

ORIGINAL ARTICLE

FACTORS INFLUENCING PAP SMEAR PRACTICE AMONG PRIMARY SCHOOL TEACHERS IN DIYALA CITY, IRAQ

Oras Zaki Saadoon¹, Rahmah Mohd Amin¹, Saad Ahmed Ali Jadoo^{2,3}

¹Department of Community Health Science, Faculty of Medicine, National University of Malaysia (UKMMC), Jalan Yaacob Latiff, 56000 Cheras, Kuala Lumpur, Malaysia

²United Nations University-International Institute of Global Health (UNU-IIGH), National University of Malaysia Medical Centre (UKMMC)

³International Centre for Case-Mix and Clinical Coding (ITCC), National University of Malaysia Medical Centre (UKMMC), Jalan Yaacob Latiff, 56000 Cheras, Kuala Lumpur, Malaysia

ABSTRACT

Cervical cancer is the seventh most common cancer among women in Iraq. This study aimed to assess the factors influencing Pap smear practice among married primary school teachers in Diyala City, Iraq. A total of 222 teachers (aged 20 years to 63 years) residing in Diyala City were enrolled in a cross sectional study from 1st August till 30th September 2012. The sampling method was a self-administered survey using a multistage sampling technique. The prevalence of Pap smear practice was very low (12.6%). Relatives and friends were the main source of information about the Pap smear test for more than one third (41.9%) of the respondents. However, the medical doctor's advice was the most important reason for undergoing a Pap smear test in more than two third (60.7%) of respondents. Only 32.4% of the teachers have good knowledge about cervical cancer and Pap smear test, but 76.1% of them showed a positive attitude toward learning about cervical cancer and Pap smear. Based on multiple logistic regression analysis results only the husband's encouragement ($p = 0.003$, prevalence odds ratio [POR] = 0.256, 95%CI 0.10-0.63) was significantly associated with Pap smear practice. A more effective educational program is needed to educate Iraqi women about cervical cancer and screening tests, including Pap smear.

Keywords: Pap smear, practice, teacher, Diyala, Iraq

Introduction

Cervical cancer ranked as the second leading cancer killer among women worldwide. About half million new cases and 250,000 deaths were reported every year. More than 80% of these cases were registered in low-income countries¹. Cervical cancer has been indicated in developing countries fifteen years earlier than the developed countries. Therefore, more severe form of this disease is suspected in developing countries². The effectiveness of early screening for cervical cancer has been proved to protect against the occurrence of disease. The most famous screening method is the Papanicolaou (Pap) cytology cervical scrape smear, which detects pre-cancerous lesions in the uterine cervix³.

In general, the efficiency of Pap smear screening in reducing cervical cancer mortality is almost globally accepted. The incidence and mortality of cervical cancer and improved screening rate

are inversely proportional. Availability of cervical cancer screening programs in most industrialized nations attributed to remarkable decline in rate of cervical cancer deaths. Such programs have also become a priority in some of the developing countries⁴.

Literatures revealed that sociodemographic factors, such as age, education, family income, duration of marriage, and number of children, influence Pap smear practice. For instance, young age is considered as one of the risk factors of cervical cancer, particularly among women who married early and are sexually active. A study performed in the US has reported that cervical squamous intraepithelial lesion (SIL) incidence is higher in adolescents aged 10 years to 19 years than adult women⁵. Considering educational level, studies have found that women with high screening rates have a high level of education^{3,6}. A study conducted in Taiwan has revealed that income is also significantly associated

with Pap smear practice³. Family factors such as a husband's encouragement as well as educational level and attitude also influence Pap smear practice. In a study conducted in Turkey, the number of children is significantly associated with cervical cancer screening⁶.

The same study reported a significant relationship between the long duration of marriage and Pap smear practice. Women who undergo regular gynecological examination know more information about Pap smear test^{6,7}. Husbands' encouragement is an important factor that positively affects women's decision to undergo a Pap smear test, particularly in developing countries. A study conducted in Iran and Malaysia also revealed that the majority of female workers considered their family members' opinions, particularly their husbands' encouragement, as important factors in their decision to undergo the Pap smear test^{7,8}.

The teachers' knowledge is also an important factor. Some women lack the knowledge about Pap smear tests and benefits. Many women also lack a clear understanding of the meaning of an abnormal smear or the concept of pre-cancerous changes. In developing countries, women's knowledge about cervical cancer is very limited. In some African nations, majority of women have never heard about cervical cancer and know nothing about cervical screening⁹. In addition to knowledge, the attitude toward Pap smear screening has been shown to be the strongest predictor of repeated screening¹⁰.

In Iraq, current estimates indicate that 311 women are diagnosed with cervical cancer and 212 die from the disease every year. Cervical cancer ranked as the seventh most common cancer among women aged between 15 and 44 years¹¹. Although cervical cancer is considered as a public health problem, no study has been conducted in Iraq, and education programs for the Pap smear test and

cervical cancer are insufficient. This study aimed to assess the factors influencing Pap smear screening among school teachers in Iraq.

MATERIAL AND METHODS

A cross-sectional study was conducted in Diyala City (Iraq) from 1st August till 30th September 2012. Diyala City is located in the middle-eastern part of Iraq and about 60 km from Baghdad, the capital city of Iraq. It's one of the largest cities in Iraq with a total population exceeds one million according to the latest figures in 1997. The target population comprised married female teachers in primary schools in Diyala City.

The sampling method was a self-administered survey using a multistage sampling technique: the Directorate of Education in Diyala divided the governorate into four educational areas for administrative purposes. First, a complete list of the primary schools was obtained from these four educational areas. Second, two schools from each educational area were selected using a simple random sampling method. Third, a complete list of teachers in the selected schools was obtained using a simple random sampling method. Each school had approximately 50 teachers.

Only 32 teachers were selected from each school by using the simple random sampling method. A total of 222 out of 256 teachers who were invited agreed to participate in this study, resulting in a response rate of 87%. Trained interviewers were recruited to explain the objectives and conditions of the study to the school teachers. Each eligible respondent received one version of the questionnaire including the consent form and the respondent information sheet during the break time and collected back one day later by interviewers. All married female teachers who are available during the data collection time and willing to participate are included, while the

unmarried and absent during the data collection time were excluded.

Questionnaire

Data was collected using a validated questionnaire based on two previous studies^{2,12}. Safeguard translation was employed to translate the original version from the English language to the Arabic language and then retranslated to English to ensure the accuracy of the translation (forward-backward translation). The questionnaire was first pilot tested with 20 Iraqi female teachers staying in Kuala Lumpur, Malaysia. Some questions were difficult to understand and therefore are simplified. The final Cronbach alpha was 0.66%.

The questionnaire consisted of part A, which covered the socio-demographic characteristics of teachers and their obstetrical history. Part B covered family-related history. Part C dealt with Pap smear practice. Part D assessed the teachers' knowledge of Pap smear test and cervical cancer. Part E was designed to determine the teachers' attitude toward Pap smear test and cervical cancer. The knowledge part consisted of 10 questions; the respondents were asked to circle the correct responses. The correct responses were counted; the sum of the scores ranged from 0 to 10. Those who obtained scores of 0 to 5 were described as women who had poor level of knowledge and those who obtained scores of 6 to 10 were described as those who had good level of knowledge. The attitude part consisted of seven questions, and the responses were coded on a five-point scale, ranging from strongly agree to strongly disagree. The maximum number of points is 35 and the minimum number of points is 7. A score of 7 to 21 corresponds to a negative attitude and a score of 22 to 35 corresponds to a positive attitude. We asked the respondents if they have undergone the Pap smear test, which was answerable with yes or no.

Ethical approval

Ethical approval (FF-308-2012) from the research and ethical committee of National University Malaysia - Medical Centre (UKMMC) was obtained. All respondents gave their written informed consent.

Statistical analysis

Normality tests were done and all the quantitative data were found to be normally distributed. Data was analyzed using Statistical Package for Social Sciences (SPSS) version 18.0. Descriptive statistics, such as the frequency and percentage distribution, were used. Bivariate analysis was conducted using Chi square test, and multivariate analysis was performed using multiple logistic regressions.

RESULTS

Among the total 222 respondents, 61.2% were in the age group 30 to 49 years (Table 1). Their mean age was 38.95 (SD 10.22) years old. More than half (59.9%) of them have a diploma degree. In terms of family income, 82.9% of the respondents were classified in the family income of more than 500,000 Iraqi dinars, which is approximately equivalent to RM1, 200. In this study, only 6.3% of the respondents were nulliparous, compare to 62.2% had at least three children. In terms of the duration of marriage, about one sixth (16.2%) were married since one to five years. The rest were already married for at least six years. In fact slightly less than one third (27%) of them were married for more than 20 years.

In response to whether the respondents had any gynecological examination conducted in the last five years or not, 55.4% answered no. Two third (66.7%) of respondents reported that their husbands have completed the tertiary education compare to 1.8% claimed that their husbands were illiterate. In term of husbands' encouragement to undergo Pap smear, more than two third (71.6%)

claimed that they received no encouragement from their husbands. Concerning the family history of cancer, one third (32.9%) reported a positive history of cervical cancer. The overall knowledge level showed that 67.6%

exhibited poor knowledge compare to 76.1% of the respondents showed a positive attitude toward cervical cancer and Pap smear.

Table 1: Characteristic of the respondents (n = 222)

Variables		N	%
Age distribution	20-29 years old	40	18.1
	30-39 years old	84	37.8
	40-49 years old	52	23.4
	50 years old and more	64	20.7
Educational status	Diploma	133	59.9
	University degree	89	40.1
Family Income	500,000 Iraqi Dinar and less (1,200RM)	38	17.1
	More than 500,000 Iraqi Dinar	184	82.9
Number of children	Nullipara	14	6.3
	1 child	21	9.5
	2 children	49	22
	3 children	53	23.9
	4 children and more	85	38.3
Duration of Marriage	1-5 years	36	16.2
	6-10 years	53	23.9
	11-20 years	73	32.9
	more than 20 years	60	27
Husband's level of education	Illiteracy	4	1.8
	Primary	28	12.6
	Secondary	42	18.9
	Tertiary	148	66.7
Husband's encouragement	yes	63	28.4
	No	159	71.6
Family history of cancer	Yes	73	32.9
	No	149	67.1
Gynecological examination	Never	123	55.4
	Occasionally	93	41.9
	Yearly	6	2.7
knowledge	Good Knowledge	72	32.4
	Poor knowledge	150	67.6
Attitude	Positive attitude	169	76.1
	Negative attitude	53	23.9

Table 2 showed the Pap smear practice among the respondents, only 12.6% of them underwent Pap smear tests compare to 87.4% who did not undergo the tests. Among those who had Pap smear tests, more than two third (71.4%) had it once compare to 17.9% and 10.7% who underwent a Pap smear tests twice, and thrice or more respectively. Vast majority of respondents (93%) underwent the last Pap smear test since three or more years ago compare to 7% of the respondents who recently underwent the last Pap smear in the last one to two

years ago. Medical doctor advice was the most important reason (60.7%) for undergoing the Pap smear test, followed by self-awareness to prevent cervical cancer (28.6%) and positive family history of cancer (7.1%) respectively. Although the relatives and friends' advices have only contributed to 3.6%, they were the first source of information (41.9%) about the Pap smear test compare to healthcare providers (32.5%) and the media (25.6%) respectively.

Table 2: Pap smear practice, reasons, and source of information reported by the respondents

Practice	N	%
Have you ever had Pap smear?(n=222)		
Yes	28	12.6
No	194	87.4
How many times? (n=28)		
Once	20	71.4
Twice	5	17.9
Thrice and more	3	10.7
When was the last pap smear done?(n=28)		
One Year Ago	1	3.5
Two Years Ago	1	3.5
Three Years and More	26	93.0
Reason for doing Pap smear test(n=28)		
Self awareness to prevent cervical cancer	8	28.6
Medical doctor advice	17	60.7
Friend advice	1	3.6
I have family member with cancer	2	7.1
Source of information(n=222)		
Relatives	55	24.8
Friends	38	17.1
Doctors	65	29.3
Nurse	7	3.2
Media (Newspaper/magazine, Internet, TV)	57	25.6

In this study, two factors (Table 3) were found to be significantly associated with Pap smear practice which was husbands' encouragement ($p < 0.001$) and history of gynecological examination ($P = 0.008$). However after adjusting for confounders

under the multivariable analysis (Table 4), only husbands' encouragement remained significant ($p = 0.003$, prevalence odds ratio [POR] = 0.256, 95%CI 0.10-0.63).

Table 3: Relationship between factors and Pap smear practice

Factors	Pap smear practice		Chi-square	p-value
	Yes N (%)	NO N (%)		
Age (years)				
< 39	12(9.7)	112(90.3)	2.19	0.138
40 and more	6(16.3)	82 (83.7)		
Educational status				
Diploma	18(13.5)	115(86.5)	0.25	0.613
University degree	10(11.2)	79 (88.8)		
Family Income				
500,000 Dinar Iraqi and less	2 (5.3)	36 (94.7)	2.24	0.134
More than 500,000 Dinar Iraqi	26(14.1)	158(85.9)		
Number of Children				
Less than 4 children	19(13.9)	118(86.1)	0.51	0.474
4 children and more	9 (10.6)	76 (89.4)		
Duration of Marriage				
less than 20	9 (10.1)	80 (89.9)	0.84	0.359
20 and more	19(14.3)	114(85.7)		
Husband's level of education				
Non university	10(13.5)	64 (86.5)	0.08	0.775
University	18(12.2)	130(87.8)		
Husband encouragement				
Yes	17(27.0)	46 (73.0)	16.48	<0.001
No	11(6.9)	148(93.1)		
Family history of cancer				
Yes	13(17.8)	60 (82.2)	2.66	0.103
No	15(10.1)	134(89.9)		
Gynecological examination				
Never	9(7.3)	114(92.7)	7.01	0.008
Yearly or occasionally	19(19.2)	80(80.8)		
Level of Knowledge				
Good	8(11.1)	64(88.9)	0.21	0.641
Poor	20(13.3)	130 (86.7)		
Level of Attitude				
Positive	20(11.8)	149(88.2)	0.38	0.533
Negative	8 (15.1)	45(84.9)		

Table 4: Logistic regression results of Pap smear practice among the respondents

Variables	Beta	S.E	Wald	P-value	POR Adjusted	95%CI
Gynaecological exam						
Yearly or (referent)						
occasionally						
Never	-0.830	0.49	2.84	0.092	0.436	0.17-1.15
Husband encouragement						
Yes (referent)						
No	-1.364	0.46	8.84	0.003	0.256	0.10-0.63

DISCUSSION

This study focused on the factors influencing Pap smear practice among female married school teachers in Diyala City, Iraq. The prevalence of Pap smear practice was very low (12.6%). This low prevalence may be attributed to the security unstable situation in Iraq, leading to poor health educational programs. Similar findings have been reported in some of the developing countries such as Jordan with prevalence of 14.3%¹³, Kuwait with prevalence of 23.8%¹⁴, and Malaysia with prevalence of 22.2%⁸. By contrast, very high prevalence has been reported in developed countries such as England (80%)¹⁵ and United State of America (87%)¹⁶ respectively.

In our study, we found that more than one third of respondents (41.9%) revealed that friends and relatives were the main sources of information regarding Pap smear test compared to healthcare providers (32.5%) and the media (25.6%) respectively. A similar finding was also reported in a study in Qatar². However, about two third of respondents (60.7%) underwent Pap smear test according to their doctor's advice. This finding was supported by two studies from Brazil¹⁷ and Argentina¹⁸ which indicated that the doctor's advice was the main reason to prevent uterine cervical cancer.

Furthermore, Because of long standing war and the economic blockade, women in countries such as Palestine, South India^{19,20}, and Iraq were prompted to value safety and livelihood for their family. This may explain partly why the age of women, educational level, and number of children, family income, and duration of marriage were not found as determinants or factors influencing the women's decision to undergo Pap smear tests in these countries. However, a previous study in Turkey found that age is significantly related to Pap smear practice⁶. Also some studies found that higher educational levels are significantly associated with Pap smear practice^{8,12}.

In multivariate analysis, only the husband's encouragement was significantly influenced Pap smear practice among primary school teachers in Diyala City ($p=0.003$, prevalence odds ratio [POR] = 0.256, 95%CI 0.10-0.63). The finding is supported by study done by Bakheit and Buharoon (2004) in the United Arab Emirates, which revealed a strong association between Pap smear practice and husbands' encouragement²¹. The possible explanation for this is that Arab societies require the consent of husbands in all matters of life. Similar results have been reported in Malaysia⁸.

In our study we observed that the positive family history of cancer and

gynecological examination were not significantly influence the Pap smear practice of the respondents. In fact, similar findings were also reported in countries that suffer from war, such as Palestine¹⁹, where the frequent deaths have become common. For example, any family may lose healthy member including the young children and women as a result of a sudden explosion when he or she comes out in the streets, compared to the unhealthy member with chronic disease such as cancer who may possibly survives longer after treatment. Indeed, most of the Iraqi people, particularly the women were facing difficult conditions as a results of consecutive wars during the past three decades coupled with poor quality of

The vast majority of respondents (76.1%) showed a positive attitude toward cervical cancer and Pap smear screening. However, this positive attitude was not significantly associated with Pap smear practice (p value = 0.533). The results of the current study are consistent with study done by Al-Meer (2011) in Qatar². In general, regardless of the surrounding environment women showed a positive attitude toward cervical screening services despite the need to have a reassurance that it can minimize the barriers that hamper women to undergo a Pap smear test.

Study limitation

This study has some limitations, such as including the teachers from primary schools only. The survey was not community based and data were collected for a short period because of the unstable security situation in Diyala City, Iraq. The respondents also showed a recall bias; particularly in their views of the Pap smear test and when they underwent their last Pap smear test.

Conflict of interest

The authors declare that there is no conflict of interests regarding the publication of this paper.

health services and the absence of educational programs. So it was not surprising when the socio-demographic factors such as knowledge and attitude were not significantly associated with Pap smear practice compared to findings from security stable countries. Uysal and Birsal (2009) showed that there was a significant association between the knowledge of the risk factors of cervical cancer and the Pap smear test among Turkish women²².

This study showed that the lack of knowledge about cervical cancer and its risk factors is related to poor education, however the literatures indicated that this deficiency could be among the educated², and less educated women¹³.

CONCLUSION

This study revealed a very low rate of Pap smear practice (12.6%). We found that only the husbands' encouragement influenced their spouses' decision to undergo a Pap smear screening. Thus, further studies are recommended to investigate this factor and should be considered by healthcare providers in Iraq.

List of abbreviations

Papanicolaou (Pap), Squamous intra-epithelial lesion (SIL), National University Malaysia - Medical Centre (UKMMC), Statistical Package for Social Sciences (SPSS), Prevalence Odds Ratio (POR).

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