
10- Next step after abnormal Pap smear test results	71	65.8%	37	34.2%
11. Benefits of pap smear test	66	61.1%	42	38.9%
12. Availability of human papillomavirus vaccination in a healthcare center	84	77.8%	24	22.2%
13. Vaccinated against human Papillomavirus	49	45.4%	59	54.6%
14. Underwent pap smear test	29	26.8%	79	73.2%

Table 4 summarizes study participants' responses regarding the pap smear test preprogram. The majority of 100 (92.6%) participants stated that the Pap smear test is helpful for early detection of cervical cancer, with only 49 (45.4%) vaccinated against human Papillomavirus.

Table 5: Association between health workers' socio-demographic data and their knowledge level regarding cervical cancer (n=108)

Socio-demographic variables		Knowledge level			Total	X^2	P value
		good	middle	poor			
Age	>30 years	1	1	19	21	151.442[a]	0.03
	31-40 years	10	10	26	46		
	41-50 years	9	20	5	34		
	51-60 years	1	5	1	7		
Marital status	Single	7	8	9	24	190.797[a]	0.154
	Married	13	26	41	80		
	Widow	0	1	1	3		
	Divorced	0	1	0	1		
Profession	Nurse/midwife	6	30	25	61	129.480[a]	0.000
	Physicians	15	3	0	18		
	Dietitians	0	0	6	6		
	Pharmacists	0	1	11	12		
	Dentists	0	2	6	8		
	Other	0	0	3	3		
Years of experiences	>5 years	1	1	16	18	131.050[a]	0.011
	5-10	2	5	32	39		
	< 10 years	18	30	3	51		

Table 5: Shows the bivariate analysis of the studied worker's socio-demographic data about their knowledge level about cervical cancer.

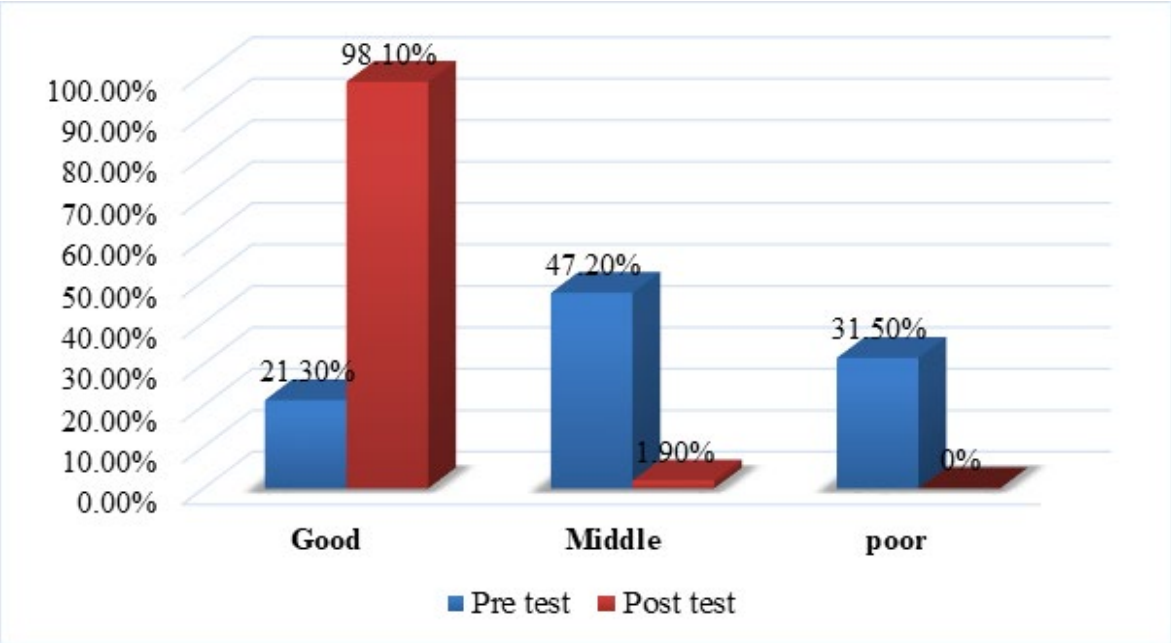

Figure 2: Pap smear knowledge and practice score pre and post-test (n=108)

p=0.030 summarizes that pre-training program, the study found 51(47.2%) of them had middle knowledge level (7-11) while 34 (31.53%) had poor knowledge with a score less than 7. After receiving the educational program, significantly, the knowledge of all participants became at a good level [12-14].

Table 6: Association between health workers' knowledge and practice level of Pap smear and their socio-demographic data

Socio-demographic variables		Knowledge level			Total	X^2	P value
		good	middle	poor			
Age	>30 years	1	1	19	21	132.330[a]	0.000
	31-40 years	9	26	11	46		
	41-50 years	11	20	3	34		
	51-60 years	2	4	1	7		
Marital status	Single	8	7	9	24	162.990[a]	0.411
	Married	14	42	24	80		
	Widow	1	1	1	3		
	Divorced	0	1	0	1		
Profession	Nurse/midwife	6	30	25	61	153.540[a]	0.212
	Physicians	15	3	0	18		
	Dietitians	0	0	6	6		
	Pharmacists	0	1	11	12		
	Dentists	0	2	6	8		
	Other	0	0	3	3		
Years of experiences	>5 years	1	2	15	18	130.590[a]	0.021
	5-10	4	19	16	39		
	< 10 years	18	30	3	51		

Table 6: shows that age (p=0.000) and years of experience (p=0.021) were associated with knowledge about Pap smear tests. No significant association between profession and marital status.

Reasons why the female health workers did not perform a pap smear

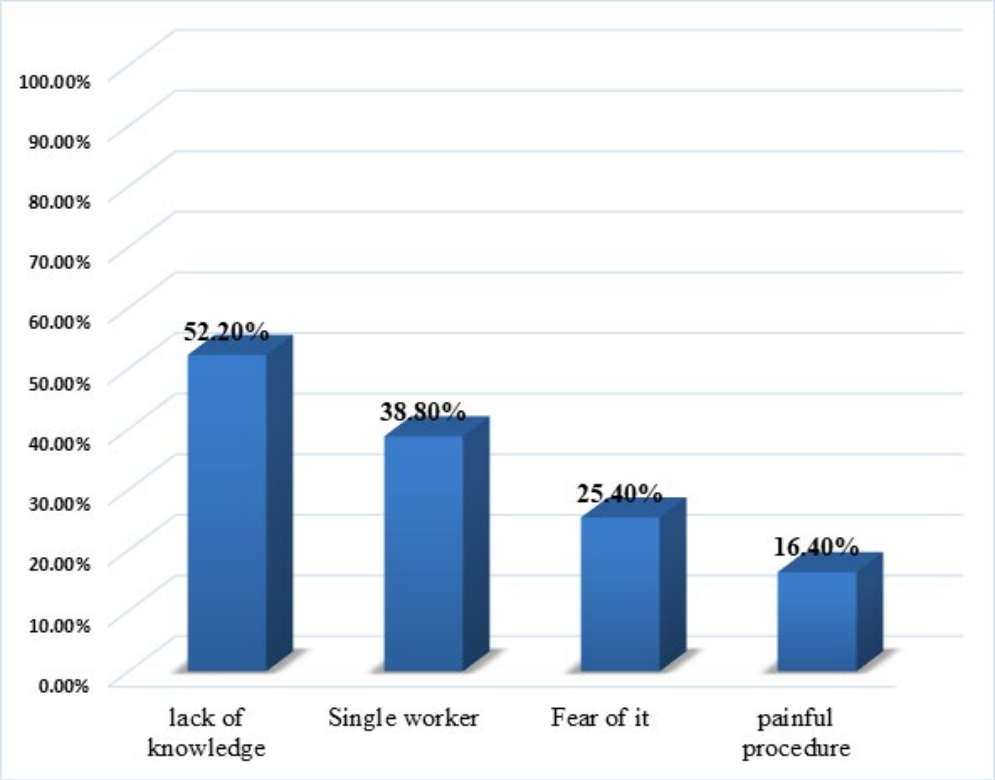

Figure 3: Distribution of female health workers who didn't perform pap smear for their reasons (n=67) 52.2% of participants lack knowledge about pap smear tests, while 16.4% assume it is a painful procedure.

4. Discussion

Socio-demographic characteristics

In the present study, most study participants were in age group 31-50 years; they were 74.1% of the total population. The mean age + SD of study participants was 36 + 7.24 years. Most studied health workers are relatively young and had several productive years. As stated in this study, investing in them will improve the health system's performance [15].

Two third of them (74.1%) were married. Studied female health workers showed different professions in the health centers. The majority of them were nurses/midwives. It is important to determine the discrepancy in health workers' knowledge. The studied workers' mean years of experience was 9 + 3.82 years, with a long period of experience. Age was significantly associated with a p-value of 0.030; Profession was significant at (p=0.000); years of experience was significant at (p=0.011); only marital status has no association [16].

Knowledge and practice of cervical screening among females

A multi-center cross-sectional study conducted to investigate the knowledge, attitudes, and practices regarding cervical cancer, screening and the application of Pap smear testing among 805 women in primary healthcare centers in Oman, the patients' socio-demographic characteristics revealed only 13.4% and 10.9% had high knowledge level related to cervical cancer and Pap smear testing. Knowledge level was significantly associated with participants' educational level, qualification, monthly income, and occupation [17].

In Pakistan, another study to assess cervical cancer knowledge, practices, risk factors, screening and prevention, in addition to human papillomavirus vaccination and Pap smear testing, was conducted among 384 women in Karachi. Of those who heard about cervical cancer (25.5% out of 61.2%) knew that a vaccine existed for prevention; out of them, 9.8% had been vaccinated against the human papilloma virus. The study reflected that the knowledge levels, as a whole, were considerably lower in the city's general population. [18].

In India, a cross-sectional study was conducted to assess awareness about cervical cancer and HPV vaccine among 1500 females in rural and urban areas of Haryana. The study revealed 55% of the women from rural areas had poor knowledge about cervical cancer (and its screening (75%), while it was HPV infection (87.5%) and HPV vaccine (95%) in the urban areas [19].

Cervical cancer symptoms and risk factors knowledge was very low in both rural and urban women. The women's source of information was from a college education, friends, neighbours, relatives, and medical practitioners or doctors [xii]; [20].

Knowledge about cervical cancer and pap smear:

In the current study, health workers' knowledge score in the pre-educational program about cervical cancer was at a middle and poor level. Those workers were 80.6% of the total population. Most health workers stated how to do Pap smear correctly, with only one undergoing a pap smear test. Most studied workers knew that HPV infection (Human Papillomavirus) is a risk factor for cervical cancer and is a leading cause of death in the UAE.

These studies reported less knowledge level related to cervical cancer, which is in line with the results reported by this study [21-24]. Showed the knowledge gap about cervical cancer among Tanzanian women and found inadequate knowledge about cervical cancer and its screening among medical students [25]. Findings supported the result of this study [26]. Only 4.0% of study participants appeared to have good knowledge of cervical cancer, although they investigated health workers. The differences in knowledge may be due to the differences in the study population, study setting and the participants' socio-demographic data.

Additionally, the current study found poor knowledge level was illustrated among young female health workers (p=0.030), who had less years of experience (p=0.011) and either health workers rather than physicians and nurses (p=0.000). Young workers were exposed to less work experience and needed more intervention to raise their capabilities. Regular training programs may improve their abilities to be skilled workers. Also, only physicians and nurses were exposed to Pap smear in the study and their work; the other workers need more information to pass on to the women in the community. All care providers should share in this activity to protect themselves and their community.

In this study, the pre-training program for the middle and poor knowledge scores about pap smears was 78.7%; only 23 out of 108 participants had good knowledge scores, meaning only about a quarter of female health workers can provide services to educate the women who visit the centers. Female workers in the obstetric unit will have more opportunities to educate women because it is related directly to their work.

The following studies [xxii]; revealed low knowledge levels related to Pap smear testing [27, 28]. This is a variant of this study's findings, with the significant association of the knowledge about cervical screening and Pap tests with workers' age (p=0.000) and years of experience (p=0.021). However, they reported that Knowledge level was significantly associated with participants' occupation. They showed a discrepancy in educational level, qualification, monthly income, and knowledge level. Similarly, established the knowledge gap among health practitioners regarding cervical cancer screening hanging [29-32]. However, found the majority of studied women felt embarrassed when examined by a male doctor, and few of them underwent a Pap smear screening when they were never married.

Practices about cervical screening (Pap smear test)

The study found that pre-education, only 29 (26.8%) participants had a pap smear test done; additionally, only 62% of those who didn't have a pap smear test done mentioned why they didn't perform pap smear; lack of knowledge about Pap smear test being the most frequent cause. This was followed by the single worker; fear of it; and their assumption that it is a painful procedure which was collaborated by that intention to perform a Pap smear test is influenced by women's health beliefs [33]. These findings showed the vast gap in Pap smear practices related to their poor knowledge. Interventional activities are mandatory.

However, [xxxiii] found that most studied women felt embarrassed when examined by a male doctor, and few of them underwent a Pap smear screening when they were never married.

[xxvii] showed a similar percentage of participants who underwent pap smear tests. While [xxii]; [xxxiv]; [xxix] showed less number of respondents experienced pap smears compared to this study, the above researcher studied women from the community while we investigated health workers. Furthermore, it illustrated that the utilization of screening services was limited in Australia [34].

In the current study, after the post-educational program, the knowledge of all participants related to cervical screening, utilization of Pap smear tests and pap smear was significantly improved to a good score, which showed the effect of an educational program in building female health workers' knowledge. Initially, 29 (26.8%) female health workers underwent Pap smear tests before the education program, while after the training, they became 86 (79.6%) participants. Obvious changes happened to the utilization of Pap smear tests in one month. Continuous interventions are essential as they will help increase the number of health workers undergoing pap smear tests and consequently affect the patient's willingness to experience it after adequate health information.

The training program is an effective method to raise the worker's level of knowledge. Similar interventional studies were conducted in Saudi Arabia, Ethiopia and China reported the impact of an educational program on participants' behaviour; all these studies align with the findings of this study [35-39].

Conclusion

In conclusion, in pre-education, most female health workers had middle and poor knowledge scores about cervical cancer and pap smear tests. There is a continued need for enhanced health education in cervical cancer prevention through Pap smear tests, particularly among female health workers. Strategies for enhanced patient education should incorporate visual aids, interactive features, and audio and clarify what screening entails for greater accessibility and comprehension among women. Self-administered, online education tools emphasizing patient–provider communication that can be implemented in the clinic and community settings offer opportunities for increased adherence to appropriate cervical cancer screening guidelines that can benefit women generally.

Dissemination of patient education tools around cervical cancer screening and prevention is needed, with an emphasis on the fact

that cervical cancer screening is necessary, Hospital -engaged education tools such as the one used in this study are critical for supporting workers to navigate their healthcare experience with agency and quality of life. Therefore, the educational program regarding cervical cancer and pap smear test among female healthcare workers is an effective in-service training method to improve their knowledge, practice and health education to women; the following recommendations have emerged: It's important to conduct regular planned in-service training to female health workers about pap smear test, a monthly forum in each center to discuss the important health problem, epidemics, communication skills, the common problem faced the health workers, the utilization of health services and how to encourage the patients, this activity will raise the health workers' information and skilled them with the important information they needed. Conduct the same study in other healthcare centers and other Emirates to generalize the findings and set comprehensive plans and activities for Human Resources for Health Development.

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