

RESEARCH ARTICLE

Evaluation of the Pap Smear Test Status of Turkish Women and Related Factors

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Abstract

Background: The Pap smear has an important value in the early diagnosis of cervical cancer, a serious problem in womens health. This study aimed to determine the status of Turkish women regarding participation in Pap smear testing and affecting factors. **Materials and Methods:** This descriptive study was conducted on married women between 18-61 years of age selected from those who applied to the Obstetrics and Gynaecology Polyclinic of Atatürk University in Erzurum between June-August 2010 for any reason. Data were collected using a questionnaire determining socio-demographic features and analyzed by descriptive statistics (mean, Sd, range, frequency, percentage) and Chi-square test. A level of $p < 0.05$ was considered statistically significant. **Results:** Sixty six of the 301 women (21.9%) indicated that they heard a Pap smear test and 16.6% of women had experienced a test. The number of women participating increased with age, duration of marriage, number of births, knowledge about the Pap smear and perception of risk for cervical cancer. **Conclusions:** The importance of the Pap smear test needs to be explained to Turkish women by health staff, to increase awareness and participation in regular screening.

Keywords: Pap smears - participation - factors - Turkish women

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Introduction

Cervical cancer has an important place among women's cancers. It is estimated that 50% of the cancers of female reproductive system are caused by the cervix. Although cervical cancers are more common among women from the age group of 40-55 years, it has recently begun to be seen in younger women as well. This is associated with the developments in early diagnosis methods (Atasü and Şahmay, 2001; Tezcan and Şahincioğlu, 2008; Taşkın, 2009). The prevalence of cervix cancer in the world is gradually decreasing. In 2007, 473,430 new cervix cancer cases were diagnosed in developing countries and 272,238 died because of this disease. On the other hand, 87,466 new cases were diagnosed and 42,101 deaths were reported in developed countries. In the same year, a total of 555,094 new cases and 309,808 deaths were reported worldwide. The expected rate for 2010 across the world is 12,200 new invasive cervix cancer cases and 4,210 female deaths due to this disease (Cancer Facts and Figures, 2010). According to data published by the Turkish Ministry of Health for the year 2008, cervical cancer ranked third among genital cancers, with 763 cases and an incidence rate of 2.2 (Ministry of Health, 2008). Cervical cancer was tenth (3.0 per 100.000) in Erzurum, Turkey (Eser et al., 2010). Cancer pattern in women shows difference in Turkey. Even though breast cancer is still first rank cancer in Turkish women cervical cancer prevalence is lower than European countries and worldwide (Ministry

of Health, 2009). The main causes for the low cervical cancer incidence are the family structure and living style in Turkey.

Cervical cancer is one of the main cancer types in which early diagnosis approach produces successful results. Cervical cancer can be caught in "insitu" phase with the help of "Pap Smear Test" which is very simple and highly effective in terms of sensitivity-selectivity in the early diagnosis of cervical cancer. When the prognosis of the disease is considered, there is a 10-year period between the "insitu" phase and "invasive" phase. This period is an important time span for the treatment of cancer. Patients are likely to be cured by the treatment given in this phase. American Cancer Society notes that sexually active women older than 19 years old should take the Pap Smear Test once a year for early diagnosis (Stekler and Joann, 2000). Cervical cancer which a global health problem is the cause of % 5.31 all malignancies affecting Turkish women (Tuncer, 2009). In Turkey, to decrease of cancer as primary prevention, early diagnosis and reduction of cancer mortality are also among major targets. In Turkey, the main targets of cancer control plan, which has now become state policy, are the accurate and regular registration of the cancer burden and the establishment of a cancer screening and training center in each province and cervical cancer screening have begun as a national program in 81 provinces in 2008 (Tuncer and Özgül, 2010). Early Cancer Diagnosis and Screening Centers (KETEM) will be established in all cities to increase the

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infrastructural support. These applications carried out in Turkey will result in a positive way. In the studies carried out in Turkey; according to Akyüz et al. (2006) the rate of pap testing of women is 51.2%, while it is 16.2 according to Karaca (2008). On the other hand, Atar Gürel et al. (2009) states the rate as 30.4%. In majority studies, it was found that the socio-demographic characteristics of women had an influence on the rate of having pap testing (Akyüz et al., 2006; Kaku et al., 2008; Atar et al., 2009; Uysal and Birsal, 2009).

There are several health behaviours that minimize the risk of cervix cancer, but no behaviour is as effective as taking the Pap Smear Test (Dozier and Lawrence, 2000; Akyüz et al., 2006). It is reported in the literature that cervical cancer death rates tend to decrease in counties where periodic controls and screenings are performed. The number of women, who take the Pap Smear Test which is highly important in early diagnosis, is not at a desired level both around the world and in our country. It is a known fact that pathological changes reach an irreversible state in several diseases as the disease progresses. Therefore, "preventing" comes into prominence instead of treatment in providing cancer control and sustaining health (Tuncer, 2000; Akyüz et al., 2006).

Behaviours of taking Pap Smear Test differ according to women's age, education, race, socio-economic status and cultural characteristics (Juon et al., 2003). It has been reported that the rates of taking Pap Smear Test are lower among elderly, poor and minority groups in developed countries, and a similar study conducted in Turkey demonstrates that this rate increases with the increase in age and education level and in the presence of social insurance (Ideström et al., 2002; Kalyoncu et al., 2003). Akyüz et al. (2006) determined that, the number of women who had a Pap smear was increasing with age, duration of marriage, number of birth, knowledge about Pap smear and perception of risk for cervical cancer.

The fact that the behaviour of taking Pap smear test differs according to different cultures, groups and socio-demographic characteristics is an important knowledge that will affect the way health personnel provides distinct groups with necessary service. Thus, this study was designed as a descriptive study in order to investigate the status of taking the Pap Smear Test and associated factors among women who applied to Atatürk University, Obstetrics and Gynaecology Polyclinic.

Materials and Methods

This descriptive research was conducted between June-August 2010. The study population comprised married women aged 18-61 years who came to the Obstetrics and Gynaecology Polyclinic of Atatürk University in Erzurum, Turkey. The women were selected through convenience sampling. The eligibility criteria were: (1) ranging in age from 18-61 years, (2) able to knowledge about pap-smear test, (3) able to read and understand Turkish. Between the dates of this study, all married women who were admitted to the Obstetrics and Gynaecology Polyclinic for any reason, who agreed to participate, and who supplied the study conditions were included in the research. 301

married women were included in the research.

Before the initiation of the study, legal permission was received from the hospital and clinic where the data would be collected, and verbal consent was received from the participants after they were informed about the research.

Data were collected by the researcher, applying face-to-face interview technique and a questionnaire developed after a relevant literature review. The questionnaire consisted of two sections. The first section included the socio-demographic characteristics of women, and the second included questions about knowledge of Pap smear, their status of taking the test, and associated factors, as well as their risk perceptions of cervical cancer.

Statistical analyses

Data were assessed by SPSS 11.0 packet program. Mean, percentage, and Chi-square tests were used in statistical analysis. Significance level was taken as $p < 0.05$.

Results

Socio-demographic characteristics of women who participated in the study are summarised in Table 1. The age, marriage age and marriage duration of the women included in the study were 36.26 ± 11.48 , 18.20 ± 4.08 and 15.98 ± 12.24 , respectively. It was determined that 72.4% of the women were primary school graduates, 54.8% lived in the village, and 92.7% had social insurance. In addition, 40.5% of the women were married for 1-10 years, and 36.2% had 1-2 children (Table 1).

As demonstrated in Table 2, the rate of taking the Pap smear test is higher in women who are in the age group of 40-50 years, who are university graduates, who are employed, who are married for 21-30 years, and who give birth 3-4 times. A statistically significant relationship was found between the status of taking Pap Smear Test and women's age, education level, employment status and parity ($p < 0.05$).

The women included in the research were asked to state their opinion about having medical examination when they encounter any gynaecological problem, and the relationship between these findings and the status of taking the Pap Smear Test was evaluated. As illustrated in Table 3, it was determined that Pap Smear Test was taken by 27.5% of the women who had gynaecological examination when they had any complaints and by 11.9% of the women who saw a doctor only when their complaints became unbearable, and a significant relationship was found between women's having gynaecological examination and taking the Pap Smear Test ($p < 0.001$).

Table 4 demonstrates that Pap smear test was taken by 57.6% of the women who were aware of the test and by 5.1% of the women who were never aware of the test. There was a statistically significant difference between the two groups in terms of taking the pap smear test ($p < 0.001$).

It was observed that women failed to define the group that should take the Pap Smear Test, and that the rate of taking the test was high among those who were aware that married women should take the test and low among those who did not have such knowledge. The rate of knowledge about the use of Pap Smear Test for gynaecological

Table 1. Socio-demographic Characteristics

Characteristics		N	%
Age (Years)	18-28	89	29.6
	29-39	102	33.9
	40-50	68	22.6
	51-61	42	14.0
The average age of the women=36.26±11.48			
Education	Primary school	218	72.4
	Secondary school	31	10.3
	Higher education	33	11.0
	University	19	6.3
Residential place	City	129	42.9
	Town	7	2.3
	Village	165	54.8
Employment status	Yes	21	7.0
	No	280	93.0
Social insurance	Insured	279	92.7
	Uninsured	22	7.3
Economic status	Income > expenditure	---	---
	Income < expenditure	103	34.2
	Income = expenditure	198	65.8
Duration of marriage	1-10	122	40.5
	11-20	81	26.9
	21-30	52	17.3
	31-40	37	12.3
	41-50	9	3.0
Parity	0	27	9.0
	1-2	109	36.2
	3-4	70	23.3
	>4	95	31.6

Table 2. Women's Status of Taking Pap Smear Test According to their Socio-demographic Characteristics

Characteristics	Taken Pap Smear Test N=50(%)*	No Taken Pap Smear Test N=251(%)*
Age	$\chi^2=9,476$ p=0.024	
	18-28	8 (9.0) 81 (91.0)
	29-39	19 (18.6) 83 (81.4)
	40-50	18 (26.5) 50 (73.5)
51-61	5 (11.9) 37 (88.1)	
Education	$\chi^2=19,306$ p=0.000	
	Primary school	26 (11.9) 192 (88.1)
	Secondary school	6 (19.4) 25 (80.6)
	Higher education	9 (27.3) 24 (72.7)
University	9 (47.4) 10 (52.6)	
Employment status	$\chi^2=4,557$ p=0.033	
	Yes	7 (33.3) 14 (66.7)
No	43 (15.4) 237 (84.6)	
Duration of marriage	$\chi^2=8,819$ p=0.066	
	1-10	14 (11.5) 108 (88.5)
	11-20	14 (17.3) 67 (82.7)
	21-30	15 (29.4) 36 (70.6)
	31-40	5 (13.5) 32 (86.5)
41-50	2 (22.2) 7(77.8)	
Parity	$\chi^2=13,081$ p=0.004	
	0	3 (11.5) 23 (88.5)
	1-2	17 (15.6) 92 (84.4)
	3-4	21 (30.0) 49 (70.0)
>4	9 (9.5) 86 (90.5)	

*Row percentage is given

cancer diagnosis was high, while the rate of knowledge about the required frequency of taking the test was low. A significant difference was found between the women in

Table 3. Women's Status of Taking the Pap Smear Test According to their Status of Having Gynaecological Examination

gynaecological examination	Taken Pap smear test n=50(%)*	Not taken Pap smear test n=251(%)*	χ^2	p
-I get medical examination when my complaints become unbearable	28(11.9)	207(88.1)	19,559	0.000
-I get medical examination when I have any complaint	11(27.5)	29(72.5)		
-I get medical examination on a regular basis	11(42.3)	15(57.7)		

*Row percentage is given

Table 4. Women's State of Taking the Pap Smear Test According to their Knowledge about the Pap Smear Test

Characteristics	Had taken Pap Smear Test Before N=50(%)*	Had never Taken Pap Smear Test Before N=251(%)*	χ^2	p
Knowledge about the Pap smear test				
Heard before	38 (57.6)	28 (42.4)	102,411	P<0.001
Never heard before	12 (5.1)	223 (94.9)		
Defining the group that should take the Pap smear test				
All women	10 (5.9)	159 (94.1)	132,712	P<0.001
Married women	34 (75.6)	11 (24.4)		
Does not know	6 (6.9)	81 (93.1)		
Knowledge about the type of disease for which Pap smear test is taken				
Knows	31 (70.5)	13 (29.5)	107,854	P<0.001
Does not know	19 (7.4)	238 (92.6)		
Knowledge about the frequency that Pap smear test should be taken				
Knows	21 (84.0)	4 (16.0)	89,384	P<0.001
Does not know	29 (10.5)	247 (89.5)		
Number of Pap Smear Tests previously taken n =50				
1	27 (54.0)			
2-4	17 (34.0)			
≥5	6 (12.0)			

*Row percentage is given

Table 5. Women's Classification of Taking the Pap Smear Test According to their Risk Perception about Cervix Cancer

Characteristics	Had taken Pap Smear Test Before N=50(%)*	Had never Taken Pap Smear Test Before N=251(%)*	χ^2	p
Women's risk perception about cervix cancer	$\chi^2=24,945$ P<0.001			
Considers herself in the risky group	13 (52)	12 (48)		
Does not consider herself in the risky group	28 (12.8)	191 (87.2)		
Does not know whether she is in the risky group or not	9 (15.8)	48 (84.2)		
Reasons for considering themselves in the risky group (n=24)				
Presence of cancer in the immediate environment	2 (8.3)			
Multiple abortions	1 (4.2)			
Being a woman and being married	21 (87.5)			

*Row percentage is given

terms of taking the Pap Smear Test regarding their level of knowledge (p<0.001). When we examined the number of Pap Smear Test taken by women who had taken the test before, we found that 54% of the women had taken the test before only once (Table 4).

As illustrated in Table 5, Pap smear test was taken by approximately half of the women who considered themselves in the risky group for cervix cancer, 12.8% of

the women who did not consider themselves in the risky group, and 15.8% of the women who did not know whether they were in the risky group. A significant relationship was found between the women's seeing themselves in the risky group and taking the Pap Smear Test ($p < 0.001$). According to the women who considered themselves in the risky group, being a woman and being married were the factors causing this risk (87.5%) (Table 5).

Discussion

Cervix cancer, which is the second most prevalent gynaecological cancer type worldwide and the first in developing countries, has a very high rate of mortality unless it is diagnosed in the early stage (Tezcan and Şahincioğlu, 2008). There are several studies on the cervix cancer and screening of cervix cancer which is one of the most common cancer types in the world. Different rates of taking Pap smear test was reported in various studies; for example, 20% in Kenya (Gichangi et al., 2003), 40.3% in Jordan (Barghouti et al., 2008), 69% in Spain (Byrd et al., 2004), and 93% in the United States of America (Sirovich and Welch, 2004). In the studies conducted in Turkey, this rate was reported as 51.32% by Akyüz et al. (2006); 19.4% by Ak et al. (2010); 20% by Kalyoncu et al. (2003); 32.8% by Dönmez (2007); 28.9% by Gürel et al. (2009) and 16.2% by Karaca, (2008). It was determined in our research that 50 of 301 women (16.6%) included in the study had taken Pap Smear Test before, while 251 women (83.4%) had never taken the test before. The rates of taking the Pap Smear Test among women in Turkey according to their socio-demographic characteristics have been investigated in various studies conducted by Turkish researchers. For example, (Akyüz et al., 2006) noted that the rate of taking the Pap smear test was highest among women who were from the age group of 30-39 years, who were secondary school graduates, who were unemployed, who were married for 11-20 years and who gave birth four times and more; (Kalyoncu et al., 2003) reported that this rate increased in women older than 35 years and with longer marriage period. On the other hand, (Ak et al., 2010) reported this rate to be low among women with low education level and who lived in rural areas. (Karaca, 2008) indicated that having social insurance and the availability of gynaecological examination in university hospitals had a positive effect on the rates of hearing about and taking the smear test. According to (Gürel et al., 2009) age average was higher among women who took Pap smear test, and these women had more gynaecological examinations, lived in the city centre, had higher socio-economic level as well as higher level of knowledge about pap smear test and higher education level. In our study, the rate of taking pap smear test was observed to be higher among women who were from the age group of 40-50 years, who were university graduates, who were employed, who were married for 21-30 years, and who gave birth 3-4 times (Table 2). A statistically significant relationship was determined between status of taking pap smear test and women's age, education level, occupation status and number of births given ($p < 0.05$). The increase in the rate of having obstetric or

gynaecological examinations and therefore taking the pap smear test can be associated with the increase in women's age, marriage duration and number of births given. In our research, the rate of taking Pap Smear Test was observed to be higher among women with higher level of education. Many studies conducted on this subject reveal similar findings supporting our research (Dozier and Lawrence, 2000; Nuguyen et al., 2002; Siahpush and Singh, 2002; Wellensiek et al., 2002; Kalyoncu et al., 2003; Behbakht et al., 2004). In some studies, unlike our research, it was reported that the rate of taking Pap Smear Test decreased despite the increase in education level, and janitors comprised the group with the highest rate (68.9%) while this rate was the lowest in doctors (18.9%). This marked decrease in the rate of taking pap smear test among groups with higher education level was associated with higher awareness about the risk factors in cervix cancer, the use of barrier methods, and commitment to virginity and to monogamy in active sex life (Dönmez, 2007). Similarly, (Akyüz et al., 2006) reported a lower rate of taking pap smear test in those with higher education level, as well as a higher average of marriage age and shorter marriage period among those with higher education level. In the Turkish society, since individuals begin active sex life generally with marriage, the rate of having obstetric or gynaecological examination increases with the increase in marriage duration, and lower rates of taking pap smear test among women with higher education level are associated with the fact that these women get married at an advanced age.

It was established that women's opinions affecting the their frequency of having gynaecological examination was also effective in taking the Pap Smear Test, and a significant relationship was found between having gynaecological examination and taking Pap Smear Test ($p < 0.001$) (Table 3). The research conducted by (Akyüz et al., 2006) reveals findings similar to ours (Behbakht et al., 2004). also similar to our study, reported that the rate of taking Pap Smear Test was lower in women who found it difficult to see a doctor compared to women who found it convenient. (Mete, 1998) stated that women avoided gynaecological examinations due to several reasons, such as lack of knowledge, disregard, embarrassment, and fear of being diagnosed with a disease. According to (Gürel et al., 2009) neglect with a rate of 87% was the primary reason among women for not taking the Pap smear test. It is important that physicians and nurses know that women's thoughts about gynaecological examination affect their awareness about having gynaecological examination and taking the test, so that they can adopt the appropriate approach in informing and educating women on this subject.

With the increase in the education level of women who participated in the study, a parallel increase was observed in the rates of hearing about the Pap Smear Test (12.8% in primary school level, 73.7% in university level) and taking the Pap smear test (11.9% in primary school level, 47.4% in university level). There was a significant relationship between women's education level and the rate of hearing about and taking the Pap Smear Test ($p < 0.001$). In parallel with our study, (Ak et al., 2010) reported an increase in

the rate of hearing about the Pap smear test among women with the increase their education level (38.5% in primary school level, 61.5% in higher education level) (Kalyoncu et al., 2003). established a positive relationship between education level and rates of hearing about the test, and reported a rate of 72.92% regarding women who heard about and took the Pap smear test. Our research also revealed a significant difference between women who had heard about the Pap smear test before and those who had never heard about the test ($p < 0.001$) (Table 4). When women's status of taking Pap smear test was examined in terms of their level of knowledge about the test, the rate of taking the test was lower among women who did not know who performed the test, which disease the test was performed for, and how often the test should be taken, and the difference was found to be statistically significant ($p < 0.001$) (Table 4). Other studies also report an increased rate of taking the test among women who has knowledge about cervix cancer and Pap Smear Test (Wellensiek et al., 2002; Akyüz et al., 2006).

Regarding the Pap smear test for the early diagnosis of cervical cancer, the American Cancer Society (ACS) has announced that women should take Pap smear test 3 years after their first sexual experience or at the age of 21 regardless of whether they are sexually active or not; once a year if they are 30 years of age and older; every 3 years in case the results of the 3 successive tests have been negative; and that women who are 70 years of age and older, whose Pap tests in the last 10 years have not revealed abnormal results, and who has three or more normal Pap test results should be excluded from the cervical cancer screening program. Similarly, the American College of Obstetricians and Gynaecologist (ACOG) announced that all women who have been sexually active in any period of their lives or are still sexually active, or who have reached the age of 21 should have annual pelvic examination and take Pap Smear Test, and women who are older than 30 years of age and who have normal pelvic examination and Pap smear results for 3 successive years may be monitored up at longer intervals (Byrd et al., 2004; Ozan, 2005).

However, it was observed in our study that women failed to define the group that should that Pap smear test and the frequency at which the test should be taken. This finding indicates that women are not adequately informed by the health personnel about the significance of the issue. In addition, although 16.6% of the women ($n=50$) had previously taken Pap smear test, 54% of these women ($n=27$) had this test only once, indicating that the obtained results were far from reaching the goals. Because the smear test taken only once is not sufficient for the early diagnosis of cervix cancer.

Among women who had heard about Pap Smear Test, 56% heard it from health institutions, 30% from the media and 14% from their friends/neighbours. The rate of those who heard about Pap Smear Test mostly from health institutions was 60% among those who took the test. Accordingly, it may be concluded that women change their behaviour according to their source of information, and are more likely to reflect the information obtained from health institutions to their lives. In a study conducted in Kenya (Gichangi et al., 2003), 87% of the participants

heard about the test from a health institution, 7% from a friend and 3% from the media; and the rate of hearing about the test from a health institution was reported as 57% by Ak et al. (2010) and 82% by Kalyoncu et al. (2003).

It was detected that the Pap Smear Test was taken by 52% of the women who considered themselves in the risky group for cervix cancer and 84.2% of the majority of those who were not sure whether they were included in the risky group did not take Pap Smear Test, and a significant relationship was found between women's status taking the Pap Smear Test and whether they considered themselves in the risky group ($p < 0.001$) (Table 5). In other studies, parallel to our research, it was established that women who considered themselves in the risky population for cervix cancer had higher rates of taking the Pap Smear Test (Nuguyen et al., 2002; Wellensiek et al., 2002; Gichangi et al., 2003; Akyüz et al., 2006).

In conclusions, consequently, it was determined that women's decisions and awareness about taking Pap Smear Test was affected by their opinions of gynaecological examination, socio-demographic characteristics, knowledge about Pap smear test, and risk perceptions about cervix cancer; yet, despite all these factors, the significance of Pap Smear Test was not fully acknowledged among women.

In line with the obtained findings, it may be suggested that Pap smear test, as in all developed countries, should be performed as part of the annual pelvic examination 3 years after the first sexual experience in our country, as well. Furthermore, health personnel should provide all women with more extensive knowledge about Pap smear and cervix cancer, risk factors, early diagnosis and screening; and if necessary, women should be encouraged to participate in education programs. Also, women who are admitted for gynaecological examination should be informed by the health personnel about the objective and significance of Pap Smear Test and how often it should be performed; and health education programs on this subject should become widespread and screening programs should appear more often in the media, for example by inserting these slots into the commercial breaks of prime time news programs and TV series and an effective screening program should be developed. These activities will be highly effective in providing women with awareness about cervix cancer and encouraging them to take regular Pap Smear Tests.

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