

FACTORS AFFECTING CERVICAL CANCER SCREENING BEHAVIOR IN WOMEN AGED 30-65 YEARS IN A DISTRICT IN ISTANBUL

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ABSTRACT

Objective: In 2020, cervical cancer was the fourth most frequently diagnosed cancer in women. Cervical cancer screening increases the possibility of early diagnosis and treatment. This research was conducted to evaluate the knowledge and behavior of women aged 30-65 years who were registered with the Family Health Center (FHC) regarding cervical cancer screening.

Material and Method: This study is a descriptive cross-sectional study, and 400 women registered at three different FHCs in the Fatih district of İstanbul were included in the study. Sociodemographic characteristics, knowledge and behaviors related to cervical cancer were investigated. Besides, the Turkey Health Literacy Scale-32 (TSOY-32) was used to collect the data.

Results: The most common cervical cancer screening method known was the Pap smear test with 72.1%. On

the other hand, 20.3% of the participants had never been screened for cervical cancer. The most common reason for women to be screened was regular health check-ups and advice from the health worker. Among the women, 9.8% had inadequate health literacy, and 23.2% had problematic health literacy. As age, education, income level, and health literacy level increased, women's participation in cervical cancer screening increased in a statistically significant manner.

Conclusion: The current study showed that while women's knowledge about cervical cancer screening was at a good level, the rate of regular screening was not at the desired level. Participation in community-based cervical cancer screening can be increased through activities aimed at increasing women's education and health literacy levels.

Keywords: HPV, health literacy, cervical cancer, screening.

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İSTANBUL'DA BİR İLÇEDE 30-65 YAŞ ARASI KADINLARDA SERVİKS KANSERİ TARAMA DAVRANIŞINI ETKİLEYEN FAKTÖRLER

ÖZET

Amaç: Rahim ağzı kanseri, 2020 yılında kadınlarda en sık teşhis edilen dördüncü kanser türüdür. Serviks kanseri taramaları ile erken tanı ve kür ihtimali artmaktadır. Bu araştırma aile sağlığı merkezine (ASM) kayıtlı 30-65 yaş kadınların serviks kanser taramaları hakkındaki bilgi ve davranışlarını değerlendirmek için yapılmıştır.

Materyal ve Metot: Bu araştırma tanımlayıcı kesitsel bir araştırmadır ve İstanbul'un Fatih ilçesindeki 3 farklı ASM'ye kayıtlı 400 kadın dahil edilmiştir. Sosyodemografik özellikleri, serviks kanserine yönelik bilgi ve davranışları araştırıldı. Ayrıca veri toplamak için Türkiye Sağlık Okuryazarlığı ölçeği (TSOY-32) kullanıldı.

Bulgular: En bilinen serviks kanseri tarama yöntemi %72,1 ile Pap smear testidir. Öte yandan, katılımcıların %20,3'ü daha önce hiç serviks kanseri taraması yaptırmamıştır. Kadınların tarama yaptırmalarının en yaygın nedeni düzenli sağlık kontrolleri ve sağlık çalışanının tavsiyesidir. Kadınların %9,8'i yetersiz, %23,2'si ise sorunlu sağlık okuryazarlığı düzeyine sahiptir. Yaş, eğitim, gelir düzeyi ve sağlık okuryazarlığı düzeyi arttıkça kadınların serviks kanser taramasına katılımları istatistiksel olarak anlamlı şekilde artmaktadır.

Sonuç: Bu çalışma, kadınların serviks kanseri taraması hakkındaki bilgilerinin iyi düzeyde olduğunu ancak düzenli tarama oranının istenen düzeyde olmadığını göstermiştir. Kadınların eğitim, sağlık okuryazarlığı düzeylerini artırmaya yönelik faaliyetlerle toplum tabanlı serviks kanser taramalarına katılımlar artırılabilir.

Anahtar kelimeler: HPV, sağlık okuryazarlığı, servikal kanser, tarama.

INTRODUCTION

In 2020, cervical cancer ranked the fourth most frequently diagnosed cancer in women and fourth leading cause of cancer-related fatalities among women on a global scale. In 2020, while the age-adjusted incidence rate of cervical cancer was 13.3 per 100,000 women, the mortality rate was 7.3 per 100,000 women. It is the fourth most common gynecological cancer in Türkiye.¹ Cervical cancer is a preventable cancer, and the decrease in cancer-related deaths with early diagnosis shows the importance of early diagnosis.^{2,3}

Human papillomavirus (HPV) is one of the four infections responsible for 90% of all infection-related cancers worldwide. The human papilloma virus, the most important risk factor in the development of cervical cancer, is mostly transmitted sexually.³ Human immunodeficiency virus (HIV), herpes simplex virus 2 (HSV-2) and chlamydia trachomatis, which are sexually transmitted infections (STI) agents; and various risk factors such as age at menarche, age at first sexual intercourse, number of sexual partners, number of parities, use of oral contraceptives, and socioeconomic status are also of great importance for cervical cancer.⁴

In Turkey, population-based cervical cancer screening services are provided by primary healthcare institutions. The Pap smear method was used in cervical cancer screening between 1992-2014 in Turkey. However, because the targeted 70% inclusiveness could not be

achieved, a new screening strategy was adopted, and HPV DNA tests were also started. Within the scope of national screening standards, it is aimed at screening women aged 30-65 with HPV DNA test every 5 years after 2014 and re-evaluating cases with positive screening results with reflex cytology (HPV DNA with Pap Smear).⁵

Health literacy is the ability of individuals to acquire and use the health-related knowledge they need. Individuals with high health literacy have the competence to make decisions about their health and the health of the community. Those with low health literacy are at a disadvantage in terms of preventive health services, and they benefit less from preventive services.⁶

Community-based cancer screening, through regular and consistent data collection, serves as the primary data source for cancer registries and contributes significantly to cancer surveillance and control efforts. Cancer registries are essential tools for measuring the societal impact of cancer and providing a basic database for assessing the current situation and formulating cancer control strategies. If regular screening rates are not at the desired level, the information provided by this database will not be of the desired quality.⁷

The fact that cervical cancer screening rates in Turkey are not at or above the desired level of 70% suggests that screening methods are not sufficiently accepted by society. Other barriers, such as low health literacy,

Table 1. Participants' sociodemographic characteristics, screening behaviours and Turkey Health Literacy Scale-32 (TSOY-32) levels.

	n	%		n	%
Marital Status			Frequency of Cervical Cancer Screening *		
Married	348	87	Every year	69	21.6
Single	52	13	Once in 2-3 Years	36	11.3
Age (Years)			Once in 5 Years	21	6.6
30-39	98	24.5	Irregular	100	31.3
40-49	133	33.3	Only Once	93	29.2
50-59	110	27.5	Excellent	131	32.8
60-65	59	14.8			
Educational Attainment			Location of the Last Scan *		
Attended Primary School	16	4	Primary Care	94	29.5
Primary School Graduate	198	49.5	Hospitals (state, hospitals, private hospitals, university hospitals)	225	70.5
Secondary School Graduate	55	13.8			
High School Graduate	91	22.8	Reasons for Cervical Cancer Screening **		
University/College Graduate	40	10	Regular Health Check	152	47.6
Occupation			Healthcare Professional's Suggestion	143	44.8
Housewife	303	75.8	Complaints (bleeding, discharge, warts, etc.)	95	29.7
Retired	34	8.5	Other	16	4.9
Labourer	19	4.8			
Civil Servant	16	4	Reason for Not Screening for Cervical Cancer ***		
Other	28	7.0	No Complaint	35	43.2
Income Status			Hesitation, Embarrassment, Fear of the Procedure	26	32.1
Income is Less Than Expenditure	204	51	Not Feeling at Risk of Cervical Cancer	19	23.5
Income is Equivalent to Expenditure	168	42	Lack of Information on the Subject	15	18.5
Income is More Than Expenditure	28	7			
Chronic Disease	219	54.8	Lack of Time	20	24.7
Family History of Cervical Cancer	16	4.0	Other	4	4.9
Known Cervical Cancer Early Diagnostic Methods*			Knowledge of Cervical Cancer Risk Factors		
PapSmear	199	72.1	Low Income Level	92	23.0
Regular Physician Check	98	35.5	30 Years and Above	257	64.2
HPV DNA Test	14	5.1	Early Sexual Intercourse	204	51.0
Other	21	7.6	High Parity Count	127	31.8
Heard of HPV Vaccine	125	31.3	Inadequate / Unbalanced Nutrition	262	65.5
Heard of HPV DNA Test	109	27.3	STI	358	89.5
Heard of PapSmear Test	381	95.3	High Partners Count	336	84.0
Time to Last Cervical Cancer Screening			5 years< Oral Contraceptive Usage	188	47.0
Never	81	20.3	Family History	326	81.5
In the Last 1 Year	141	35.3	Smoking	293	73.2
1 Year< ≤5 Years	122	30.5	Health Literacy Level		
5 years and Over	56	14	Inadequate	39	9.8
			Problematic-Limited	93	23.2
			Adequate	137	34.2
			Excellent	131	32.8

*More than one answer was given *Only those who have been screened are included.

**Only those who have not been screened are included. STI: Sexually transmitted infections

which are thought to cause screening not to be accepted, should be examined and identified, and thus eliminated. This study aimed to determine the knowledge and behaviors of women aged 30-65 years applying to 3 different Family Health Centres (FHC) in Fatih district of Istanbul regarding cervical cancer screening.

MATERIAL AND METHOD

This research is a descriptive cross-sectional study on women who applied to family health centers. The research was conducted in three different family health centers in the Fatih district of Istanbul between October 2018 and January 2019. To estimate the cervical cancer screening frequency (35.5%) in the literature (Type I error 0.05, power 0.80), the minimal sample size was calculated as 380 individuals.⁸ However, considering the losses from the sample, we aimed to include 400 people in the study. The criteria for the selected FHCs were the presence of at least three family medicine units and a female population aged 30-65 years and above 2,000. Three FHCs that fulfilled these criteria were determined by the random number method and included in the study. Weighting was performed over the target populations registered in the three selected FHCs, and the number of participants to be included in the study was determined from the FHCs.

Women who volunteered to participate in the study, aged 30-65 years, had at least primary school education, had an active sexual life, and were registered at the ASM were included. During the data collection process, every woman who applied to the ASM for any reason and met the inclusion criteria was invited to participate in the study. The number of participants required to be included in the study was determined by the ASMs. Accordingly, 139, 110, and 151 registered women aged 30-65 years were included from the selected ASMs. Data were collected using face-to-face interview techniques and questionnaire forms in a suitable environment. In the questionnaires, sociodemographic characteristics, cervical cancer knowledge and screening behaviors and health literacy levels were questioned.

The Cronbach's alpha coefficient of the Turkey Health Literacy Scale-32 (TSOY-32) developed by Okyay and Abacigil in 2016 is 0.93. The scale was designed as a Likert type (very easy, easy, difficult, very difficult, no idea). In the evaluation of the scale; the individual-specific index score obtained by averaging the items answered by each individual is used. The index formula used is: Index = (mean-1) x (50/3).

According to the index score, the level of health literacy is expressed as 0–50. According to the index score obtained with the scale, the participants were grouped as inadequate (0-25), problematic-limited (>25-33), adequate (>33-42) and excellent (>42-50) in terms of health literacy. The index score was calculated when at least 80% of the relevant questions were answered.⁹

The ethics committee approval of the study was obtained from the Istanbul University Faculty of Medicine Clinical Research Ethics Committee on 05.07.2018. Continuous data were shown with mean, standard deviation, and minimum-maximum values, while discrete data were shown with percentages. Chi-square and Fisher's exact tests were used to compare categorical data. For statistical significance, *p* values below 0.05 was considered. The Statistical Package for the Social Sciences (SPSS Inc, Chicago, IL, USA) program, version 21.0, licensed by Istanbul University, was used for statistical analysis.

RESULTS

A total of 400 women who applied to one of the three FHCs were included in the study. The mean age of the participants was 47.5±9.7 years (Min 30, Max 65).

The most common method of early diagnosis known by women is Pap smear with 72.1% (n: 199). Only one woman had previously received HPV vaccination. According to the findings, 20.3% (n:81) of the women had never been screened for cervical cancer before. Of the women who had been screened for cervical cancer, 29.2% (n:93) had been screened only once in their lives. The most common reasons for the participants to be screened were regular health checks and the recommendation of the health worker for screening. The most common reason for not undergoing screening was the absence of any complaints, whereas the second most common reason was embarrassment, fear, or boredom (Table 1).

Among the women, 89.5% (n:358) considered STIs, 84% (n:336) multiple partnerships and 81.5% (n:326) positive family history as risk factors for cervical cancer. On the other hand, 77.0% (n:308) of women did not consider low-income level and 68.2% (n:273) did not consider high parity as a risk factor for cervical cancer. The Cronbach's alpha value of the TSOY-32 scale was 0.93. It was found that 9.8% (n:39) of the women had an insufficient level of health literacy and 23.2% (n:93) had a problem-limited level of health literacy (Table 1).

Table 2. Factors affecting the screening behaviors of participants

Variables	Who Had Been Screened		Who Had Not Been Screened		<i>p</i> *
	n	%	n	%	
Age					
30-39 Years Old	70	71.4	28	28.6	0.043
40-49 Years Old	108	81.2	25	18.8	
50-59 Years Old	92	83.6	18	16.4	
60-65 Years Old	49	83.1	10	16.9	
Education Level					
Secondary School and Lower Education	203	75.5	66	24.5	0.001
High School	78	85.7	13	14.3	
University	38	95	2	5	
Occupation					
Housewife	233	76.9	70	23.1	0.012
Others	86	88.7	11	11.3	
Income Status					
Income is Less Than Expenditure	154	75.5	50	24.5	0.023
Income is Equivalent to Expenditure	140	83.3	28	16.7	
Income is More Than Expenditure	25	89.3	3	10.7	
Chronic Disease	186	84.9	33	15.1	0.005
Heard of HPV Vaccine	107	85.6	18	14.4	0.050
Heard of HPV DNA Test	95	87.2	14	12.8	0.024
Heard of Pap Smear Test	318	83.5	63	16.5	<0.001
Health Literacy Level					
Inadequate (0-25)	27	69.2	12	30.8	0.001
Problematic-Limited (>25-33)	66	71	27	29	
Adequate (>33-42)	112	81.8	25	18.2	
Excellent (>42-50)	114	87	17	13	

* Comparisons were made using the Chi-square test.

As the women's educational level, income, or age increased, the screening rate also increased (*p*:0.001; *p*:0.023; *p*:0.043). The screening rate was higher in women who were not housewives or had chronic diseases (*p*:0.012; *p*:0.005). All the patients (n:16) with a family history of cervical cancer were screened for cervical cancer. The screening rate was higher in those who had heard about HPV DNA test or Pap smear test before (*p*:0.024; *p*<0.001). Although there was no statistical relationship between hearing about the HPV vaccine and screening, it was observed that those who had heard about the HPV vaccine had higher screening rates (*p*:0.050). As the level of health literacy increased, the rate of screening increased (*p*:0.001) and the rate of screening was 87% among those with excellent health literacy (n:114) (Table 2).

Table 3. Cervical cancer screening analysed by logistic regression

Variables	Beta	Standart Error	Odds Ratio	95% Confidence Interval		p
Educational Level						
Secondary School and Below			1			
High School and Above	0.754	0.32	2.12	1.141	3.964	0.018
Health Literacy Level						
Inadequate-Problematic			1			
Adequate-Excellent	0.654	0.26	1.92	1.151	3.213	0.013
Constant	0.766	0.19	15.637			

(Hosmer&Lemeshow); 0.040 (Cox&Snell); 0.063 (Nagelkerke), Model $\chi^2(2)=16.264$, $p<0.001$.

Logistic regression analysis (Forward-LR) was performed to evaluate the effects of age, education, income status, being a housewife, and having a family background, which was found to be effective in participation in cancer screening in univariate analyses. The model established by logistic regression analysis was significant ($\chi^2(2)=16.264$; $p<0.001$) and correctly predicted the screening status by 79.8%. According to the results of the analysis, the probability of having cervical cancer screening was 2.12 times (95% CI 1.141-3.964; p : 0.018) higher in those with high school education and above than in those with secondary school education and below, and 1.92 times (95% CI 1.151-3.213; p :0.013) higher in those with adequate and excellent health literacy than in those with inadequate and problematic literacy (Table 3).

The health institutions where the women had their last screening were analyzed. The preference for hospitals over primary care facilities was observed when individuals had a higher level of education, greater health literacy, and were dealing with chronic diseases and presenting complaints as the rationale for screening (p :0.004; p :0.02; p :0.028; p :0.001) (Table 4).

DISCUSSION

Considering the significant role infectious agents play in cervical cancer development, it is important that Sexually Transmitted Infections and multiple sexual partnerships were recognized as risk factors by over 80% of the study participants, consistent with findings in other studies. However, we observed that other risk factors, such as oral contraceptive pill (OCP) use and the number of births, were less widely recognized.^{10,11}

Existing literature reports lower awareness rates for smear testing, ranging from 40% to 77%. In our study, only 27.2% of the participants were aware of HPV DNA testing, although almost all participants had prior knowledge of smear testing. The limited awareness of HPV DNA testing may be attributed to the novelty of the practice and insufficient knowledge among healthcare professionals.¹²⁻¹⁶

In our study, 65.7% of women underwent screening within the last five years, significantly surpassing the rates in other studies (20.8-72.5%). Despite this high overall screening rate, the frequency of regular and consistent screening did not meet the recommended standards. It is imperative that cervical cancer screening be conducted at appropriate age intervals. In addition, screening rates vary from place to place, even within the same country. Therefore, monitoring regional screening rates, as in our study, will help to design regional interventions to promote screening.^{14,15,17-21}

In studies on screening, doctor's recommendation is emphasized as a key factor in promoting screening. Conversely, the most prevalent reasons for individuals not undergoing screening include fear of gynecological examination, embarrassment during the procedure, anxiety about unfavorable test results, perceived low personal risk, and inadequate information about screening. In our study, common reasons for screening included regular health check-ups and doctor's recommendations, whereas barriers included a lack of complaints, reluctance to undergo the procedure, and limited knowledge. Health worker recommendations were a common motivator for screening, whereas a lack of information about the screening method was a key deterrent. Thus, healthcare professionals can play a pivotal role in increasing screening participation.^{17,22,23}

In our study, we observed a positive correlation between the screening rate and factors such as age, education level, income level, and health literacy. These findings are consistent with those of similar studies. Notably, the screening rate exceeded 80% among participants with adequate and excellent health literacy. Health literacy, defined as the ability to access and utilize health information, empowers individuals with higher levels of knowledge about health services and facilitates their utilization. Moreover, access to health services is projected to increase with higher levels of education and income. When conducting further analyses to examine the factors influencing the screening rate, the significant effects of education and health literacy levels on screening participation once again became evident.^{12,18,24}

Individuals tend to prefer health services offered in hospitals, especially as their education and health literacy levels increase, and that individuals tend to use health services when they encounter health problems. It is also important to note the general preference among individuals for receiving health services in a hospital setting. This preference extends beyond cervical cancer screening to preventive health services and various aspects of healthcare delivery. As a result, it points to the potential benefit of integrating opportunistic cervical cancer screening into hospital-based health services.^{21,25}

Conducting their search only on those who applied to the primary health care institution also caused less participation of those who used the primary health care institution less (especially working women) in the study. A result was obtained for the Fatih district of Istanbul province. It will be useful to expand the results obtained by including people who applied to the secondary healthcare institution and different socioeconomic cultural elements in the sample.

CONCLUSION

The rate of cervical cancer screening and the health literacy levels among women in our study surpassed those in similar research. As the level of health literacy increases, the ability of individuals to access, understand, use, and evaluate the health information necessary to protect and develop their own health increases. Through this competence, individuals can more easily accept and adapt the behavioral changes required to protect and improve their health. Consistent with the findings of our study, the high uptake of cervical cancer screening among women reflects their high levels of health literacy and capacity to use health information effectively.

In our country, cervical cancer screening is based on reflex cytology in primary health care facilities, while Pap smear method is predominantly used for opportunistic screening in hospitals. Our study revealed that women are frequently screened in hospital settings, using Pap

Table 4. Factors affecting the Health-Care services preferred by participants for screening.

	Screening in Primary Care		Screening in Hospitals		p*
	n	%	n	%	
Educational level					
Secondary School and Lower Education	72	35.5	131	64.5	0.004
High School	15	19.2	63	80.8	
University	7	18.4	31	81.6	
Income status					
Income is Less Than Expenditure	51	33.1	103	66.9	0.052
Income is Equivalent to Expenditure	40	28.6	100	71.4	
Income is More Than Expenditure	3	12	22	88	
Chronic Disease	46	24.7	140	75.3	0.028
Screening reason					
Control	84	34.3	161	65.7	0.001
Only Complaint	10	13.5	64	86.5	
Health Literacy Level					
Inadequate-Problematic	36	38.7	57	61.3	0.02
Adequate-Excellent	58	25.7	168	74.3	

* Comparisons were made using the Chi-square test.

smear alone and after the onset of symptoms. In line with other cancer screenings, the aim of cervical cancer screening is to detect cancer at the asymptomatic stage and initiate early treatment. Contrary to our study findings, it is very important to prioritize screening at the asymptomatic stage. Undoubtedly, further research is warranted to explore this issue in more depth.

As a result, increasing women's health literacy levels will increase their participation in screening. On the other hand, the awareness of women about the importance of screening during the asymptomatic period should be increased. Women should be encouraged to undergo cervical cancer scans in primary healthcare institutions and at regular intervals.

*The authors declare that there are no conflicts of interest.



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