

## Knowledge, Attitude and Practices Regarding Cervical Cancer and Screening among Libyan Female Healthcare Professionals in Tripoli

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### Abstract

**Background:** Cervical cancer is a malignant disease arising from cells originating in the cervix. It is a preventable disease if a suitable prophylactic plans and proper screening are followed. Healthcare professionals with sufficient knowledge can play important role in raising awareness of the population in a confident approach. Therefore, the present study was aimed to assess the knowledge, attitudes, and practices of healthcare professionals among cervical cancer and screening at main hospitals in Tripoli city.

**Methods.** A cross-sectional study was conducted during February to March, 2018. Data were collected using a self- administered questionnaire. The questionnaire included two sections on demographic characteristic and, to test knowledge, attitude, and practices regarding cervical cancer and its screening.

**Results.** The mean age of participants was 32.5 ± 8.2 years. About 33.5% of participants were physicians, 21.6% were pharmacists, and 28.4% were nurses. Of the total subjects, 57.9% reported were married for > 5 years. Knowledge of cervical cancer was significantly associated with education, profession and parity (p<0.001). The mean knowledge score was 5.05 (range 0-7). A total of 347 participants had heard of cervical cancer, and 50.3% knew that Pap test is useful for the detection of cervical cancer. But, only 14.1% of respondents stated undergone Pap smear tested. The foremost cited reasons for not having Pap test comprised “never thought I needed one” (42.4%). Only 1.1% reported cervical cancer is sexually transmitted disease and 7.6% stated multiple sexual partners’ exposure woman to risk for cervical cancer.

**Conclusions.** These findings indicate that healthcare professionals have fair knowledge of cervical cancer. So, the present study stressed the needs to spread awareness among all healthcare workers. It further encourages for formal educational programs for the healthcare professionals to update their knowledge about the risk factors of cervical cancer.

**Keywords:** Cervical cancer; Knowledge; Pap smear; Human papilloma virus; Risk factors; Libya

## Introduction

Globally, cervical cancer ranks as the fourth most frequent type of female cancer and the fourth leading cause of disease related deaths, with more than 90% of cases occurring in developing countries [1]. In Libya, cervical cancer is considered as the seventh most common cancer affecting women between the ages 15 to 44 years old. Human Papilloma Virus (HPV) was the main cause of almost all cancer of the cervix uteri. The majority of cases were squamous cell carcinoma followed by adenocarcinomas (ratio 5.8:1) [2], with an estimated 241 new cases were yearly diagnosed, with a crude incidence rate at 7.4 per 100.000 inhabitants, which is more than twice that of Japan (2.8/100.000) and the United States (2.7/100.000) [3], and with 95 patients die as a result of the disease, with a crude mortality rate at 2.9 per 100.000 each year [4]. Indeed, it is undoubtedly that cancer of the cervix uteri is a preventable and curable disease, preventable by vaccination and screening and curable if identified at an early stage [5]. Clinically, it has been shown that HPV vaccine and population- based cervical smear examination have contributed to a decrease in the incidence rate of cervical cancer and its mortality [6,7]. Worldwide, many studies have reported various risk factors associated with cervical cancer that includes multiple sexual partners, early age at first sexual intercourse, parity and early age at first delivery. Further, use of oral contraceptive pills, obesity, smoking and genetic sensitivity were specified present's significant risk [8]. A number of research evidences have showed that infection with high-risk HPV considerably augments the relative risk for progressing cervical cancer and is liable for 85-99% of total incidents [9]. Further, HIV infection was shown exaggerates women's risk for cervical neoplasia [10]. There are three types of screening are presently available and are commonly used for the testing of cervical cancer. These comprise tests for HPV, cytology-based Papanicolaou test (Pap test), and visual inspection with acetic acid [11]. Indeed, screening assists in the recognition of cancer at an early stage when it can be treated more efficaciously. Many studies have reported that Papanicolaou cytological testing, Pap smear, allows cervical lesions to be identified before they developed cancerous, and efficiently decreasing the incidence of cervical cancer by more than 75% [12]. Literatures data have stated that most of all cervical cancer can be barred if women were complied with cytological screening program [13]. Consequently, several preventive services task have endorsed Pap smear screening for all sexually active women. The American Cancer Society highly recommended Pap smear test with a repeat screening, after every three years, for sexually active woman and should begin no later than 21 years of age [14]. Although cervical cancer is considered as the most common type of female cancer, in developing countries less than 10% of women have been screened with Pap smears, compared to more than 40% in developed countries [12]. These poor uptakes of the Papanicolaou cytological testing are attributed to the shortage of consultation between patients and healthcare providers regarding the benefits of the screening. In some African countries, women's knowledge of cervical cancer is limited. It was showed that women had not heard of cervical screening and even more knew nothing about cervical cancer [15,16]. In Libya, it has been shown that carcinoma of the cervix uteri accounts for 1.8% - 5% of all diagnosed female cancers [2,17]. However, few studies are available that have been conducted to estimate the knowledge level and awareness of cervical cancer and to evaluate the limit of utilization of the screening methods among women of reproductive age [2,18]. This might be due to lack of suitable screening programs. Noteworthy, the majority of women cancer awareness events in Libya are largely focused on breast cancer. Moreover, to our knowledge, there are no published data on healthcare staff's knowledge about cervical cancer in Libya. So, since healthcare professionals can play important role in increasing awareness and to modify the general public behavior for

early detection, therefore, their knowledge should essentially be evaluated and updated on a regular basis. In addition, females, even those healthcare providers, are more likely not feel comfortable and are hesitant to talk about these symptoms and matters with male physicians. Hence, the present study was aimed to evaluate the knowledge, attitudes, and practices, and screening towards cervical cancer among Libyan female healthcare professionals at main hospitals in Tripoli, the capital of Libya.

## Methods

The present cross-sectional study was conducted using 374 questionnaires distributed manually to healthcare women working in five main hospitals; “Tripoli Medical Center, Tripoli Center Hospital, AL-Gala Hospital, Tajura Hospital and Metigha Hospital”, in Tripoli city, the capital of Libya. The study population comprised female healthcare workers, including physicians, pharmacists, nurses, technicians and administrative staff. The participants were randomly selected from each profession using random sampling technique by picking up every 3<sup>th</sup> woman come-cross during that time of study. The duration of the study was from February to March 2018. The inclusion criteria include Libyan woman, aged 17 years or above, and is a healthcare worker. Women were excluded from the study if they were reported non-Libyan, gynecologist, those who were below 17 years old and who were undergoing treatment for cancer. Data collection was done using a pretested and validated questionnaire that was adapted from previously published studies [12,19], so that a comparison could be made with the findings from other studies. The questionnaire was translated into Arabic language using English-Arabic dictionary/computer software by a qualified and expert person to ensure its comprehensibility. It was pilot-tested, the pre-final version, to assess the clarity of the questionnaire, before conduction of real study, in a sample of 30 women who were not part of the study sample. Slight modification was done on the questionnaire according to few notes gathered from the pilot study. A small paragraph elucidating the study purpose was written at the top the questionnaire including the acceptance of the participant to share in the survey. Woman, who agreed and signed it, as a written informed consent, went to the next step of the study. Subject names were not used in a way to keep the questionnaire confidentiality. The survey form comprised two sections of 19 items that addressed sociodemographic data (8 characteristics) and questions to evaluate the knowledge about and attitude and practice toward cervical cancer (11 items). Personal data, the first section, included age, education level, profession, experience, marital status, duration of marriage, parity and number of miscarriage. The second part concerned with knowledge about cervical cancer and screening with the following variables: whether the women had ever heard of cervical cancer, source of information, history of cervical cancer among family, had ever heard about Pap smear and is it used to detect cervical cancer, knew the risk factors that may lead to cervical cancer, whether early detection of cervical cancer is good for treatment outcome and whether is it possible to cure cervical cancer. The women’s attitude and practice were established with the following detailed variables: have ever had a Pap smear done, if you were told that a Pap smear is painless, simple and good for early detection of cervical cancer, and once they like to have one, where would prefer to have it done. In addition, the reasons for do not doing Pab smear test were asked. Women were requested to select one of the three options: “Yes,” “No,” or “Don’t know”. The questionnaires were controlled through face-to-face interviews of voluntarily willing participants with trained research assistant (the coauthors). The study design and questionnaire items were discussed and approved by the Ethical Committee of the Faculty of Pharmacy, University of Tripoli. The sample size was calculated based on 95% confidence level and 95% statistical power

to the survey, by using single population proportion formula (Raosoft; sample size calculator program) [20]. So, this gives a total sample size of 374.

### Statistical analysis

The questionnaire scale was dichotomized based on each subject's answer: yes or no or don't know i.e. 1 or 0, 0, respectively. A total knowledge score was estimated for each respondent based on the number of questions answered. The participants' knowledge score was calculated by adding up responses of 7 items. A minimum score of 0 and a maximum score of 7 could be obtained. The total score of [0-4] were classified as "poor", [5-6] as "fair" and [7] as "good" knowledge. The Kruskal–Wallis one-way analysis of variance (ANOVA), followed by *post hoc* test Dunn's Multiple Comparison were used for comparison between group means. The Mann–Whitney test was employed to test for significant difference between groups, as appropriate. Data are expressed as mean  $\pm$  SD unless otherwise stated, and descriptive statistics including frequencies, percentages, median and interquartile range. In all the statistical tests, the 95% Confidence Interval (CI) was calculated. *P*-value  $< 0.05$  was considered statistically significant. Analyses were functioned by the use of GraphPad Prism (GraphPad Software Inc, version 3.0, USA).

### Results

Of the 374 questionnaires that were scattered, 370 were returned and women agreed to participate given a response rate of 98.9% that included in the analysis. The median age of subjects was 29 years (mean  $\pm$  SD is  $32.5 \pm 8.2$  years). **Table 1** shows the sociodemographic data for the respondents. The distribution of age of the participated women was as follows: 17-26 years, 22.4%; 27-36 years, 48.1%; 37-46 years, 23.5% and 47-56 years, 5.9%. A total of 124 (33.5%) respondents were physicians, 80 (21.6%) respondents were pharmacist, and the remaining 105 (28.4%) respondents included nurses, technicians and administrative. About 48.6% of the respondents were married. One hundred and twenty-three (62.4%) participants reported having never history of miscarriages. Over 24% of the women had parity  $\geq 4$  times. In addition, of the researched group, 71.6% were university graduated, 11% had a more than 20 years' job experience, and 57.9% married for more than 5 years.

**Table 1:** Participants' sociodemographic characteristics (n=370).

Characteristic	Frequency (n)	%
Age of subjects (years)		
17-26	83	22.4
27-36	178	48.1
37-46	87	23.5
47-56	22	5.9
Mean $\square$ SD	32.5 $\square$ 8.2 years	
Education level $\ddagger$		
Primary and preparatory	19	5.1
Secondary	70	18.9
University	265	71.6

Profession ‡		
Physicians	124	33.5
Pharmacist	80	21.6
Nurse	105	28.4
Technician	40	10.8
Administrative staff	18	4.9
Experience in years		
1-10	257	69.5
11-20	72	19.5
> 20	41	11.0
Marital status		
Single	173	46.8
Married	180	48.6
Divorce	11	3.0
Widow	6	1.6
Duration of marriage ( <i>n</i> =197)		
< 5 years	83	42.1
> 5 years	114	57.9
Parity ( <i>n</i> =197)		
0	37	18.8
1	37	18.8
2	39	19.8
3	35	17.8
4	49	24.9
Number of miscarriages ( <i>n</i> =197)		
0	123	62.4
1	36	18.3
2	23	11.7
≥ 3	15	7.6

‡Data are missing in participants' education level (*n* = 16), and profession (*n*=3). In the calculation of percentages (%), the denominators include missing observations.

Over 93.8% (347 respondents) had heard about cervical cancer and half of the subjects (50.3%) had heard about the Pap smear test (Table 2). The main source of information was the mass media (34.9%). About half of the women (50.3%) thought that the Pap smear test can detect cancer before the appearance of symptoms. A total of 36 women (9.7%) stated having history of cervical cancer among their family. More than three-fifth (70.3%) of women stated that the Pap smear can assist treatment outcome. The majority of the participants (75.5%) have knowledge that biopsy can be used for screening for cervical cancer, followed by use of vaginal telescope by 13.5%. The majority of the subjects were poor knowledgeable about risk factors for cervical cancer. Only 1.1%

of the women stated that cervical cancer is sexually transmitted disease and 7.6% (28 women) agreed that multiple sexual partner's exposure woman to a risk for cervical cancer. Only 4.7% of the total number of women makessense that smoking is a risk factor for cervical cancer. Whereas, weakness of the immune system was ranked first as a risk factor for cervical cancer by 31.6%, followed by it is considered as a hereditary disease by 26.8% and use of oral contraceptive pills by 23.2% (Table 2). Of the total sample 58.4% of the subjects (216 women) reported that cervical cancer is a curable disease.

**Table 2:** Participants' Knowledge and risk about cervical cancer (n=370).

Items	Frequency (n)	%
Have you ever heard about cervical cancer?		
Yes	347	93.8
No	23	6.2
Where did you hear about cervical cancer for the first time?		
Relatives, friendsGynecologist	42	11.4
Mass media (newspaper, internet, television)Others	101	27.3
	129	34.9
	98	26.5
History of cervical cancer among familyYes		
No	36	9.7
	334	90.3
Did you hear about Pab smear testYes		
No	186	50.3
	184	49.7
Other methods used for detection of cervical cancer †		
Biopsy	281	75.5
Vaginal telescope	50	13.5
Viral inspection with acetic acid (VIT)	21	5.7
Risk factors for cervical cancerContraceptive pills		
Having too many children	86	23.2
Is cervical cancer a hereditary disease?Weakness of immune system	4	1.1
Multiple sex partners (Marriage to man with other women)Sexually transmitted	99	26.8
disease	117	31.6
Smoking	28	7.6
Early age of marriage, < 17 years (sex at young age)Diet	4	1.1
Lack of hygine	17	4.6
	8	2.2
	3	0.8
	4	1.1

Is it possible to detect cervical cancer with Pap smear before symptoms appear?		
Yes no	186	50.3
	184	49.7
Is early detection of cervical cancer good for treatment outcome?		
Yes No	260	70.3
	110	29.3
Is it to possible to cure cervical cancer?		
Yes No	216	58.4
	154	41.6

‡Data are missing in participants' response level ( $n = 18$ ). In the calculation of percentages (%), the denominators include missing observations.

**Table 3** displays the average total score for knowledge about cervical cancer with regards to sociodemographic characteristics. For most of the variables, the medians and the means are closely related. The average total score of knowledge among all participated women was  $5.05 \pm 1.67$ , seeing that the maximum score was (7 out of 7) and the minimum score was (1/7). Increased level of education, increased number of parity ( $\geq 4$ ), and those women who being physicians resulted in higher score for knowledge reported. Significant differences were noted between groups, with more scores reported by those women with more education, increased parity and being physicians ( $p < 0.001$ ). Analyses of knowledge score according to demographic individualities also indicated that women aged 27-36 years, had total experience of 10-20 years, and never married characterized with relatively higher scores of knowledge ( $5.4 \pm (4.7-6.1)$ ,  $5.0 (4.6-5.4)$ ,  $5.4 (4.9-5.9)$ , respectively, **Table 3**); but this did not reach statistical significance ( $p > 0.05$ ). Furthermore, the average knowledge scores were not widely dissimilar among women of various duration of marriage ( $p = 0.88$ ) and number of miscarriages ( $p = 0.29$ ). Lastly, considering fair knowledge as precisely answering by 72.14%, our participants were found to have fair score of knowledge (**Figure 1**).

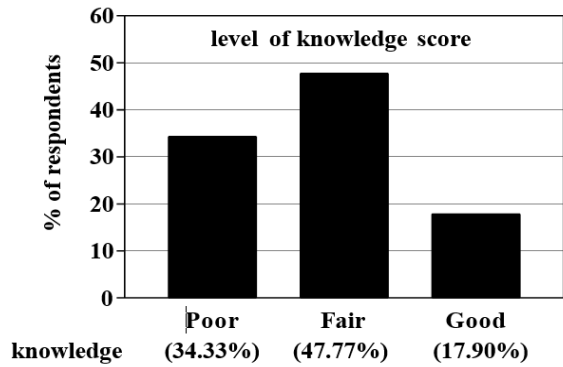
**Table 3:** Average total score for knowledge about cervical cancer with demographic variables.

Variables	Knowledge score				
	n	Mean	Interquartile range		
		(95% CI) <sup>a</sup>	25th centile	Median	75th centile
Age of subjects (years) <sup>ns</sup>					
17 – 26	83	5.2 (4.9-5.5)	4	5	7
27 – 36	178	5.4 (4.7-6.1)	4	5	6
37 – 46	87	4.8 (4.5-5.1)	4	5	6
47 – 56	22	5.2 (4.7-5.8)	5	5	6
Education level <sup>‡ ***</sup>					
Preparatory	19	4.2 (3.7-4.6)	3	4	5
Secondary	70	4.4 (4.1-4.8)	3.5	5	5

University	265	5.3 (5.1-5.4)	4	5	6
Profession ‡ ***					
Physicians	124	5.5 (5.3-5.8)	5	6	7
Pharmacist	80	5.2 (5.0-5.5)	4	5	6
Nurse	105	4.7 (4.3-5.0)	4	5	6
Technician	40	5.0 (4.6-5.4)	4	5	6
Administrative staff	18	4.6 (4.0-5.3)	4	5	5.5
Experience in years ns					
1 – 10	257	4.9 (4.4-4.8)	3	5	6
11 – 20	72	5.0 (4.6-5.4)	4	5	6
> 20	41	4.5 (4.1-5.0)	3	4	5.5
Marital status <sup>ns</sup>					
Never married	173	5.4 (4.9-5.9)	4	5	6
Married	180	5.2 (5.0-5.4)	4	5	6
Divorce	11	5.0 (4.1-5.9)	4	5	6
Widow	6	4.3 (3.8-5.2)	3.5	4.5	5
Duration of marriage <sup>ns</sup>					
< 5 years	83	5.1 (4.8-5.3)	4	5	6
> 5 years	114	5.0 (4.7-5.3)	4	5	6
Parity ***					
0	37	4.8 (4.3-5.3)	4	5	6
1	37	4.9 (4.5-5.4)	4	5	6
2	39	4.8 (4.3-5.3)	3	5	6
3	35	5.3 (4.9-5.8)	4	5	6
4	49	5.9 (5.5-6.3)	5	6	7
Number of miscarriages ns					
0	123	5.2 (4.9-5.4)	4	5	6
1	36	5.2 (4.7-5.7)	4	5	6
2	23	4.7 (4.2-5.2)	4	5	5
<sup>3</sup> 3	15	4.9 (4.2-5.7)	4	5	6
Average knowledge score	370	5.05 (4.98-5.11)	4	5	6

‡Data are missing in participants' education level ( $n = 16$ ), and profession ( $n=3$ ), thus, they were excluded from the analysis. \*\*\* =  $P < 0.001$ , <sup>a</sup>95% confidence intervals for the mean, ns= not significant





**Figure 1:** Knowledge score of respondents regarding cervical cancer.

Although 50.3% (186 women) were believed that Pap smear test is a valuable test for detection of cervical cancer, only 14.1% (52 women) had undergone Pap smear tested (table 4). More than half of the participants (57.8%) agreed that they would have a Pap smear if they were told that it is simple procedure and cause no harm. As shown in Table 4, more than two-third (68.9%) of the participated women would prefer the test to be done in the gynecology clinic; however, less than 15% (50 women) preferred the polyclinic as a place for testing. Regarding barriers for refusal to be Pap smear tested, the most frequent reason was “never though that I need one” at 42.4%, followed by “no symptoms” at 24.3%. Being “afraid of the test and results” was reported by 42 women at 11.4%. Whereas, the least reported reasons were “not feeling at risk”, “unavailability of the test” and “feeling shy to have Pap smear test”, all at 7.3%.

**Table 4:** Attitude, practice and barriers of participants toward cervical cancer screening.

Items	Frequency(n)	%
Have ever had a Pap smear done?		
Yes	52	14.1
No	318	85.9
If you were told that a Pap smear is simple, painless and good for early detection of cervical cancer, would like to have one?		
Yes	214	57.8
No	156	42.2
Where would you prefer to have this test done?		
General hospital	65	17.6
Polyclinic	50	13.5
Gynecology clinic	255	68.9

Reasons cited for not doing Pap smear test		
No reason (never thought that I need one)	157	42.4
Not feeling at risk	27	7.3
No symptoms	90	24.3
Unavailability of the test	27	7.3
Feeling shy to have Pap smear test	27	7.3
Being afraid of the test/results	42	11.4

## Discussion

In general, the growth in understanding of cervical cancer has shown improved its recognition and preventable nature [5]. It was proven that adequate screening and HPV vaccination can decrease the liability of the disease to a great extent [21]. So, for valuable screening and prophylaxis, it is important to realize the knowledge, perceptions, and beliefs of the population especially that of the healthcare provider as they comprise as a central source of health related information. Several studies performed in developing countries have enlightened the level of awareness and knowledge of the inhabitants, which could afford useful information to the healthcare systems to extend appropriate educational approaches [22]. Indeed, it is becoming necessary to raise awareness of cervical cancer in Libya, and the level of knowledge and perception are fundamentals for improving health behaviors. The present study demonstrates certain information for arrangement a cervical cancer prevention instruction in Tripoli's hospitals. It is well known that individuals' knowledge about the cause and significance of a particular disease is interrelated with healthcare-seeking deeds [19]. Results of the present study showed that women scored fair on the knowledge score, which reflecting the basic level of knowledge regarding common diseases which is expected from the healthcare staff. In fact, adequate knowledge is a critical element of confident attitude and since our study participants' knowledge about cervical cancer was fairly good, their beliefs and attitude were also expanding. The same observation was appointed in several studies conducted in Kuwait [23] and Nigeria [24]. However, although, in our study, most women credited that Pap smear is a suitable tool for early detection of cervical cancer; the majority were not frequently practicing it, comparable to reports of other studies [12,25,26]. In addition, the present study, and others [27] revealed that women who reported poor levels of knowledge of cervical cancer tend to be less well educated women. In the present study, the significance of the Pap test as a screening tool for cervical cancer is inadequately deemed. Only 50.3% of women have heard about the Pap test. Therefore, in addition to women's doubt regarding the unavailability of the Pap smear test, the majority cited "never thought I needed one", "no symptoms", "afraid and shy to have the test" as the commonest reasons for not having the test, which indicates that women were unaware of the disease. Studies conducted in Japan [28] and United State [29] revealed, respectively, that "shy of being examined by a male health professional" and "fear of cancer" are an important barriers to Pap smear test. Moreover, a number of studies have indicated that absence of symptoms to the disease might influence the attitude towards preventive measures [30]. So, it is of great crucial to encourage women healthcare professionals to discuss the issue. The fair level of knowledge displayed by our group can be explained by the higher educational status of the participants since in fact that the majority of them are professional and so the score of knowledge increased as educational level increased. A positive relation between knowledge level and education, in a form of lectures using audiovisual aids, in an educational program among female healthcare

students were postulated elsewhere [31]. Studies by Al-Darwish and his colleagues on medical students demonstrated a good level of knowledge regarding awareness of the risk factors about cervical cancer than our respondents [32]. The better knowledge of these students compared to our respondents is attributed, in fact, to that these students, especially those in the last year, must have been taught about the cancer of cervix uteri as a function of their curriculum recently and hence were more informed about the disease. Also, it reflects that there are no ongoing medical education activities concerning cervical cancer prevention and screening for healthcare professionals. Furthermore, the low incidence of cervical cancer in Libyan women makes healthcare professionals meet few cases, and therefore, this will influence their knowledge regarding cancer of the cervix uteri [33]. In agreement with the studies by Al-Meer and his colleagues [12] our study showed that women with higher parity had higher knowledge score about cervical cancer. Whereas, in contrast to studies conducted in Kuwait [23], Qatar [12], India [34] and Vietnam [35], the present study showed that women over 47 years old had fair knowledge about cervical cancer. This could be attributed to the fact that all the participated women are involved in the healthcare system. Results of this study showed that the foremost source of information for women about cervical cancer is the mass media, such as newspaper, television and internet. This could be related to non-well-organized cervical cancer screening system which would include, at least once a year, a clear guideline for improving healthcare workers about cervical cancer. This survey reveals that our healthcare workers preferred to have the test at gynecology clinic rather than other general hospitals and polyclinics. This can give more reassurance for healthcare providers to endorse for gynecology clinic as the ideal location for any national cervical cancer screening programs. A likely clarification for this positive attitude is the easy access to the gynecology clinics. Studies have indicated that only less than 10% of a reproductive age women in developing countries have been tested for cervical cancer with a Pap smear compared to more than 40% in developed countries.<sup>[12]</sup> Our study showed that 14.1% (n=52) of respondents reported doing Pap smear test and 85.9% (n=318) reported never, despite it being freely available in the country, approximating the level of developing nation. Several studies among females conducted elsewhere, Nigeria [36], Malaysia [37], Bhutan [38], and Turkey [39] showed similar results of low utilization of Pap smear test. At the same time, our present data is much lower than those reported from studies conducted among women in Kuwait (23.8%) [23] and Qatar (40%) [12]. Indeed, absence of active promotion system for screening program in the hospitals may be responsible for the low Pap smear test uptake. More than half of the women in our study, however, agreed that they have no hesitation to do the test if it is simple and no harm. This emphasizes the fact that unending medical education is crucial to help the healthcare staff to keep notes of the facts regarding vital diseases as well as to have them updated with the latest developments related to healthcare. So, since healthcare staffs can play important role in raising awareness and modifying the behavior population toward early detection, when any woman went to clinic for other ailments than cervical cancer will be directed by the healthcare worker for cervical cancer screening, done by staff in the gynecological department. This will greatly increase the number of patients undergoing cervical cancer screening [40]. Many studies have announced that lack of advice by healthcare professionals was one of the foremost reasons for not undergoing Pap test [36,41]. Lack of women's knowledge of disease risk factors might have serious consequences on quality of life as well as on health expenditure. Most women in this study are young and 50% of them are married making them more likely sexually active. The women's response herein is not in line with others [42] who showed that positive family history of cervical cancer and the presence of sexually transmitted diseases are important valuable information

known to affect aggravating cervical cancer. Nonetheless, discussions of such risk factors, in our women culture, are considered confidential and sensitive. In studies among Saudi physicians, the data obtained demonstrated that 60.5% believed that cervical cancer is a sexually transmitted disease [43]. While, cervical cancer could be a curable disease was reported by 33.8% of Saudi physician, compared to 58.4% in the present population. From the results of our study, it appears that, although number of miscarriages had been shown associated with the risk of cervical cancer and some studies considered the association to be causal [44], the median knowledge of our respondents to this point was not statistically significant. Only 17 women (4.6%) of our study group knew about the link between cervical cancer and smoking which is slightly higher than studies reported from Ghana (1%) [45] and Nepal (0.2%), but much lower than that reported from studies conducted in Sri Lanka (20.8%), Bhutan (25%) and Malaysia (61%) [37,38]. In addition, knowledge of the link between multiple sexual partners and cervical cancer in our study was found to be lower than that reported from Bhutan study (our 7.6% vs. 53%) [38]. So, absence of a standardized system of distributing cervical cancer education to women in Libya may be accountable to the low awareness of cervical cancer among our study population. The present study has several limitations. First, it was carried out only in Tripoli city, and therefore, the results cannot be generalized among the all healthcare professionals in Libya. Secondly, the participants were composed of a different group of healthcare workers including physicians, pharmacists, nurses, technician and administrative staff, those covering different fields which may have led to varied knowledge level and awareness of cervical cancer. In addition, subjects' response recall biased data are hard to avoid completely. However, the obtained results produce valuable information on the awareness of Libyan healthcare providers toward cervical cancer, since our survey has a high response rate (98.9%). Overall, these viewpoints regarding cervical cancer can be used as extractions of an individual's participation in cancer screening, although, it is miserable that healthcare workers especially physicians and nurses lacked the knowledge they should have had from their authoritative education. So, our study stressed the needs to spread awareness among all healthcare workers. It reveals that if women, regardless of their career, do not get education to improve their handy knowledge, understanding, and acceptance of regular cervical cancer testing, then they may not be capable to stimulate behavior change in themselves, in their patients, and overall inhabitants. Hence, developing a plan through education for self-care of women they may meet in their professional task or in their personal life is considered priority. Also, a follow-up study can be settled to estimate the usefulness of the learning program.

## Conclusion

Our findings demonstrate that there was a fair knowledge among Libyan female healthcare professionals in Tripoli's main hospitals about cervical cancer. In addition, healthcare worker has an optimistic attitude towards cervical screening. These behavior needs to have encouragements that can decrease the barriers to having Pab smear tested. A well-planned cervical cancer screening schedule presenting the Pap test through gynecology clinic is advised: this should incorporate raising awareness of women about risk factors, and overwhelming barriers to having the test such as feeling a shy and being afraid of the test outcomes.

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