

# Awareness and behavior about Pap smear testing in family medicine practice

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## ABSTRACT

**الأهداف:** وصف و تقدير تأثير المتغيرات الاجتماعية والعمرية، وتأثير الاشتراك في التأمين الصحي على المعرفة بأهداف إجراء فحص مسحة عنق الرحم. كما تهدف هذه الدراسة إلى تقدير تأثير الخصائص الاجتماعية والاشترك في التأمين الصحي حول إجراء الفحص.

**الطريقة:** أجريت هذه الدراسة المقطعية الوصفية التحليلية على 674 مريضة، تراوحت أعمارهن ما بين 17 عاماً فما فوق، واللواتي يراجعن قسم طب الأسرة في مستشفى الجامعة الأردنية - الأردن، في الفترة ما بين أكتوبر 2006م وحتى ديسمبر 2006م. تم استخدام استبياناً يوضح الصفات الاجتماعية وتأثيرها على مدى الدراية بالفحص وإجراءاته سابقاً، ومعوقات إجراء الفحص، والرغبة في إجرائه مستقبلاً.

**النتائج:** وجدنا أن 68.1% من النساء كن على دراية و معرفة بطبيعة مسحة عنق الرحم كفحص طبي، و 40.3% من المراجعات المتزوجات تم إجراء الفحص لهن في أوقات سابقة. النساء اللواتي على دراية ومعرفة بالفحص كن متزوجات وأعمارهن أقل من 35 عام، وتحصيلهن العلمي أعلى من الثانوية. أما النساء اللواتي تم إجراء المسحة لهن، كانت أعمارهن أقل من 35 عام وكن على دراية و معرفة عالية المستوى بطبيعة الفحص، وكان الأطباء مصدر المعلومات لديهن. كانت الطبيبات وخاصة أخصائيات النساء والولادة هن المفضلات لإجراء المسحة. يعتبر الخوف من الفحص ذاته ونتائج أهم الموانع والمعوقات. غالبية النساء المتزوجات لديهن الرغبة بإجراء الفحص مستقبلاً.

**خاتمة:** إن مقدمي الخدمة الطبية عليهم التركيز على الكشف المبكر للأمراض، وبالذات للنساء اللاتي تزيد أعمارهن عن 35 عام ومعلوماتهن قليلة عن الفحص. وبالتالي نحن بحاجة لحملة توعية وبذل جهد أكبر من أجل أن يتم إجراء هذا الفحص لعدد أكبر من النساء على المستوى الوطني.

**Objectives:** To describe and estimate the effect of 5 socio-demographic variables and insurance status on awareness of pap smear, and the influence of sociodemographic characteristics, health insurance and knowledge score on having a pap smear test.

**Methods:** This is a cross-sectional study of 674 female patients, aged 17 years and above between October and December 2006, and attending family medicine clinics at Jordan University Hospital, Amman, Jordan. We collected data on socio-demographic factors, future intention to take the test and barriers to screening.

**Results:** Of 674 patients, 68.1% were aware of the Pap smear as a medical test. Of married women, 40.3% had a screening history. Women who were aware of the test were more likely to be <35 years of age, married, and have higher than secondary education. Women who have had a Pap test were younger and had higher knowledge scores of the Pap smear. The physicians were the main source of information regarding awareness and having the test. Female physicians, particularly gynecologists, were preferred to perform the Pap smear. Fear of the procedure and the results of the test were the major obstacles to having the test.

**Conclusions:** There is an imminent need for an awareness campaign; a simple 5-item knowledge test can identify a group of women, who can most benefit from targeted interventions.

*Saudi Med J 2008; Vol. 29 (7): 1036-1040*

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*Received 11th December 2007. Accepted 14th June 2008.*

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The incidence and mortality rates of cervical cancer have declined in the last 50 years,<sup>1</sup> this has been attributed to the improvement in cervical cancer screening guidelines and utilization.<sup>2,3</sup> Cervical cancer screening reduces the mortality rate due to the excellent results of early treatment.<sup>1</sup> Half of the women diagnosed with cervical cancer are between the ages of 35-55.<sup>2</sup> Jordan is a small country with a population

of 5.2 million in 2004. The incidence rate of cervical cancer increased from 0.7 per 100,000 to 2.4 between 1999 and 2004, as reported from Jordanian cancer registry (JCR).<sup>4</sup> Unlike most cancers, cervical cancer is preventable when precursor lesions are detected and treated before they develop into frank cancer. This notion encourages screening programs from both an ethical and professional aspect despite it being the least common gynecological cancer in Jordan.<sup>4</sup> As compared to our neighboring countries, Jordan is considered of low incidence. Turkey for example has an incidence rate of 4.6/100,000 while Israel has 4.5.<sup>5</sup> The medical community in Jordan has no official guidelines for routine pap smear evaluation, but the current practice among doctors is to screen women according to other international guidelines.<sup>6</sup> Of Jordanian women, 74.5% had no cervical smear before.<sup>7</sup> Family medicine is ideally positioned to provide preventive care by screening for and diagnosing diseases at an early stage. Therefore, the objectives of this study are to describe and estimate the effects of 5 sociodemographic variables and insurance status on awareness of pap smear, and to estimate the influence of sociodemographic characteristics, health insurance and knowledge score on "having" a pap smear test. No previous local study addressed the awareness and factors that might affect the actual uptake of pap smear in women. Studying these factors could aid in improving awareness and attitudes of Jordanian women to a simple and life saving test.

**Methods.** A cross-sectional study design was used to answer the research questions (factors that affect the awareness and the up take of the pap smear test). The study was conducted between October and December 2006 at the family medicine practice clinic in Jordan University Hospital in Amman, Jordan. The inclusion criteria were all women attending the clinic who were 17 years of age or older and who were willing to take part in the study interview. The exclusion criterion was women who were mentally incompetent (demented patients). The questionnaire consisted of 23 questions: 6 sociodemographic parameters including place of residence, age, marital status, education (education can enhance the demand of preventive services by raising the awareness of the importance of under taking regular check-ups and hence the willingness to do so, and may improve understanding of information of the periodical tests and its interpretation result),<sup>12</sup> job status, insurance status in addition to history of pregnancy, and 5 knowledge questions (\*Appendix A). Most of the patients attending the Family Medicine Clinic do not pay their own medical fees. Affording to seek medical advice depends on their health care insurance coverage. Thus, it was more relevant to study

their insurance status instead of their income. It also asked on awareness of pap smear, questions on attitude regarding preference of health care provider gender and type, behavior about pap smear ("having ever had" or never had"), and intention to have a pap smear in the future. Obstacles to participate in cervical screening were also assessed. In an Arab society "having ever been married" is equated with being sexually active; thus, is would be culturally inappropriate to ask single women about their sexual history; for this reason the subset analysis for women who "have ever been married" is provided in the results section as sexually active women. The domain of content was determined by a panel of professionals (family physicians, nurses, and a receptionist) representing expertise in family medicine, preventive health and screening, as well as epidemiology. The questions were reviewed for content validity. Prior to the survey administration, the questionnaire was pretested for language simplicity and clarity. Reliability was established in a pilot study on a 60 patients, who were not included in this sample. Quality control of interviews was established in that 2 research assistants (RA) were specially trained to conduct the in-person interviews using a structured questionnaire. Demonstration and return demonstration were conducted until the investigator was satisfied that the RA conducted the interviews in a consistent and reliable manner. The study was approved by the Ethical Scientific Research Committee at the Faculty of Medicine, University of Jordan. Verbal informed consent was obtained from each participant.

The data were analyzed by using SPSS version 11.0 for windows. Cross tabulation and chi-square tests were performed to describe the sample. Multivariate logistic regressions were used to estimate the factors that influence awareness and pap smear screening and having ever had a pap smear test, using odds ratio (OR) and 95% confidence intervals (CI). The statistical significance level of  $p < 0.05$  was used.

**Results.** A total of 674 women were screened and completed the questionnaire. The mean age of the study sample was 39.6 ( $\pm 13.5$ ), 68.1% ( $n=459$ ) of the women were aware of the Pap smear as a screening test. Of the subset of women who have been married ( $n=518$ ), 40.3% reported having had a history of a pap smear. While 45% of them had the pap smear specifically within the past 3 years. **Table 1** provides the proportions, odds ration (OR) and 95% confidence interval (CI) of our study sample. **Table 1** illustrates the relationship of the socio-demographic characteristics (residence, age categories, marital status, education level, job status, and insurance status) to whether the patient was aware or not aware of the pap smear. Of these 6 variables, the following 3 were statistically significantly

\*The full text including Appendix is available in PDF format on Saudi Medical Journal website ([www.smj.org.sa](http://www.smj.org.sa))

**Table 1** - Sociodemographic characteristics of the study sample (N=674).

Characteristics	No.	(%)	Aware (n=459)		Not aware (n=215)		Adjusted odds ratio (95% confidence intervals)
			No.	(%)	No.	(%)	
<i>Residence</i>							
Amman	575	(85.3)	390	(67.8)	185	(32.2)	0.82 (0.49, 1.37)
Others	99	(14.7)	69	(69.7)	30	(30.3)	
<i>Age</i>							
≤35 years	290	(43.0)	147	(50.7)	143	(49.3)	0.41 (0.26, 0.63)
>55 years	384	(57.0)	312	(81.2)	72	(18.8)	
<i>Marital status</i>							
Ever married	518	(76.9)	406	(78.4)	112	(21.6)	0.20 (0.13, 0.33)
Single	156	(23.1)	53	(34.0)	103	(66.0)	
<i>Education level</i>							
≤high school	285	(42.3)	194	(64.2)	91	(35.8)	1.90 (1.23,2.93)
>high school	389	(57.7)	265	(68.1)	124	(31.9)	
<i>Job status</i>							
Employed	287	(42.6)	172	(59.9)	115	(40.1)	0.94 (0.59,1.50)
Unemployed	387	(57.4)	287	(74.2)	100	(25.8)	
<i>Insurance</i>							
Yes	541	(80.3)	375	(69.3)	166	(30.7)	1.07 (0.75, 1.84)
No	133	(19.7)	84	(63.2)	49	(36.8)	

**Table 2** - Characteristics of the sample in the subset of ever married women (N=518).

Characteristics	No.	(%)	Ever had test (n=209 [40.3%])		Never had test (n=309 [59.7%])		Adjusted odds ratio (95% confidence intervals)
			No.	(%)	No.	(%)	
<i>Residence</i>							
Amman	441	(85.1)	181	(31.8)	260	(68.2)	1.11 (0.63, 1.95)
Others	77	(14.9)	28	(36.4)	49	(63.6)	
<i>Age</i>							
≤35 years	149	(28.8)	32	(21.5)	117	(78.5)	0.29 (0.19, 0.48)
>55 years	369	(71.2)	177	(48.0)	192	(52.0)	
<i>Education level</i>							
≤high school	247	(47.6)	94	(38.1)	153	(61.9)	1.15 (0.72, 1.82)
>high school	271	(52.4)	115	(42.3)	156	(57.6)	
<i>Job status</i>							
Employed	162	(31.3)	70	(43.2)	92	(56.8)	1.33 (0.82, 2.16)
Unemployed	356	(68.7)	139	(39.0)	217	(61.0)	
<i>Insurance</i>							
Yes	421	(81.4)	179	(42.5)	242	(57.5)	1.64 (0.97, 2.75)
No	97	(18.6)	30	(30.9)	67	(69.1)	
<i>Knowledge</i>							
0-2 low	339	(65.4)	30	(16.8)	149	(83.2)	5.34 (3.36, 8.48)
3-5 high	179	(34.6)	179	(52.8)	160	(47.2)	

**Table 3** - Proportions and numbers of respondents' preferences, attitudes, and barriers towards pap smear in the subset of ever married women (n=518)\*

Attitude	No.	%
<i>Prefer male or female doctor</i>		
Male doctor	19	(3.7)
Female doctor	372	(71.8)
Male or female doctor	127	(24.6)
<i>Whom you prefer to do the test</i>		
Family doctor	29	(5.6)
Gynecology doctor	350	(67.6)
Family or gynecology doctor	139	(26.8)
<i>Future intention to have the test</i>		
Yes	374	(72.2)
No	144	(27.8)
<i>Barriers ("no" subgroup)</i>		
Accessibility	7	(4.8)
Fear	110	(76.4)
Not necessary	27	(18.8)

\*excluding the 156 single respondents

independent predictors of awareness. Women were statistically significantly less likely to be aware of the Pap smear test if they were older than 35 years (OR 0.41 [95% CI=0.26, 0.63]), or single (OR= 0.20 [95%CI =0.13, 0.33]). Women were more likely to be aware if they were more educated (>HS) (OR =1.9 [1.23, 2.93]). **Table 2** studies only women who have been married n=518 (namely, sexually active). It shows the relationship between socio-demographic characteristics and knowledge score with whether this subset of women had taken or not taken the pap smear. We estimated the effect of 6 independent variables on whether the women "ever had" versus "never had" a Pap smear test. Of the 6 variables tested, 2 were statistically significant independent predictors. Women in the age group >35 compared to ≤35 years (OR=0.29 [95% CI=0.19, 0.48]) were less likely to have had a test; whereas women who had higher knowledge scores ≥3 (OR=5.34 [3.36, 8.48]) were more likely to have "ever had the test". Sixty-six percent of women were made aware of the test through their contact with healthcare personnel. While the awareness of one-fourth (24%) of the respondents was through their friends and relatives. The remaining 10% received their information from the mass media. Approximately 84% received their information from their health care providers. **Table 3** shows gender and specialty preferences, attitudes, and barriers of married women towards Pap smear screening. The vast majority (71.8%) preferred a female doctor to carry out the test. Slightly more than two thirds preferred a gynecologist. Approximately 72% were willing to have the test in

the future. The most commonly mentioned reason for not having a pap smear in the future was fear of the procedure or its result. While 68.9% with no previous history had the intention of taking the test in the future, 77% with a previous history of a pap smear intended to repeat it. This relationship was significant ( $p<0.04$ ) (Table not shown).

**Discussion.** The women in our study are mostly residents of Amman and are approximately 40 years old. Three quarters are married or previously married. Most are educated at high school level or higher of similar proportions are unemployed, and the majority are insured. Of our studied sample, 68% are aware of the Pap smear test. Thus, 32% of women are unaware of the test. This suggests a low level of awareness in our sample. Simply not knowing that such a test is available may be an important reason for not participating in the screening process.<sup>8</sup> This low level of awareness of Pap smear screening test may be due to several reasons. First, Jordan lacks an official national preventive health-screening program. Second, women report that they learned about Pap smear testing from their physicians. Thus, not being aware of the test may be due to a decreased physician availability, lack of time appointed for each patient and the personal attitude of the physician towards the screening subject. Third, the low incidence of cervical cancer in Jordan may account for inadequacy of media coverage about pap screening programs. Women are less likely to be aware of the test if they are older than 35 years and of single status. Our finding of awareness of the test is similar to a study reported from Singapore.<sup>8</sup> Conversely, they are more likely to be aware if they have higher than a secondary education level. Women ages 35 and older are statistically significantly less likely to ever have had the test. The finding of older women not having a test is inconsistent with what Wang and Lin<sup>9</sup> and Leyva found.<sup>10</sup> Whereas the Bakheit and Buharoon<sup>11</sup> study reported no age related association regarding having the test or not.<sup>11</sup> A likely explanation for why single women have a lower level of awareness is most likely due to the Jordanian culture and morals where being single is equated with not being sexually active. Single women are, unlikely to have any gynecological examination, and do not have discussions of matters concerning reproduction and sexual health. This is usually postponed until the woman is legally married and sexually active. Unlike other studies,<sup>10,12,13</sup> in our study the specific knowledge (**\*Appendix A**) of pap smear, rather than the level of education is a strong predictor of having a pap smear. The literature confirms the negative effect on screening in women with low income, low education, and older age.<sup>14</sup> While we did not measure income level, we observed greater awareness in the younger and higher educated women. Only a small proportion (40.3%) of married

women have had the Pap test and this usually occurs as opportunistic screening. This is usually performed during a contraceptive, or an obstetric consultation, and this can result in postmenopausal women being usually overlooked. It may be related to a lack of knowledge of the test and its indications.<sup>15</sup> Our study shows that women who score high on the knowledge test are 5 times more likely to have the test than those who score low. Bakheit found the opposite,<sup>11</sup> a higher knowledge score was associated with lower testing.

Most of the awareness and having the Pap test among our respondents were through their contact with healthcare providers. This was consistent with the findings from other studies.<sup>16</sup> The role of physicians in screening is strongly linked with adherence to pap screening.<sup>17</sup> Nevertheless, in the absence of organized screening programs, pap smear testing takes place most often in the context of gynecological and postnatal visits, or as part of a consultation for another illness.<sup>11</sup> Most women had a positive attitude towards having the test (72.2%). However, fear of the test was the major obstacle to future testing. The perception that the test is painful as well as fear of the result may be a major barrier. The perception of cancer to many women is synonymous to death.<sup>18,19</sup> Preference of a female doctor to do the test was expressed by almost 72% of the married women similar to other surveys,<sup>20</sup> this may play a role of not participating in screening due to unavailability of female screeners or doctors.<sup>14</sup> More than 2 thirds of women preferred a gynecologist to carry out the procedure. This is consistent with other studies from our region.<sup>7,11</sup> The validity of self report data has been called to question by some authors,<sup>8</sup> since we did not attempt to review patients' records for screening history, the possibility of information bias cannot be ruled out. The expressed intention to have a smear was taken at face value, and no attempt was made to test the validity of this claim by follow up of the study sample. A cross-sectional study design limits the causal inferences that can be made, thus, future studies should use prospective longitudinal designs to establish definitive causal relationships.

In conclusion, this paper shows that certain parameters such as age, marital status, and education are related to awareness, while age and specific knowledge scores are related to having a Pap smear test. Some of the barriers to Pap smear participation were fear of the test and of the results. It is wise to develop interventions that raise the awareness, involve physicians in the dissemination of information and media advising to the public to undergo the Pap test. Physicians and health care providers must reduce the anxiety of women about their fear of painful tests or of the results. Identifying those women who are less likely to be aware of the pap smear test, or not intending to take the pap smear test allows physicians to spend extra time and effort in their counseling. With a knowledge test score, physicians

might be able to assess which patients require such time. This aspect is important as counseling patients may convince them to undergo this simple and potentially life saving procedure.

**Acknowledgment.** *The authors would like to thank patients who made this study possible. We also extend sincere thanks to the statistician Sana'a Ramadan and the research assistants.*

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