

Assessment of Women's Risk Factors and Preventive Measures toward Cervical Cancer

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Abstract: The current study aims at assessing the risk factors and preventive measures of cervical cancer for women attending primary health care centers and identifying the relationship between those risk factors and preventive measures and women's socio-demographic characteristics. A descriptive design is carried out on purposive sample of (150) women attending the primary health care centers at Baghdad City. A questionnaire constructed for the purpose of the study. Content validity and internal consistency reliability for the study's questionnaire are determined through a pilot study. Data is collected through the study instrument using the interview technique as means of data collection. Data were analyzed through the application of descriptive and inferential statistical analysis approaches. Data analysis reveal that women, who are obese, exposed to genital infections and use oral contraceptive drug are at risk for cervical cancer and the risk increases due to their lack of commitment toward screening test, HPV vaccine and access to educational resources for increasing their awareness toward the problem. However, fortunately it appears that whenever they are under the risk they do follow the preventive measures more.

Keywords: Assessment, Cervical Cancer, Risk factors, Preventive Measures

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I. Introduction

In 2012, cervical cancer was the fourth most common cancer among females worldwide. There has been an estimation of 528000 new cases of cervical cancer, of which around 85% occurred in less developed regions. Around 266000 females died of cervical cancer, accounting for 7.5% of all female cancer deaths. About 87% of cervical cancer deaths occurred in the less developed regions^[1].

In the low-resource countries, 700 women die every day from cervical cancer, leaving behind families and communities that depended on them^[2].

The risk for cancer of the cervix has been associated with several factors, including infection with certain types of human papilloma virus (HPV), early age at first intercourse, multiple male sex partners, a history of sexually transmitted diseases, smoking, certain nutritional deficiencies, and low socioeconomic status. HPV is widely accepted as the cause of most squamous cell cervical cancers, and the sexual practices listed are well-established risk factors for the disease^{[3][4][5]}.

Cervical cancer can be found early and even prevented with routine screening tests. The Pap test looks for changes in cervical cells caused by HPV infection, and looks for the infection itself^[5]. It is highly preventable in most Western countries because screening tests and the vaccine to prevent human papillomavirus (HPV) infections are available. When cervical cancer is found early, it is highly treatable and associated with long survival and good quality of life^[6].

Iraq has a population of 10.74 million women ages 15 years and older who may be at risk of developing cervical cancer. Current estimates indicate that every year 291 women diagnosed with cervical cancer and 142 die from the disease. Cervical cancer ranks as the 12th most frequent cancer among women in Iraq and the 10th most frequent cancer among women between 15 and 44 years of age. Data is not yet available on the HPV burden in the general population of Iraq. However, in Western Asia, the region Iraq belongs to, about 2.3% of women in the general population are estimated to harbor cervical HPV-16/18 infection at a given time, and 72.4% of invasive cervical cancers are attributed to HPVs 16 or 18^[7].

Faik and other conducted a study to determine the occurrence of HPV infection in a population of 856 Iraqi women in Baghdad City using Multiplex PCR, the prevalence of HPV DNA was 12.38% among the women whose age is 16 to 70 years old with the highest prevalence of 47(44.34%) among women aged 21 to 30 years^[8].

Al-Ani and others, study the prevalence of cervical inflammatory, premalignant and malignant lesions among 300 Iraqi women, the pap smear test revealed the presence of pathological changes in 209(67.7%)

women while the rest 91(30.3%) did not show any abnormality. More than one type of these pathological were found in some cervical smears; Non-specific cervicitis 188(62.7%), Squamous metaplasia 23 (7.7%), Moniliasis 11 (3.7%), Squamous dysplasia (mild and moderate) 7(2.3%), Trichomonas Vaginalis 4(1.3%), HPV infection 4(1.3%), IUCD changes 4(1.3%)^[9].

Therefore, early screening and adopting healthy preventable measures can play role in not becoming a victim to this overwhelming health problem. Accordingly, the current study aims at assessing the risk factors and preventive measures for cervical cancer among a sample of Iraqi women and determining the relationship of this assessment and women's demographic characteristics. It is hoped that these findings will lead to recommendations that will enable the Ministry of Health to re-design cervical cancer screening program in a way that provoke women in real participations and involvement.

II. Methodology

A descriptive study using the assessment approach is applied to assess risk factors and preventive measures toward cervical cancer among a purposive sample of (150) married Iraqi women aged between (15-54) years old attending Primary Health Care Centers in Baghdad City. Data is collected through using a constructed questionnaire. The questionnaire is comprised of three parts; the first part is dealing with 6 items of women's socio-demographic characteristics and women's Body Mass Index(BMI), the second part include 7 items of women cervical cancer's risk factors and the third part is comprised of 16 items concerning women's preventive measures toward cervical cancer. The overall items included in the questionnaire are 19 items. Items are rated by (Yes) scored as(2) and (NO) scored as (1). Consumption of cancer fighting food were assessed through asking the women about a group of vegetables and fruit that play role in fighting the cancer cell such as apple, black beans, broccoli, cabbage, garlic, lettuce, spinach, the kinds which are available in Iraqi. Concerning assessing women's health awareness, there are certain items that enquire about whether the women access to resources that help in gain knowledge and increase their awareness toward cervical cancer and prevention measures such as attend lectures about cervical cancer and screening test, reading books, asking responsible health professionals, and watching programs or access to the net. Content validity of the questionnaire is determined through a panel of (9) experts and the internal consistency reliability is determined through a split-half technique and the computation of Cronbach alpha correlation coefficient of (0.73). Data are collected through the use the study instrument and the interview technique as means of data collection after obtaining women's agreement to be involved in the study. Measurement of weight and height is performed using a measuring tape of two meters for height and a bathroom digital scale for weight to calculate women's BMI. Data analysis performed through the application of descriptive and inferential statistical approaches of Frequency (F), Percentage (%), Mean of Score (M.S), Cronbach Alpha (α), Bivariate (Pearson) Correlation and Analysis of Variance (ANOVA). All the statistical procedures tested at $p \leq 0.05$.

III. Results

Table (1). Women's Demographic Characteristics (N=150)

List	Demographic Characteristics	F	%
1	Age:	15 – 24 years	34
		25 – 34 years	40.7
		35 – 44 years	22.7
		45 – 54 years	2.7
2	Marital Status:	Married	33.33
		Divorced	33.33
		Widowed	33.33
3	Age at Marriage:	15 – 24 years	86
		25 – 34 years	14
4	Education:	Read and write	16
		Primary school	16.7
		Secondary school	19.3
		Intermediate school	16
		Institute	14.7
		College	17.3
5	Occupation:	Employed	26
		Housewife	26
		Student	25.3
		Unemployed	22.7
6	Family Monthly Income:	300.000-600.000 IQD	33.3
		601.000-900.000 IQD	34
		\geq 901.000 IQD	32.7

F: Frequency, %: Percentage, IQD: Iraqi Dinar

This table indicates that most of the women are (25-34) year old; equally distributed relative to their marriage status; at (15-24) year of age at marriage; secondary school graduates; employed and housewife with family monthly income of 601.000-900.000 IQD.

Table (2). Distribution of Women According to their Body Mass Index (BMI) (N=150)

Women's BMI	F	%
Body Mass Index: Normal	31	20.7
Overweight	66	44
Obesity I	44	29.3
Obesity II	8	5.3
Obesity III	1	0.7

F: Frequency, %: Percentage

This table indicates that most of the women are overweight and obese, and only (20.7%) of them has normal weight.

Table (3). Assessment of Women's Risk Factors for Cervical Cancer (N=150)

Risk Factors	Scale	F (%)	M.S	Sig
Parity	None	44 (29.3)	1.47	N.S*
	≤ 2	71 (47.3)		
	3 +	25 (23.3)		
Age at Marriage	15 – 24 years	129(86)	1.14	N.S**
	25 – 34 years	21(14)		
Hormonal Replacement Therapy	NO	148 (98.7)	1.01	N.S**
	Yes	2 (1.3)		
Genital Infections	NO	25 (16.7)	1.83	H.S**
	Yes	125 (83.3)		
Family History of Cervical Cancer	None	132 (88)	1.14	N.S*
	Mother	15 (10)		
	Sister	3(2)		
Contraceptive Drugs Use	NO	70 (64.7)	1.53	S**
	Yes	80 (53.3)		
Smoking	NO	120 (80)	1.2	N.S**
	Yes	30 (20)		

F: Frequency, %: Percentage, MS: Mean of Scores, Sig: Level of Significance,

*N.S (Not Significant) = 1-1.66, S (Significant) = 1.67-2.33, H.S (Highly Significant) = 2.34-3

** N.S (Not Significant) = 1-1.33, S (Significant) = 1.34-1.67, H.S (Highly Significant) = 1.67-2

This table reveals that all women's risk factors items for cervical cancer are non-significant except for genital infections and contraceptive drug use.

Table (4). Assessment of Women's Preventive Measures toward Cervical Cancer related to Screening Test and HPV Vaccine (N=150)

Preventive Measures	Scale	F (%)	M.S	Sig
Pap Screening Test	NO	149 (99.3)	1.01	N.S
	Yes	1 (0.7)		
Pap Screening Test Every 3 Years	NO	149 (99.3)	1.01	N.S
	Yes	1 (0.7)		
First Pap Screening Test at Age (11) Years Old	NO	149 (99.3)	1.01	N.S
	Yes	1 (0.7)		
Screening Test For HPV	NO	149 (99.3)	1.01	N.S
	Yes	1 (0.7)		
Screening Test For HPV Every (5)years	NO	149 (99.3)	1.01	N.S
	Yes	1 (0.7)		
Screening Test for Chlamydia Infection	NO	144 (96)	1.04	N.S
	Yes	6 (4)		
HPV Vaccine	NO	150 (0)	1.00	N.S
	Yes	0 (0)		

F: Frequency, %: Percentage, MS: Mean of Scores, Sig: Level of Significance,

N.S (Not Significant) = 1-1.33, S (Significant) = 1.34-1.67, H.S (Highly Significant) = 1.67-2

This table reveals that all cervical cancer's preventive measures related to screening tests and HPV vaccine are not significant.

Table (5). Assessment of Women's Preventive Measures toward Cervical Cancer related Weight Control and Consumption of Cancer Fighting Food (N=150)

Preventive Measures	Scale	F (%)	M.S	Sig
Weight Control	NO	62 (41.3)	1.58	S
	Yes	88 (58.7)		
	Total	150 (100)		
Consumption of Cancer Fighting Food	NO	5 (3.3)	1.96	H.S
	Yes	145 (96.7)		
	Total	150 (100)		
Reduce Sugar Intake	NO	67 (44.7)	1.55	S
	Yes	83 (55.3)		
	Total	150 (100)		
Reduce Smoked Food	NO	99(66)	1.34	S
	Yes	51(34)		
	Total	150 (100)		
Reduce Soda Intake	NO	97	1.35	S
	Yes	53		
	Total	150 (100)		

F: Frequency, %: Percentage, MS: Mean of Scores, Sig: Level of Significance, N.S (Not Significant) = 1-1.33, S (Significant) = 1.34-1.67, H.S (Highly Significant) = 1.67-2

Results out of this table present that all cervical cancer's preventive measures related to weight Control and cancer fighting food consumption have significant mean of scores.

Table (6). Assessment of Women's Preventive Measures toward Cervical Cancer related to Avoiding Contraceptive Methods and Drug Use (N=150)

Preventive Measures	Scale	F (%)	M.S	Sig
Avoid Using Oral Contraceptives	NO	81(54)	1.46	S
	Yes	69(46)		
Avoid Using IUD Contraceptives	NO	70(46.7)	1.53	S
	Yes	80(53.3)		
Avoid Using Steroid Drug	NO	77 (51.3)	1.48	S
	Yes	73(48.7)		

F: Frequency, %: Percentage, MS: Mean of Scores, Sig: Level of Significance, N.S (Not Significant) = 1-1.33, S (Significant) = 1.34-1.67, H.S (Highly Significant) = 1.67-2

Results out of this table present that all cervical cancer's preventive measures related to contraceptive measures and drug use have significant mean of scores.

Table (7). Assessment of Women's Preventive Measures toward Cervical Cancer related to Health Awareness Resources (N=150)

Preventive Measures	Scale	F (%)	M.S	Sig
Health Awareness means towards Cervical Cancer	Low	70 (46.6)	1.69	S
	Moderate	64 (42.7)		
	High	16 (10.7)		

F: Frequency, %: Percentage, MS: Mean of Scores, Sig: Level of Significance, N.S (Not Significant) = 1-1.66, S (Significant) = 1.67-2.33, H.S (Highly Significant) = 2.34-3

Results out of this table depict that women's health awareness resources toward cervical cancer have significant mean of score.

Table (8). Relationship between Women's Cervical Cancer Risk Factors and Preventive Measures

Preventive Measures	Sources of Variance	Sum of Squar	df	Mean Squar	F	P≤ 0.05	Sig.
Risk Factors	Between Group	278.905	20	13.945	3.999	0.001	H.S
	Within Group	449.868	129	3.487			
	Total	728.773	149				

df= Degree of freedom, F= F-statistics, p= Probability level, Sig.= Level of significance

This table shows that there is highly significant relationship between cervical cancer's risk factors and cervical cancer's preventive measures.

Table (9). Relationship between Women's Cervical Cancer Risk Factors and their Demographic Characteristics (N=150)

Demographic Characteristics	Pearson correlation	P-value (2-tailed)	Significance
Age	0.099	0.230	N.S
Marital Status	- 0.067	0.418	N.S
Age at marriage	0.341**	0.001	H.S
Education	-0.134	0.101	N.S
Occupation	-0.020	0.811	N.S
Income	0.011	0.811	N.S
Body mass index	0.375**	0.001	H.S

P= Probability level, HS= Highly Significant, S= Significant, NS= Not Significant

Results out of this table depict that cervical cancer's risk factors have highly significant relationships with women's age at marriage and their body mass index; and not significant relationships with women's age, marital status, education, occupation and monthly income.

Table (10). Relationship between Women's Preventive Measures toward Cervical Cancer and their Demographic Characteristics (N=150)

Demographic Characteristics	Pearson correlation	P-value (2-tailed)	Significance
Age	-0.082	0.318	N.S
Marital Status	0.110	0.181	N.S
Age at marriage	0.219**	0.007	S
Education	0.078	0.340	N.S
Occupation	0.047	0.571	N.S
Income	0.029	0.721	N.S
Body Mass Index	0.163*	0.046	S

P= Probability level, S= Significant, NS= Not significant

Results of this table indicate that cervical cancer's preventive measures have significant relationships with women's age at marriage and their body mass index, and not significant with the remaining of women's socio-demographic characteristics.

IV. Discussion

To begin with, the study sample description presented in Table 1, the sample's demographic characteristics reveals that most of women are (25-34) year old, equally distributed relative to their marriage status, the majority of them are (15-24) year old when they get married, secondary school graduates, employed and housewife with family monthly income of 601.000-900.000 IQD.

Women's body mass index results (Table 2) illustrates that most of them are overweight and obese. Woman's risk for developing cervical cancer is increases for certain factors and being obese is one of them^[10]. Findings from a meta-analysis, study which estimate the association between overweight and obesity and risk of cervical cancer, has reported that overweight is not associated with an increased risk of cervical cancer, but obesity is weakly associated^[11].

Assessment of women's risk factors for cervical cancer in table (3) reported that genital infections and contraceptive drug use are the most significant risk factors experienced by the sample. Although parity is consider one of the risk factors for cervical cancer^[12], this factor didn't appear to be significant among the sample because (29.3%) of them were without children even though there is (23.3%) of women with three children and more. An evidence being reported in a data from eight case-control studies on invasive cervical cancer and two studies on carcinoma in situ (CIS) from four continents . The study suggest that compared to women who had never given birth, those with three or four full-term pregnancies had 2.6 times the risk of developing cervical cancer; women with seven or more births had 3.8 times the risk^[13]. Therefore women with three children and more who constitute (23.3%) of the sample may be at risk.

Regarding women's preventive measures toward cervical cancer related to screening tests and HPV vaccine, it is well known that Pap screening test detect abnormal cells that may develop into cancer if left untreated and can also find noncancerous conditions, such as infections and inflammation^[14]. Recently has been approved that HPV test use as primary cervical cancer screening for women age 25 and older, followed by a pap test for women with certain results^[15]. In the current study, only one woman among the sample had Pap test and for sure did not take any shot of HPV vaccine (Table 4). HPV vaccine is recommended by the center for diseases prevention and control for 11 and 12 year-old girls, as well for girls and women age 13 through 26 years old who have not yet been vaccinated or completed the vaccine series; HPV vaccine can also be given to girls beginning at age 9 years^[16]. In addition to this unfortunate result in the present study, almost none of the women screened for HPV and Chlamydia infection even if (83.3%) of them had genital infections.

Western Australian data stated that 3 out of 4 women who develop cervical cancer have either never screened or have not had a Pap smear in the past 5Years of their life. Research suggests that up to 90%of

the most common form of cervical cancer, squamous cell carcinoma, can be prevented if women have regular Pap smears every two years^[17].

Almost all cervical cancers are caused by Human papillomavirus (HPV), a common virus transmit during sex and the Pap test is one of the most reliable and effective cancer screening tests available to detect it^[18] and by persistent genital infection become with high-risk^[19].

A study conducted in Botswana to identify and describe factors influencing cervical cancer screening uptake among women attending Mahalapye District Hospital, it is detected that cervical cancer screening rates is very low (39%)^[20]. However, this result is much better than the current study's result regarding this issue

Another preventive measure against cervical cancer is weight control and consumption of cancer fighting food, the results shown that all items have significant mean of scores (Table5). Most of the women do trying to control their weight, reducing sugar intake and he majority of them do eats cancer fighting food, but the significances of the other items regarding reducing smoked food and soda intake came in the adverse way as the majority of them not doing so. In Iraq, people enjoying eating barbeque cooking and they do drink soda parallel to drinking water.

Eating a variety of fruits and vegetables may help protect you from developing cervical cancer. Experts believe that a diet high in the antioxidants, carotenoids, flavonoids, and folate found in fruits and vegetables can help the body fight HPV infection and prevent HPV infection from turning cells of the cervix into cancerous lesions. A study published in the Cancer Research journal found that women whose blood tests showed high levels of certain chemical compounds indicating a diet rich in fruits and vegetables, were able to clear their HPV infections faster than their peers, which could help reduce the risk of cancer^[21].

Reducing contraceptive methods and drug use as preventive measures toward cervical cancer (Table 6), demonstrate that all items are significant. Most of the women avoid the use of IUD contraceptives and steroid drugs. However, most of them use the oral type of contraceptives, which make them vulnerable to the risk of the problem. Long-term use of oral contraceptives (five or more years) is associated with an increased risk of cervical cancer. An analysis of (24) epidemiologic studies found that the longer a woman used oral contraceptives, the higher her risk of cervical cancer. However, among women who stopped taking oral contraceptives, the risk tended to decline over time, regardless of how long they had used oral contraceptives before stopping^{[23][22]}.

The association of cervical cancer with oral contraceptive use is likely to be indirect. The hormones in oral contraceptives may change the susceptibility of cervical cells to HPV infection, affect their ability to clear the infection, or make it easier for HPV infection to cause changes that progress to cervical cancer^[19].

The role of health education and health awareness is of great importance in the prevention of cervical cancer^[24]. Items of health awareness resources in Table 7 had significant mean of score. This is obvious as almost half of the women have low level of access to resources that aid in increasing the awareness of cervical cancer such as books, TV programs and the internet. Near to this proportion is women with moderate level of access, and only (10.7%) are with high level. This finding is consistent with many studies conducted worldwide.

Abiodun and other conducted a study that determine the impact of health education intervention on knowledge and perception of cervical cancer and cervical screening uptake among adult women in rural communities in Nigeria, the women stated that the major reason for not having had cervical screening done was lack of awareness about cervical cancer and screening^[25]

Another study conducted in Korea to explore the awareness of Korean mothers regarding cervical cancer prevention in their daughters. The study has found that Korean mothers have minimal and inadequate awareness and inactive attitudes about how to prevent their adolescent daughters from developing cervical cancer^[26]. Additional study in Malaysia by Wong and others to assess their knowledge and awareness of cervical cancer and its screening, a lack of knowledge regarding the problem and the Pap smear test found among the respondents. Many women did not have a clear understanding of the meaning of an abnormal cervical smear and the need for the early detection of cervical cancer^[27].

To define the relationship between women's risk factors for cervical cancer and their preventive measures toward this health problem, the study used the ANOVA test (Table 8), which depicts that there is highly significant relationship between cervical cancer's risk factors and cervical cancer's preventive measures which means that whenever those women are under the risk they do follow the preventive measures more, it is fortunately a positive result.

With respect to the relationship between women's risk factors and preventive measures toward cervical cancer with their demographic characteristics, it confirmed that women's age at marriage and their body mass index can increase the risk for having the disease (Table 9 and 10). This result improve that the earlier women involved in sexual contact due to their early marriage and with their obesity the risk is higher, and the importance of obligating to the preventive measures against the disease.

V. Conclusion

It is obvious that the study sample is at risk for developing cervical cancer therefore health care professionals should play crucial role in encouraging women to screen regularly as they are consider a key position to help them understand that cervical cancer is preventable. Implementation of organized, population-based cervical cancer screening programs regularly around the year with a mandatory HPV vaccine for schools girls.

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