

## The frequency of having pap-smear tests among women between 15-64 years old and the evaluation of the level of their knowledge

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### Abstract

**Objective:** To determine the frequency of Pap smear testing among women and to evaluate their level of knowledge about the test and other relevant factors.

**Methods:** The study comprised women who presented to the Gynaecology and Obstetrics Polyclinic of Sakarya Training and Research Hospital, Turkey, between April 1 and 30, 2012. The questionnaire was developed in line with the objectives of the study. They were filled by the participants who were supervised during the process. Women who had had at least one Pap smear test in life were considered to have taken a Pap smear test", and those who had heard of the test were accepted as women who "knew of the Pap smear test". Data was analysed using SPSS 15.0. Chi-square test was used for analyses, and statistical significance was set at  $p < 0.05$ .

**Results:** The age of 601 subjects ranged between 15 and 64 years, with a mean of  $31.09 \pm 10.49$  years. Of the total, 115 (19.1%) had taken a Pap smear test before and 293 (48.8%) knew of the test. The proportion of the women who had had a Pap smear test was higher among those who were over 30 years of age ( $n=73$ ; 63.47%), had post-high school educational degrees ( $n=68$ ; 59.13%), had moderate familial income status ( $n=74$ ; 64.34%), were married ( $n=109$ ; 94.78%), had first sexual experience after 25 years of age ( $n=42$ ; 36.52%), and were not using a contraceptive method ( $n=97$ ; 84.34%) ( $p < 0.05$  for each). Besides, more women with previous knowledge of the test had taken the test ( $p < 0.05$ ).

**Conclusion:** The subjects did not have sufficient information on Pap smear and the frequency of having a test was low. Raising awareness would prove beneficial.

**Keywords:** Pap testing, Cervical cancer, Knowledge. (JPMA 63: 873; 2013)

### Introduction

Cervical cancer has the second highest incidence among women and is the third most common cause of cancer-related deaths.<sup>1</sup> According to the World Health Organisation data, approximately 2 million women are suffering from cervical cancer worldwide, with 500,000 new cases and 260,000 cervical cancer-related deaths annually.<sup>2</sup> The high incidence of cervical cancer is an important health issue, particularly in developing countries. It is the leading gynaecologic cancer in Turkey.<sup>3</sup> Studies in different countries have reported varying results regarding the prevalence of cervical cancer. For example, the risk of a women developing cervical cancer during her lifetime is 1/116 in England versus 1/26 in South Africa.<sup>4</sup> The higher prevalence seen in developing countries is mainly associated with sub-optimal or ineffective screening programmes.<sup>5</sup>

The most efficient method in reducing the morbidity and mortality of cervical cancer as well as in its early detection

is Pap smear. In gynaecology, Pap smear finds particular use in cervical cancer screening, hormonal status evaluations, vaginal and cervical infection assessment, and in evaluation of the results obtained during and after radiotherapy performed for genital cancers.<sup>1</sup>

It is estimated that annual Pap smear testing had reduced the risk of death associated with cervical cancer from 4/1,000 to 5/10,000 in women.<sup>6</sup> According to the recommendations of the American Cancer Society and the American College of Obstetrics and Gynaecologists, cervical cancer screening should be initiated 3 years after the first sexual intercourse or at the age of 21 years. Pap smear testing should be performed once every year in women below 30 years of age and the test should be repeated at least once every 2-3 years when around 3 smear tests yield negative results in women over 30. Each woman should undergo a pelvic examination every year regardless of the frequency of cervical cancer screening. Besides, pregnant women should also be screened with Pap smear testing and any abnormal result should be handled as in non-pregnant women.<sup>7</sup>

Pap smear is a simple, convenient, inexpensive, reliable and repeatable diagnostic method. Sampling is easy and causes no discomfort to the patient.<sup>1</sup> Owing to these

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properties, it is a key screening test in early diagnostic attempts for cervical cancer.

In developed countries, nurses trained in early diagnosis programmes have undertaken an essential role in medical screening and awareness-raising initiatives in collaboration with healthcare and social care professionals. Nurses' responsibilities include meeting the information requirements of women regarding protection from and early detection of cervical cancer, encouraging families with higher risk to undergo screening, performing Pap smear testing, and collecting and evaluating the results of the performed screening.<sup>8</sup>

The present study aimed at determining the frequency of Pap smear testing among women and at evaluating their level of knowledge about the Pap smear test and relevant factors.

## Subjects and Methods

The cross-sectional study comprised women who presented to the Gynaecology and Obstetrics Polyclinic, Sakarya Training and Research Hospital, Turkey, between April 1 and 30, 2012.

Sakarya is a city in western Turkey with a moderate level of development and a 50% female population. Of the women, 68.9% are aged 15-64 years.<sup>8</sup>

The pre-deigned questionnaire included items on women's socio-demographic data (age, educational status, marital status, familial income level), their knowledge of Pap smear (whether they had previously heard of Pap smear testing, whether they knew who should take this test, for which conditions it was performed and how frequently) and their knowledge about cervical cancer (whether they had previously heard of cervical cancer, what its signs were, whether the individual women considered that she was at risk).<sup>1,7</sup>

The study protocol was approved by the Sakarya Health Administration.

Women in the waiting area of the Gynaecology Polyclinics of the hospital were explained the subject and objectives of the study. After providing verbal consent, the women completed the questionnaires under supervision. Those who refused to participate, who were sexually inactive currently or in the past, those with a history of hysterectomy, and those who could not be communicated with were excluded.

For the purpose of the study, women who had had at least one Pap smear test in life were considered as "women who had taken a Pap smear test", and those who had

heard of the test were accepted as "women who knew of Pap smear".

Descriptive statistics were expressed using the mean and standard deviation for numerical variables, and frequency and percentage for categorical variables. Pearson's chi-square test was used as the statistical tool for testing the significance of relation between variables. Statistical significance was set at  $p < 0.05$ . The obtained data were analyzed with computers using SPSS 15.0.

## Results

The age of the 601 women in the study ranged between

Table-1: Characteristics of women with and without previous Pap smear test.

Characteristic	Women who had Pap smear test		P-value
	No n (%)	Yes n (%)	
<b>Age group (years)</b>			
≤29	285 (87.2)	42 (12.8)	
≥30	201 (73.4)	73 (26.6)	≤0.001 <sup>b</sup>
<b>Educational level</b>			
Illiterate	56 (84.8)	10 (15.2)	
Primary/Secondary school	231 (86.2)	37 (13.8)	≤0.002 <sup>c</sup>
High school and higher	199 (74.5)	68 (25.5)	
<b>Familial income</b>			
Poor	125 (96.2)	5 (3.8)	
Moderate	292 (79.8)	74 (20.2)	≤0.001 <sup>b</sup>
Good	69 (65.7)	36 (34.3)	
<b>Marital status</b>			
Unmarried and widowed	133 (95.7)	6 (4.3)	
Married	353 (76.4)	109 (23.6)	≤0.001 <sup>b</sup>
<b>Age at first marriage (years)<sup>a</sup></b>			
≤24	293 (81.2)	68 (18.8)	
≥25	78 (62.4)	47 (37.6)	≤0.001 <sup>b</sup>
<b>Marriage duration (years)<sup>a</sup></b>			
≤4	95 (82.6)	20 (17.4)	
5-9	109 (74.7)	37 (25.3)	
10-14	75 (73.5)	27 (26.5)	≤0.342
≥15	92 (74.8)	31 (25.2)	
<b>Age at first sexual intercourse<sup>a</sup></b>			
≤19	160 (81.6)	36 (18.4)	
20-24	134 (78.4)	37 (21.6)	≤0.002 <sup>b</sup>
≥25	77 (64.7)	42 (35.3)	
<b>Number of deliveries<sup>a</sup></b>			
0	24 (54.5)	20 (45.5)	
1	105 (80.2)	26 (19.8)	
2	132 (79.0)	35 (21.0)	<0.004 <sup>c</sup>
3 and over	110 (76.4)	34 (23.6)	
<b>Practicing contraception<sup>a</sup></b>			
Yes	151 (89.3)	18 (10.7)	
No	220 (69.4)	97 (30.6)	≤0.001 <sup>b</sup>
Total	486 (80.9)	115 (19.1)	

a: Women who had had marriage. b:  $p < 0.001$ , statistically significant. c:  $p < 0.01$ , statistically significant.

Table-2: Knowledge level about Pap smear by women having/not having the test.

Characteristic	Women who had Pap smear test		P-value
	No n (%)	Yes n (%)	
<b>Knowledge about the Pap smear test</b>			
No	308 (98.4)	5 (1.6.4)	
Yes	178 (61.8)	110 (38.2)	<0.001 <sup>a</sup>
<b>Which group of women needs Pap smear testing</b>			
All women	78 (60.9)	50 (39.1)	
Married women	37 (62.7)	22 (37.3)	
Women aged 40 and above	56 (68.3)	26 (31.7)	<0.001 <sup>a</sup>
Women with gynecological complaints	9 (37.5)	15 (62.5)	
Does not know	306 (99.4)	2 (0.6)	
<b>Knowledge about how often pap smear test should be done</b>			
Every year	127 (61.7)	79 (38.3)	
Every two years	11 (61.1)	7 (38.9)	
Other	43 (62.3)	26 (37.7)	<0.001 <sup>a</sup>
Does not know	305 (99.0)	3 (1.0)	
<b>For which condition Pap smear test should be performed</b>			
Gynecologic cancers	153 (66.2)	69 (33.8)	
Gynecologic infections	6 (22.2)	21 (77.8)	
Other diseases	3 (37.5)	5 (62.5)	<0.001 <sup>a</sup>
Does not know	324 (94.2)	20 (5.8)	
<b>Considers herself at risk for cervical cancer</b>			
No	401 (85.7)	67 (14.3)	
Yes	85 (63.9)	48 (36.1)	<0.001 <sup>a</sup>
Total	486 (80.9)	115 (19.1)	

a: p < 0.001, statistically significant.

15 and 64 years, with a mean of 31.09±10.49 years. Of them, 327 (61.93%) were 29 years old or younger, and 274 (45.6%) were 30 years old or older. Besides, 66 (11%) women were illiterate, 268 (44.6%) were primary/secondary school graduates, and 267 (44.4%) had high-school or higher levels of education. Among them, 462 (76.9%) were married, 115 (19.1%) were single, and 24 (4%) divorced (Table-1).

The number of women in the study group who have had a gynaecological examination was 379 (63.1%); 75 (12.5%) were undergoing regular examinations; 402 (66.9%) sought medical care when they had complaints; and 124 (20.6%) when their complaints became intolerable.

Those who had Pap smear taken previously were 115 (19.1%). Of these, 16 (13.9%) had the test every 6 months; 7 (6.1%) once a year; 56 (48.7%) every 3-5 years; 20 (17.4%) when they had complaints; and 16 (13.9%) when requested by a physician. Six (5.2%) of the women undergoing regular Pap smear test took the test as part of routine health check; 52 (45.2%) upon physician request; 16 (13.9%) due to presence of cancer history in the family; 21 (18.3%) due to discharge/bleeding/itch; and 20 (17.4%) due to concern of a possible cancer. Factors that were

statistically significant in differentiating between those taking the test and those who were not were: age, education, family income, marital status, age at first marriage, age at first intercourse, number of deliveries, and use of contraception (p <0.05 in each case).

Of the women in the study, 293 (48.8%) said they had information of the Pap Smear test. The source of information was healthcare personnel for 185 (63.1%); print and verbal media for 35 (11.9%); and friends for 73 (24.9%). Of those who had the test done previously, 110 (95.65%) had knowledge about it compared to 178 (36.62%) of the 486 women who had never taken the test (p<0.001) (Table-2).

## Discussion

Cervical cancer screening with Pap smear is one of the common methods with cost-effectiveness used for cervical cancer prevention. Developed countries have come up with screening programmes, particularly during the last 40 years, resulting in a clinically significant decrease in the incidence of invasive cancers.<sup>9</sup>

The current study found that approximately one-fifth of the women had taken a Pap smear test. According to studies in Turkey, the proportion of women who had had a Pap smear test varies between 16% to 52%.<sup>8,10,11</sup> Studies from different counties also report varying rates, from 20% to 93.0%.<sup>12,13</sup> The differing results may be attributed to the socio-economic and cultural norms of different societies, and their differing understanding of well-being and specific religious beliefs.

Frequency of referrals to gynaecology clinics increase with advancing age as a result of increased incidence of complaints of the reproduction system, and it is a common practice among gynaecologist to request Pap smear testing. Thus, the frequency of taking Pap smear test increases with age.<sup>8,14</sup> The findings of the current study also demonstrated a significantly higher frequency of testing among women older than 30 years of age.

Women with higher levels of education had a higher frequency of testing as a result of their better knowledge of diseases, including cervical cancer, and higher awareness of the role of Pap smear in its prophylaxis. Increased frequency of testing with increased levels of education has been reported by some studies.<sup>12</sup> Our results are in line with literature.

Familial income is acknowledged as an indicator of the socio-economical status of the individual. Higher income is associated with a better awareness of healthcare services, which means improved access to and higher benefit from these services. The current study

demonstrated a higher frequency of Pap smear testing among women with better financial status, which is in line with an earlier study.<sup>15</sup>

Likewise, a study has reported a higher frequency of testing among married women,<sup>16</sup> and our study produced matching results.

Women's age and sexual experience increase with the duration of marriage and increased number and frequency of testing have been reported by investigators.<sup>8,12</sup> In the present study, however, no relationship was found between the duration of marriage and testing frequency. This result may be explained by lower levels of education and poor health awareness and economic status.

Early age at first sexual intercourse represents a risk factor for cervical cancer. Pap smear testing intended for early diagnosis should, therefore, be more frequent since the risk of cervical cancer is increased when the first such experience occurs at earlier ages.<sup>17</sup> The present study demonstrated a higher frequency of testing among women with first sexual intercourse experience after 25 years of age.

The incidence of cervical cancer is known to rise with increased number of pregnancies and parity.<sup>18</sup> It is, therefore, desirable that Pap smear testing be more frequent among women with higher number of parity. Yet, the proportion of women who had taken Pap smear tests was higher among women who had never given birth compared to others. This may partly be explained by the fact that the women in the study group did not have sufficient information on the relationship between cervical cancer and pregnancy and delivery.

Pap smear testing is a routine practice in healthcare centres, where women obtain information on contraceptive methods, which might contribute to the proportion of women who take the test. A study has reported a pronounced relationship between oral contraceptive use and frequency of Pap smear testing.<sup>19</sup> The present study also demonstrated a higher frequency of testing among women practising some contraceptive method.

In the present study, 48.8% of the women reported that they had knowledge about Pap smear. Some other studies from Turkey have also reported similar rates of women who were familiar with it.<sup>12,15</sup> In a study, 92% of the women had knowledge about Pap smear.<sup>20</sup> The apparent difference between the two results underlines the need of awareness-raising initiatives regarding Pap smear in the region where the present study was conducted.

Women who have knowledge about Pap smear are expected to have taken the test and repeat it regularly so that they can be protected from cervical cancer and have the opportunity to be given appropriate treatment at the pre-invasive phase. The present study demonstrated that the frequency of Pap smear testing was higher among women who had knowledge about the test. Earlier studies have also reported similar results.<sup>8,12</sup>

Regarding Pap smear screening for early detection of cervical cancer, the American Cancer Society (ACS) recommends that the test should be taken 3 years after the first sexual experience or at age 21 whether the women is sexually active or not; every year after the age of 30; and once every three years if three successive yearly tests yield negative results; and that women older than 70 years with no abnormal Pap smear results for the preceding 10 years; and those with three or more normal Pap smear results should be excluded from cervical cancer screening programme.<sup>20</sup> In Turkey, the annual Pap smear test is performed as part of the pelvic examination 3 years after starting sexual activity.<sup>8</sup> In the present study, about one-third of the women were knowledgeable about how often they should take the test.

The present study observed that gynaecological infections was the leading cause for which women sought Pap smear testing. Recommendation by gynaecologists was noted as the primary factor for women to take Pap smear in some studies.<sup>16,20</sup>

The frequency of taking the Pap smear test was significantly higher among the women who considered themselves at risk for cervical cancer than those who did not. This result is supported by several previous reports.<sup>8,19</sup>

The limitations of the study include the facts that it was performed on patients who presented to the gynaecology polyclinic of one hospital, and that it covered presentations during a period of one month. Besides, the women were not provided with information on Pap smear.

## Conclusion

The participating women did not have adequate knowledge about the Pap smear test and the frequency of taking the test was low. Raising awareness through occasional education on the importance of the test and why, how and when it should be performed would prove beneficial.

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## References

1. Waxman AG. Guidelines for cervical cancer screening, history and scientific rationale. *Clin Obstet Gynecol* 2005; 48: 77-97.
2. Jemal A, Siegel R, Ward E, Hao Y, Xu J, Murray T, Thun MJ. Cancer Statistics 2008. *CA Cancer J Clin* 2008; 58: 71-96.
3. Sitas F, Madhoo J, Wessie J. National Cancer Registry of South Africa. Incidence of Histologically Diagnosed Cancer in South Africa, 1993 - 1995. Johannesburg: South African Institute for Medical Research; 1998.
4. Wilson CM, Tobin S, Young C. The exploding worldwide cancer burden: the impact of cancer on women. *Int J Gynecol Cancer* 2004; 14: 1-4.
5. Akin A. Türkiye'de Ana Sağlığı, Aile Planlaması Hizmetleri ve İsteyerek Düşükler. 1998 Türkiye Nüfus ve Sağlık Araştırması İleri Analiz Sonuçları 2002; pp:184-216.
6. Ball C, Madden JE. Update on cervical cancer screening. Current diagnostic and evidence-based management protocols. *Postgrad Med* 2003; 113: 59-64.
7. Akyüz A, Güvenc G, Yavan T, Cetinturk A, Kok G. Evaluation of the Pap smear test status of women and of the factors affecting this status. [Turkish] *J Gulhane Med* 2006; 48: 25-9.
8. Turkey Statistical Agency. [Homepage of the Turkey Statistical Agency]. (Online) (Cited 2012 May 15) Available from URL: <http://www.tuik.gov.tr>
9. Jennings-Dozier K, Lawrence D. Socio-demographic predictors of adherence to annual cervical cancer screening in minority women. *Cancer Nurs* 2000; 23: 350-6.
10. Karaca M, Palanci Y, Aksu S. How common is Pap smear test known and performed? [Turkish] *Türkiye Klinikleri J Gynecol Obst* 2008; 18:22-8.
11. Kalyoncu C, Isikli B, Ozalp S, Kucuk N. Knowledge, attitude and behaviours of those who applied to Osmangazi University women's health and birth policlinic concerning Pap smear. [Turkish] *Hlth Society* 2003; 13: 60-6.
12. McFarland DM. Cervical cancer and Pap smear screening in Botswana: knowledge and perceptions. *Int Nurs Rev* 2003; 50: 167-75.
13. Sirovich BE, Welch G. The frequency of Pap smear screening in the United States. *J Gen Intern Med* 2004; 19: 243-50.
14. Behbakht K, Lynch A, Teal S. Social and cultural barriers to Papanicolaou test screening in an urban population. *Obstet Gynecol* 2004; 104:1355-61.
15. Park MJ, Park EC, Choi KS, Jun JK, Lee HY. Sociodemographic gradients in breast and cervical cancer screening in Korea: the Korean National Cancer Screening Survey (KNCS) 2005-2009. *BMC Cancer* 2011; 11: 257. doi: 10.1186/1471-2407-11-257.
16. Gharoro EP, Ikeanyi EN. An appraisal of the level of awareness and utilization of the Pap smear as a cervical cancer screening test among female health workers in a tertiary health institution. *Int J Gynecol Cancer* 2006; 16: 1063-8.
17. Barosso MF, Gomes KR, Andrade JX. Frequency of Pap smear testing in young women with an obstetric history in Teresina, Piauí, Brazil. *Rev Panam Salud Publica* 2011; 29: 162-8.
18. Bailie R, Petrie K. Women's attitudes to cervical smear testing. *N Z Med J* 1990;103: 293-5.
19. Saslow D, Runowicz CD, Solomon D, Moscicki AB, Smith RA, Eyre HJ, et al. American Cancer Society guideline for the early detection of cervical neoplasia and cancer. *CA Cancer J Clin* 2002; 52: 342-62.
20. Gichangi P, Estambale B, Bwayo J, Rogo K, Ojwang S, Opiyo A, et al. Knowledge and practice about cervical cancer and Pap smear testing among patients at Kenyatta National Hospital, Nairobi, Kenya. *Int J Gynecol Cancer* 2003; 13: 827- 33.