



# Assessing the Knowledge, Attitude and Practices Towards Cervical Cancer Screening Among a Sample of Iraqi Female Population

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**Abstract:** Cervical cancer is one of the most common malignancies and the leading cause of cancer related deaths among the female population in developing countries. To assess the level of knowledge, attitude and practices related to cervical cancer risk factors and prevention among Iraqi women. The cross-sectional study included a total of 343 educated female participants who were divided into two groups. Group I comprised 203 employees from the Ministry of Higher Education and Scientific Research while Group II included 140 students from Baghdad Nursing College and the Technical Institute. Participants were asked to complete pre-coded standardized questionnaire prepared by the researchers to elicit information regarding their socio-demographic characteristics and their knowledge, attitudes and practices towards cervical cancer risk factors and its prevention. Overall the answers of the respondents were sub optimal; scored in average as "Poor" among the Employees and "Good" among the Students (32.5% and 68.6% respectively). The difference in scores between the two groups was statistically significant ( $p < 0.5$ ). Only 38.4% of the employed respondents have heard about Pap smear test *versus* 85% of the students; the main source of information in the latter was the university curriculum, while among the employed sector the media and TV played the major role. It was displayed that 17% of the married respondents in the study were subjected to Pap smear test before; two thirds of those were examined during the past two years. Favorable positive attitudes towards screening were demonstrated in only 30.3% and 40% among the employed and students groups respectively. The main barrier to screening was fear among the employed group (44.4%), while the lack of sufficient time (60%) was a more important factor behind neglecting screening among the students. In general, only 8.5% of the married respondents believed in the significance of adhering to a routine screening test. The presented findings documented deficit knowledge, attitude and practices related to cervical cancer and Pap smear among the educated Iraqi female population. Efforts should be directed towards establishing national community-based cervical cancer control programs which comprise educational components that focus on elevating the level of awareness among Iraqi women on the risk factors of cervical cancer and the means for its prevention.

**Key words:** Cervical Cancer, Knowledge, Attitude, Practice, Pap smear, Iraq

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## Introduction

Cervical cancer is the fourth most common cancer worldwide and the seventh overall, with an estimated 528,000 new cases registered in 2012 (1). Approximately 90% of the global burden occurs in developing countries

where cervical cancer ranks the most common malignancy and the leading cause of cancer related deaths among women. Without urgent measures to control the disease, WHO projection models predicts a rise in its related mortality by almost 25% over the next 10 years (2). The disease develops

slowly and has readily detectable precursor cervical intraepithelial lesions (CIN) that could be treated when diagnosed early (3). Common risk factors include early age at first intercourse, having multiple sexual partners and a weak immune system. Research evidence has shown that Human Papilloma virus (HPV) is the most important etiologic agent in the vast majority of cases (2-4). Despite the high morbidity and mortality associated with the disease, knowledge, awareness and facilities for its prevention and treatment are still inadequate in many developing countries. WHO established guidelines for essential approaches to cervical cancer control in low-resource settings based upon promoting public health education and screening by Pap smears, HPV detection and visual inspection of the cervix (2, 4, 5). Although the incidence of cervical cancer in Iraq is relatively low (6), as in most other Islamic countries, yet most of the cases usually present in advanced stages with poor prospects of cure. Earlier studies have illustrated un-negligible rates of CIN lesions among Iraqi patients complaining of gynecological problems (7, 8). Hence the feasible control strategy should be directed to elevate the level of awareness in the community and encourage for screening. As a preliminary approach towards establishing a national cervical cancer control strategy in Iraq, the present study was conducted to assess the level of knowledge, attitude and practices related to cervical cancer risk factors and prevention among an educated sector of female population.

## Material and Methods

This cross-sectional study included a total of 343 female participants who were recruited to participate in that survey during the period from 1 October to 25 December 2015. The study population was divided into two groups. Group I comprised 203 educated female Employees. Group II included 140 students from the Nursing College of Baghdad University and the Technical Institute of the Technical Teaching Council belonging to the Ministry of Higher Education and Scientific Research in Iraq. Participants were asked to complete pre-coded standardized questionnaire prepared by the researchers to elicit information regarding their socio-demographic characteristics and their knowledge, attitudes and practices towards cervical cancer risk factors and its prevention.

The 1st part of the questionnaire addressed personal data that included age of the respondents, social, educational and occupational status. The 2<sup>nd</sup> part comprised 14 questions that were designed to evaluate the knowledge on the common risk factors for cervical cancer and the recommended means of prevention, screening and control. The 3<sup>rd</sup> part aimed to determine the knowledge regarding cervical cancer screening by Pap smear; through asking whether the respondent had ever heard of Pap smear and from where. The attitude of the respondent was ascertained in the 4<sup>th</sup> part of the questionnaire through displaying whether the married participant had ever performed a Pap smear previously (if yes, when), and whether she believed in routine check-up. In the 5<sup>th</sup> part of the survey the respondent was asked whether she was

interested in performing a routine Pap smear test at that time, and if not, the reasons behind that. A positive answer was assigned 1 point, whereas a wrong answer was given zero. The results were calculated as frequencies of the correct answers out of the total answers of the same question.

### Statistical methods

The data were analyzed by using computer software Statistical Package for Social Sciences (SPSS Inc., Chicago, IL., USA) version 16; documenting the data regarding Frequency, Percentage, and Chi-squared test;  $p$ -values of less than 0.05 were considered significant.

### Results

The demographic characteristics of the studied population showed that the peak age frequency (52.2%) of the

Employed group was in the age group (40 and over), while in the second Student group 91.4% had their age ranging between (20-29) years (Table 1). The frequency of marriage was displayed in the majority of the Employees (70%) versus merely 18% among Students. About 42% of the Employed respondents were College/Institute graduates. Moreover, the overall the answers were sub optimal among the respondents; scored as "Poor" in the first group (Employees) and "Good" in the second (Student) group. Among the Students the scored level of answers were "Good" regarding questions 1, 5,6,7,10,and 14; while they scored as "Very Good" in questions 2 (risk factors), 4 (mode of HPV transmission) and 12 (screening tools). The difference in the mean levels of knowledge was statistically significant ( $p < 0.05$ ) with the exception of questions 3 and 9 (Table 2).

**Table (1): Studies Socio-Demographic Characteristics of the Target Population.**

Variable	Group I Employees		Group II Students		Total	
	No.	(%)	No.	(%)	No.	(%)
<b>Age/year</b>						
Less than 20	-		10	(7.1%)	10	(7.1%)
20-29	28	(13.8%)	128	(91.4%)	156	(45.5%)
30-39	69	(34.0%)	2	(1.4%)	71	(20.7%)
40 and over	106	(52.2%)	-		106	(30.9%)
<b>Marital status</b>						
Married	142	(70%)	25	(17.9%)	167	(48.7%)
Single	61	(30%)	115	(82.1%)	176	(51.3%)
<b>Educational Level</b>						
Primary School	5	(2.5%)				
Intermediate	34	(16.7%)				
Secondary	44	(21.7%)				
Institute/College	85	(41.9%)				
Above	35	(17.3%)				
<b>Total</b>	<b>203</b>		<b>140</b>		<b>343</b>	

**Table (2): The Mean Level of Knowledge on Cervical Cancer Risk Factors, Prevention and Control among the Studied Groups.**

Questions on Cervical Cancer Risk Factors and Means for its Prevention and Control	Studied Groups		Total	P value
	Group I Employees Total No.: 203 No. (%)	Group II Students Total No.:140 No. (%)	Total No.:343 No. (%)	
Q1: Definition of Cervical Cancer (CC)	62 (30.5%)	100 (71.4%)	162 (47.2%)	0.001*
Q2: The factors that increase the risk of CC: decrease immunity, abnormal sexual habits, smoking, All of the above, None	80 (39.4%)	116 (82.9%)	196 (57.1%)	0.001*
Q3: CC rank in Iraq: 1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> , not among the Most common 10, None of the above	41 (20.2%)	36 (25.7%)	77 (22.4%)	0.142
Q4: HPV is transmitted via: respiratory system, Sexual intercourse, Both.	70 (34.5%)	123 (87.9%)	193 (56.3%)	0.001*
Q5: CC often affects: married women, single, Both.	60 (29.6%)	111 (79.3%)	171 (49.9%)	0.001*
Q6: The main etiology of CC:: HPV, hereditary, Both, I don't know.	59 (29.1%)	108 (77.1%)	167 (48.7%)	0.001*
Q7: The most common age for HPV infection: teenage, 4 <sup>th</sup> decade, not specific..	94 (46.6%)	110 (78.6%)	204 (59.5%)	0.001*
Q8: HPV can effect: females only, males, Both.	61 (30.0%)	94 (76.1%)	155 (45.1%)	0.001*
Q9: Usually HPV is: symptomless, should cause warts, both.	45 (22.2%)	37 (26.4%)	82 (23.9%)	0.217
10: Signs of HPV infection: post-coital bleeding, dysparunia, abnormal vaginal discharge, All.	57 (28.1%)	111 (79.3%)	168 (49%)	0.001*
Q11: When detected early, CC could be treated In over 90%, 70%, 50%, None of the above.	43 (21.2%)	82 (58.6%)	125 (36.4%)	0.001*
Q12: Screening for CC include: Pap smear HPV detection, Colposcopy, All of the above.	85 (41.9%)	125 (89.3%)	210 (61.2%)	0.001*
Q13: The main prevention tools against CC : HPV vaccination, regular Pap smears, avoiding multiple sexual relations, All.	90 (44.3%)	89 (63.6%)	179 (52.2%)	0.001*
Q14: Means of treating CC include: surgery, chemotherapy, radiotherapy, hormonal, All.	71 (35.0%)	101 (72.1%)	172 (50.1%)	0.001*
Total Mean	65.6 (32.5%)	95.9 (68.6%)	161.5 (46.9%)	0.001*

\* significant at 0.05 level.

The correlation between the scores of the knowledge levels in both groups revealed that among the Employees 79.8% yielded Poor answers, *versus*

8.6% among the Students whose responses were Good and Very Good in 44.3% and 15.7% respectively (Table 3).

**Table (3): Correlation between the Scores of the Knowledge Levels in both Study Groups.**

Score Level*	Studied Groups		Total* (No.=343 ) No. (%)
	Employees (No.= 203) No. (%)	Students (No.= 140) No. (%)	
Poor (<50%)	162 (79.8%)	12 (8.6%)	174 (50.7%)
Just Passed (50-59%)	20 (9.9%)	26 (18.6%)	46 (13.4%)
Fair (60-69%)	9 (4.4%)	18 (12.9%)	27 (7.9%)
Good (70-79%)	10 (4.9%)	62 (44.3%)	72 (21.0%)
Very Good (80 and >)	2 (1.0%)	22 (15.7%)	24 (7.0%)

\*The difference in scores between the two groups was statistically significant ( $p < 0.05$ ).

Table 4 was designed to determine the knowledge regarding cervical cancer screening by Pap smear. It shows that about 38.4% of the Employed respondents have heard about the test *versus* 85% in the Student group. The main source of information in the latter was the university curriculum "lectures" (73.9% of the cases), while among the former the media and TV (35.9%) played the major role.

Out of the total number of married women in both groups, 19% of the employees (27/142) have experienced a Pap smear test previously, corresponding to only one student (4%) out of the married 25 ( $p < 0.05$ ). Overall 17% of the married respondents in the present study had conducted a Pap smear test; 64.3% of whom within a period of 2 years (Table 5).

**Table (4): Knowledge on the Pap Smear Screening test among the Respondents.**

Have you heard about Pap Smear Test before?	Studied Groups		Total Total No.: 343	P value
	Employees Total No.:203 No. (%)	Students Total No.:140 No. (%)		
Yes	78 (38.4%)	119 (85%)	197 (57.4%)	<b>0.001*</b>
No	125 (61.6%)	21 (15%)	146 (42.6%)	
<b>Sources</b>	<b>(N= 78 )</b>	<b>(N= 119 )</b>	<b>(N=197 )</b>	
TV/Media	28 (35.9%)	4 (3.4%)	32 (16.2%)	<b>0.001*</b>
Family & Friends	22 (28.2%)	7 (5.9%)	29 (14.7%)	
Lectures	6 (7.7%)	88 (73.9%)	94 (47.7%)	
Books/Magazines	17 (21.8%)	12 (10.1%)	29 (12.2%)	
Doctors/Health Personnel	5 (6.4%)	8 (6.7%)	13 (6.6%)	

\*The difference was statistically significant ( $p < 0.05$ ).

**Table (5): Attitude of the Married Respondents towards the Pap Smear.**

Have you ever performed a Pap Smear Test?	Studied Groups		Total Married 167 No. (%)	P value
	Married Employees:142 No. (%)	Married Students:25 No. (%)		
Yes	27 (19%)	1 (4%)	28 (16.8%)	<b>0.001*</b>
No	115 (81%)	24 (96%)	139 (83.2%)	
<b>When?</b>	<b>(N=27 )</b>	<b>(N= 1)</b>	<b>(N= 28)</b>	
(>2 years)	12 (44.4%)	1 (25%)	13 (46.4%)	0.721
2 years	5 (18.5%)	0	5 (17.9%)	
3 years	3 (11.1%)	0	3 (10.7%)	
5 years and >	7 (25.9%)	0	7 (25.0%)	

There was a positive attitude towards screening in only 30.3% and 40% among the employed and student groups respectively. Refusal was attributed mainly to fear among the employed

group (44.4%), while the lack of sufficient time (60%) was a more important factor behind neglecting screening among the students (Table 6).

**Table (6): Interest in Performing a Pap Smear at the time of the Study.**

Are you interested in conducting a Pap Smear Test?	Studied Groups				Total Married 167	P value	
	Married Employees:142		Married Students:25				
	No.	(%)	No.	(%)			
Yes	43	(30.3%)	10	(40%)	53	(31.7%)	0.001*
No	99	(69.7%)	15	(60%)	114	(68.3%)	
<b>If Not, Why?</b>							
Fear of the screening process	63	(44.4%)	8	(32%)	71	(42.5%)	NS
Lack of sufficient time	47	(33.1%)	15	(60%)	62	(37.1%)	
Embarrassment	14	(9.6%)	2	(8%)	16	(9.6%)	
No concern	18	(12.7%)	0	(0%)	18	(10.8%)	

## Discussion

Cervical cancer remains a grave threat to women's lives and a leading cause of death in low resource settings (1). Over the past three decades, the rates of the disease have been reduced in most of the developed world as a result of appropriate screening and treatment programs in contrast to developing countries where the incidence have increased or remained unchanged. In Iraq, significant knowledge gaps about the relative importance of cancer among the Iraqi community have been demonstrated suggesting a potential to take practical policy decisions that aim at promoting screening though elevating the level of awareness (9, 10). Successful outreach models illustrate the efforts made by the health-care facility to reach target population with the goals of increasing knowledge and beliefs about specific health issues and healthcare-seeking

behaviors. The present preliminary report draws a base guideline for national cervical cancer control planning in Iraq to be established in line with WHO recommendations (2,4,5,11). Outreach, community mobilization, health education and counseling, as essential components of that program, should move parallel to the prevention, screening and treatment strategies. A well designed plan of action should identify the target population that need to be educated on the risk factors for cervical cancer and the available tools for its prevention (2). Our study revealed a suboptimal level of knowledge regarding cervical cancer among the educated female sector in Iraq. The mean score among the employed respondents was significantly poor (32.5%). Although the students yielded a fairly good score (68.6%), yet overall, a deficit level of knowledge and awareness was documented concerning the epidemiology of cervical cancer and

its risk factors specifically those related to the role of HPV infection as an etiologic agent. Earlier surveys which were conducted to explore the level of knowledge, attitude and practices towards breast cancer among a sample of educated Iraqi women demonstrated that approximately half of the participants had low knowledge scores of less than 50% (9,10). While the lack of knowledge could be attributable to the absence of efficient public health awareness campaigns, nevertheless, the role of other socioeconomic barriers cannot be neglected; including stigma and fear that prevent females from discussing diseases related to their sexual organs. Comparable findings were reported in other studies from the region which revealed that the level of knowledge on that topic was significantly lower than that recorded in well-developed settings. A study from Saudi Arabia concluded that there was an urgent need to promote awareness on cervical cancer among the community following the observation of a significantly low knowledge scores among Saudi women (12). In an earlier report from Jordan it was displayed that almost three quarters of the respondents were not aware of the causes of cervical cancer and that the knowledge on the Pap smear test was significantly inadequate among the less-educated and older patients (13). A similar study from Kuwait demonstrated that only 52% of women had sufficient knowledge about cervical screening (14). It has been well established that screening for cervical cancer and its precursors is highly effective in view of its long natural history, organ accessibility, availability of suitable screening tests and simple, safe treatment strategies. CIN lesions could be readily detected in apparently

healthy asymptomatic women through screening with Pap smear, which is still considered a most successful screening tool, HPV testing and visual inspection with 5% acetic acid (2-5,11,15). As vaccination of the adolescent girls against persistent infections with the high-risk HPV types has proved to be an efficient preventive measure, a judicious combination of vaccination and screening is believed to have a long term potential in eliminating the disease (2, 16). The third part of this study which was designed to determine the level of knowledge regarding the conventional Pap smear revealed that 85% of the students have heard about the Pap test in contrast to 38.4% of the employed respondents. It was noted that the acquired information among the students was mainly a consequence of the presented relevant lectures associated with the teaching curriculum (73.9%). On the other hand, the most common source of information among the employed group was the media and TV (35.9%). In a similar study design, conducted on women visiting primary health care centers in Qatar, it was reported that 76% had heard about the Pap smear mainly from relatives, friends followed by the gynecologists; the knowledge being significantly greater among the employed females (17). Their findings were consistent with another study which highlighted as well that the major source of information about the Pap smear was delivered through the gynecological doctors pointing out to the limited role of the primary care physicians in that respect (18). In Kenya, on the other hand, it was observed that only 29% of the surveyed women had previously heard of cervical cancer and mainly from healthcare workers (19).

Regrettably the illustrated role of the physicians and health care providers in our study was too low not exceeding 6.6%. That reflects clearly the lack of availability of practical "protocol guidelines" within the primary health care centers which are highly recommended to instruct doctors on the screening techniques and to educate the visiting patients on the epidemiology of the disease. High-income countries have integrated cytology screening services in medical and public health services with high coverage leading to substantial declines in cervical cancer incidence and mortality (20). The questions that focused upon the attitude regarding screening involved only the married respondents in both groups. The rate of marriage was 70% among the employees in the current study (where 52.2% were over the age of 40 years) corresponding to only 18% among the young student group. Overall, it was observed that about 17% of the married participants had already experienced a Pap smear test previously; two thirds of those were examined during the past two years. The uptake of the screening test in our study was lower than that displayed in Qatar, where almost 40% of the respondents declared that they had a Pap smear test at least once in their lifetime (17). Only 8.5% of our respondents believed in the significance of adhering to a routine screening check-up. That attitude of underestimating the relevant importance of Pap screening was presented earlier by other researchers. A study involving school teachers in Sharjah, United Arab Emirates, documented that although their level of knowledge on the Pap smear test was rather good, yet they were not commonly practicing it (18). A hospital-based cross sectional study in

India revealed that 34.5% of women visiting the outpatient department had heard about Pap smear but only 9.5% actually underwent the screening test (21). In Turkey, a community based descriptive study showed that merely 9.4% of women had Pap smear before while 96.5% had never heard about HPV (22). When the married respondents were asked about their interest in conducting a routine Pap smear at the time of the study, the willingness towards screening was expressed positively in only 30.3% and 40% among the employed and student groups respectively. Another objective of this study was to explore why some women do not have a favorable attitude towards performing a Pap test. It was displayed that among the employed group the main reason was attributable to fear (44.4%) while among the students the lack of sufficient time (60%) was a more important factor behind neglecting screening than fear (32%). The anticipated embarrassment of having a test and the fear that it could be a painful procedure were two major barriers identified by other researchers (17,18, 23). It was reported that the most common reasons for discouraging women from screening was avoiding pain coupled by underestimating the importance of the test specifically when not referred by a health professional (14,17). In our study embarrassment, as a feeling of being ashamed, was recorded in 9.6%; reflecting the cultural influence of the community. A cross sectional survey in Kenya that recruited women seeking reproductive health care clinics recorded that only few (6%) had ever been screened for cervical cancer and cited barriers such as fear, time constraint, inadequate awareness and lack of finance (19). On the other hand,



the reported major barrier to seeking preventative screening in Malawi, where cervical cancer is the most prevalent malignancy among women, was the low perceived susceptibility to the benefits from the service in addition to the low knowledge scores (24). Conversely, a favorable attitude towards screening was reported in other studies. Despite the fact that the Indian women had suboptimal level of knowledge regarding cervical cancer, they readily expressed interest in performing the test specifically when provided free of cost. In that study the lack of awareness and the absence of symptoms were the most common reasons for neglecting screening (21). In Qatar 85.5% of the respondents stated that they would have the test if they were assured that it would be painless (17). A similar survey on the attitude of women attending a Gynecology clinic in Jordan reported that 75% had never had a smear before; however, the majority agreed that it was important (13). In conclusion, the overall findings of this study documented deficit level of knowledge, attitude and practice towards cervical cancer and Pap smear among an educated sample of Iraqi female population. In order to increase the uptake of screening in Iraq, the community should be enlightened about its aims, benefits and options. Attention should be specifically directed towards elevating the level of awareness among women on the risk factors of cervical cancer and the means for its prevention and control through mass media campaigns. Establishing comprehensive community-based cancer control programs should essentially include an educational component specifically directed to train practitioners at the level of Primary Health Care Centers on the

screening tools. At the level of Tertiary Health Care Centers, investment is needed to build up the requested infrastructure and human resources; ensuring that early diagnosis is coped with prompt adequate therapy (2).

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