

Original Article

Evaluation of Women Having Pap Smear Test by Health Belief Model Scale

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Abstract

Background: Cervical cancer is the most important type of gynecologic cancer that can be prevented by early detection by screening test. Screening and early diagnosis with pap smear test are secondary prevention measures.

Aim: The aim of this study was to evaluate the women's beliefs about having Pap smear test.

Study Design: This study was conducted as a descriptive study with 620 women between April and June 2016, who applied to gynecology out patient clinics of a state hospital and agreed to participate in the study.

Method: The data were collected using the "Data Collection Form" and the "Health Belief Model Scale". The evaluation of the data was analyzed using descriptive statistics (such as mean, number, percentage) and chi-square test, kruskal wallis test in the SPSS for Windows 16.0 statistical package program. The ethics committee of Usak University approved the ethics committee and obtained the institutional permission.

Results: The average age of the women participating in the study is 37,66 (SS: 9,43 Min: 19,00, Max: 59,00). 90.32% of the participants were married, 45.32% were primary school graduates and 58.23% were housewives. 49.3% (n = 306) of women participating in the study had had a pap smear test at least once. A statistically significant difference was found between age, menopause, pregnancy, abortion, childbirth, number of births and number of children and status of getting information about cancer by pap smear test ($p < 0.05$). When women's scores were analyzed, the highest score was found to be related to health motivation, pap smear utility / health motivation and cervical cancer severity perception subscales. A statistically significant relationship was found between participants' education status and pap smear utility / health motivation perceptions, and it was found that pap smear benefit / health motivation perceptions of non-illiterate women were lower than other groups ($X^2 = 41,843$; $SD = 4$; $p = 0.000$). A statistically significant relationship was found between the income status of the participants and the pap smear utility / health motivation perceptions. As the income status increased, the pap smear utility / health motivation perceptions were higher ($X^2 = 28,599$; $SD = 2$; $p = .000$).

Conclusion: As a result of this study, it was found that pap smear test rate of women is still below the desired level. It was identified that there was a significant relationship between the status of pap smear test and many variables, and it was understood that the low pap smear benefit / health motivation perception, which significantly affected the pap smear test status, was particularly low among the education level and the women in the income group.

Keywords: Pap smear test, cervical cancer, Health Belief Model

Introduction

Cervical cancer is the most common cancer type in women following breast cancer in the developing countries worldwide (Addawe et al., 2018; Leyva et al., 2006). Its estimated worldwide prevalence was 84% in 2012 (WHO, 2018). In the United States of America, cervical cancer is also the leading cause of deaths among women. However, there has been a considerable decrease in the number of cases with cervical cancer and the number of deaths caused by cervical cancer for the last 40 years. This decrease is associated with the fact that many women have pap smear screening tests (CDC, 2018). In Turkey, on the other hand, the prevalence of cervical cancer is estimated to be approximately 4.5 in 100 thousand. It is the 10th most prevalent cancer type (T.R. Ministry of Health Public Health Institution of Turkey, 2017).

Cervical cancer is the most important type of gynaecologic cancer that can be diagnosed early and prevented with the screening test. It is highly treatable and is associated with a high life quality (CDC, 2018). In the protection, the pap smear test screening and early diagnosis are among the secondary preventive precautions (Cetin et al., 2014). The pap smear test is a test based on collection and examination of the cervical cells. (T.R. Ministry of Health Public Health Institution of Turkey National Standards of Cervical Cancer Screening Program). In the study conducted by Sun et al., (2005) to examine the prevalence of the cervical HPV in women with abnormal pap smear results, it was determined that while 75% of them had low-risk HPV types, 84% had high-risk HPV types (Sun et al., 2005). In Turkey, national population-based cervical cancer screenings are conducted by Early Diagnosis, Screening and Training Centres for Cancer (EDSTCC) within the body of Family Health Centres (FHCs) and Community Health Centres (CHCs). In the Screenings, it is aimed to repeat the pap smear test in women aged between 30-65 years every five years and interrupt the screenings in women aged 65 years whose last two pap smear test results are negative (T.R. Ministry of Health Public Health Institution of Turkey National Standards of Cervical Cancer Screening Program). ACOG recommends performing the screenings along with the pap smear test being applied every three years in women aged 21-29 years regardless of the type of cytology and the screenings in women aged 30-65 years when the HPV test is applied with cytology every five years (ACOG cervical cancer screening, 2017; New screening Guidelines for cervical cancer, 2012). In the study by Kessler (2017), it was stated that the increase of risk in cervical cancer cases was associated with the countries' lack of prevention and screening programs for cervical cancer and access to treatment services (Kessler, 2017). Healthcare professionals have an important role in informing women about the objective, frequency and importance of the pap smear

test and spreading health education (Akyuz et al., 2006).

Low knowledge levels and wrong attitudes and beliefs about the pap smear test cause women to develop negative behaviours and attitudes regarding the protection and development of health. In this case, it is important to understand the perceptions, barriers, decision making processes and behaviours of individuals in relation to their health needs. For that purpose, the Health Belief Model (HBM) is frequently used (Bal, 2014). The model was developed by Hochbaum, Kegeles, Leventhal and Rosenstock in 1950 for the purpose of explaining why some people display health protection behaviours and others show an inadequate participation in prevention and screening programs (Aydogdu and Bahar, 2011; Champion and Skinner, 2008). HBM components assert that the relevant health behaviour will emerge if individuals perceive the disease as a sensitivity for themselves, believe in results concerning the severity of the disease, are aware of both benefits and barriers of the screenings and there are positive cues to action (education, media, reminders of health control, and sickness of a friend or a family member) in taking action for the screenings. It is stated that the most powerful separatrix of the model is the perceived barriers (Champion and Skinner, 2008; Tuzcu and Bahar, 2012). Beliefs about the reasons of the disease may vary from person to person and may be affected by a person's culture, socio-economic condition, educational level and personal experience about the disease. Beliefs may considerably affect women's decision of taking protective precautions against cervical cancer (Mcfarland, 2009). If beliefs and attitudes are detected, more convenient health education or treatment methods will be determined for a particular person (Gozum and Capik, 2014).

In this sense, the aim of the study was to evaluate women's beliefs about having the pap smear test.

Material-method : The study was a descriptive study. The population of the study consisted of women who applied to gynaecology outpatient clinics of a public hospital between April- June 2016. On the other hand, the sample included 620 women who applied to gynaecology outpatient clinics of a public hospital between the same dates and agreed to participate in the study. An ethics committee approval (Ethics Committee no: 2016-09) from the Ethics Committee of Usak University for the ethical convenience of the study and an institutional permission from the public hospital were obtained in order to collect the data. The women who were voluntary to participated in the study were informed about the study and their verbal and written consents were received. The data were collected using an information form which was prepared by the researchers upon the literature review and consisted of a total of 33 questions including 16 questions about women's socio-demographic characteristics, 9 questions about their conditions

concerning pregnancy and birth and 6 questions about knowledge about cervical cancer and state of having the pap smear test as well as “Health Belief Model Scale” including attitudes and beliefs about cervical cancer and the state of having the pap smear test. The scale was developed by Champion for breast cancer and mammography and adapted into Cervical Cancer and Pap Smear Test (Champion, 1993). The Turkish validity and reliability study of the scale was conducted by Güvenc, Akyüz and Acikel in 2010 (Güvenc et al., 2011). The scale consists of 35 items as susceptibility (3 items), severity (7 items), pap smear benefits and motivation (8 items), health motivation (3 items), pap smear barriers (14 items) and five subscales. The scale is evaluated using the 5-point likert scale ranging from 1 to 5 – “strongly disagree” (1), “disagree” (2), “neutral” (3), “agree” (4), and “strongly agree” (5). Each subscale of the scale is evaluated separately and cannot be combined in only one total score. The scores are obtained as much as the number of subscales for every individual. High scores signify that susceptibility, regard, and motivation increase, benefits are perceived highly for the benefit perception, and barriers are perceived highly for the barrier perception. Subscales except for the subscale of barrier perception are positively associated with the pap smear screening behaviour. High score of an individual for barrier perception signifies highness of barriers of having the pap smear test. Before starting the data collection, the women were informed about the purpose of the study. The women who agreed to participate in the study filled in the information form and the scale for approximately 30 min. The data were assessed and analysed in the SPSS for Windows 16.0 statistical packaged software using descriptive statistics (such as mean, number, percentage), chi-square test, and Kruskal Wallis test.

Results

The age average of the women who participated in the study was 37.66 years (SD: 9.43 Min: 19.00, Max: 59.00). Among the participants, 90.32% were married, 45.32% were primary school graduate, and 58.23% were housewives. Among the study participants, 73.71% got married at the age of 18-24 years and 67.02% of them gave birth for the first time in the same age range. 16.94% of the women in the study group went through the menopause and majority of these women (73.33%) were older than 45 years (Table 1). Almost half of the women who participated in the study had the pap smear test at least once. When examining the correlation between the variables examined in the study and the state of having the pap smear test, it was determined that there was a statistically significant difference between age, menopause, pregnancy, miscarriage, abortion, parity, number of children and the state of obtaining information about cancer and the state of having the pap smear test (Table 2). When examining the scores of subscales of the Cervical Cancer (CC) and Pap Smear Test Health Belief Model Scale in women; the highest score was observed in the subscales of health motivation, pap smear benefit/health motivation and CC severity perception (Table 3). The correlation of the scores obtained by the women from the subscales of Cervical Cancer and Pap Smear Test Health Belief Model Scale with the variables examined in the study was examined. It was determined that the susceptibility perception was only affected by the state of having cervical cancer in family; whereas, the severity perception was only affected by the state of having miscarriage. It was found that the women who had the history of cervical cancer in their family were more susceptible than those who did not ($F=3.324$; $p=.001$) and the women who had miscarriage had higher severity perceptions than those who did not ($F=1.409$; $p=.001$) (Table 4).

Table 1: Demographic Characteristics of the Women (n: 620)

Age Group	n	%
15-21 years	20	3.23
22-28 years	126	20.32
29-35 years	208	33.55
36-42 years	172	27.74
43-49 years	94	15.16
Marital Status		
Married	560	90.32
Widow	32	5.16
Divorced	28	4.52
Educational Background		
Illiterate	19	3.06
Literate	44	7.10
Primary school	281	45.32

High school	153	24.68
University and higher education	123	19.84
Working Condition		
Housewife	361	58.23
Employee/Retired	259	41.77
Income Status		
Income less than expenditure	134	21.61
Income equal to expenditure	374	60.32
Income more than expenditure	112	18.06
Health Insurance		
Available	556	89.68
N/A	64	10.32
Age of Marriage		
13-17 years	69	11.13
18-24 years	457	73.71
25-29 years	85	13.71
30-35 years	9	1.45
Age of menarche		
11 years and younger	48	7.74
12-14 years	482	77.74
15-20 years	90	14.52
Age of First Pregnancy*		
14-17 years	32	5.64
18-24 years	380	67.02
25-34 years	150	26.46
35-37 years	5	0.88
Age of Menopause**		
26-35 years	5	4.76
36-45 years	23	21.90
46-55 years	77	73.33

*Percentages were calculated over 567 people. ** Percentages were calculated over 105 people.

Table 2: Distribution of Women's State of Having the Pap Smear Test According to Age Groups and Some Other Characteristics (n: 306)

Variables	The State of Having the Pap Smear Test				Chi-Square P
	Yes		No		
	n	%	n	%	
Age					
15- 21 years	3	1.00	17	5.40	38.742 0.000
22- 28 years	39	12.70	87	27.70	
29- 35 years	105	34.30	103	32.80	
36- 42 years	106	34.70	66	21.00	
43- 49 years	53	17.30	41	13.10	
Menopause					
Available	68	22.20	40	12.70	9.689
N/A	238	77.80	274	87.30	0.002
Conception					

Yes	290	94.80	277	88.20	8.517
No	16	5.20	37	11.80	0.004
Miscarriage					
Yes	87	28.40	67	21.30	4.177
No	219	71.60	247	78.70	0.041
Abortion					
Yes	61	19.90	44	14.00	3.863
No	245	80.10	270	86.00	0.049
Birth					
Yes	287	93.80	272	86.60	8.973
No	19	6.20	42	13.40	0.003
Parity					
N/A	19	6.20	42	13.40	
1	58	19.00	77	24.50	
2	146	47.70	111	35.40	19.521
3	66	21.60	56	17.80	0.001
> 4	17	5.60	28	8.90	
Number of Children					
N/A	19	6.20	43	13.70	
1	57	18.60	78	24.80	
2	153	50.00	116	36.90	18.435
3	61	19.90	56	17.80	0.001
> 4	16	5.20	21	6.70	
Information about Cancer					
Yes	243	79.40	112	35.70	121.161
No	63	20.60	202	64.30	0.000

Table 3: Test Scores Obtained by the Women from the Subscales of Cervical Cancer and Pap Smear Test Health Belief Model Scale

Subscales of the Scale	The highest score of the scale	Mean	Standard Deviation	Minimum	Maximum
CC Susceptibility Perception	15	7.801613	2.373316	3.00	15.00
CC Severity Perception	35	24.38226	5.125628	7.00	35.00
Health Motivation	15	12.57097	1.973114	3.00	15.00
Pap smear Barrier Perception	70	35.31452	9.859241	14.00	70.00
Pap smear Benefit/Health Motivation	40	29.61129	4.493636	8.00	40.00

In the study, it was determined that there was a statistically significant correlation between individuals' state of menstruating regularly, the state of getting information about cancer, state and frequency of having the pap smear test, age, educational background, age of first pregnancy and income status and the pap smear barrier perception. The pap smear barrier perceptions were higher in the participants who did not menstruate regularly ($F=6.715$; $p=.027$), had no information about cancer ($F=.002$; $p=.000$), did not have the pap smear test ($F=4.176$; $p=.000$) or did not have the test regularly ($F=.049$; $p=.004$) compared to the others. As the women's educational levels increased, their pap smear barrier perceptions decreased ($F=12.299$; $p=.000$). The pap smear barrier perception was higher especially in illiterate participants than all other educational levels. The pap smear barrier perceptions also varied according to the women's age of first pregnancy ($F=3.224$; $p=.022$) and the barrier perceptions were higher in women who gave birth at the age of 18- 24 years than those who gave birth at the age of 25- 34 years ($p=.014$). The pap smear barrier perceptions were higher in the participants who stated that they had an income more than expenditure ($F=5.045$; $p=.007$) (Table 4). When comparing the test scores obtained by the women from the subscales of Cervical Cancer and Pap Smear Test Health Belief Model Scale with some variables, it was determined that there was a significant correlation between many variables (Table 4).

Table 4: Comparing the Test Scores Obtained by the Women from the Subscales of Cervical Cancer and Pap Smear Test Health Belief Model Scale with Some Variables

Variables	Subscales of the Scales									
	Susceptibility		Severity Perception		PapSmear Barrier Perception		Health Motivation		PapSmear Benefit/Health Motivation	
	Mean ± SD	F p	Mean ± SD	F p	Mean ± SD	F p	Mean ± SD	U p	Mean ± SD	U p
Health Insurance										
Yes	7.76 ± 2.39	1.547	24.35 ± 5.17	0.325	35.06 ± 9.97	2.167	12.63 ± 1.90	15684.0	29.90 ± 4.40	11584.5
No	8.19 ± 2.16	.170	24.63 ± 4.78	.689	37.56 ± 8.55	.054	12.06 ± 2.46	.111	27.09 ± 4.52	.000
Miscarriage										
Yes	7.81 ± 2.50	1.200	23.15 ± 5.19	1.409	35.63 ± 8.99	4.386	12.23 ± 1.94	29936.0	29.02 ± 4.03	31736.0
No	7.80 ± 2.33	.953	24.79 ± 5.04	.001	35.21 ± 10.14	.627	12.68 ± 1.97	.002	29.81 ± 4.62	.031
The state of obtaining information about cancer										
Yes	7.83 ± 2.46	2.077	24.19 ± 5.21	1.603	32.59 ± 9.54	.002	12.88 ± 1.68	37944.0	30.75 ± 4.15	30059.5
No	7.76 ± 2.25	.722	24.64 ± 5.00	.277	38.97 ± 9.09	.000	12.15 ± 2.24	.000	28.09 ± 4.50	.000
The State of having PapSmear Test										
Yes	7.85 ± 2.46	.950	24.09 ± 5.38	3.598	31.67 ± 8.84	4.176	12.82 ± 1.86	40908.0	30.77 ± 4.47	32468.5
No	7.76 ± 2.29	.643	24.67 ± 4.86	.154	38.87 ± 9.51	.000	12.33 ± 2.05	.001	28.48 ± 4.23	.000
Age group										
14- 17 years	8.00 ± 2.09	.421	23.38 ± 4.67	.928	36.13 ± 8.19	3.224	12.15 ± 3.47	16.366	27.25 ± 5.95	16.094*
18-24 years	7.73 ±	.738	24.60 ±	.427	36.20 ± 9.92	.022	12.80 ±	.003	28.60 ± 4.57	.003

	2.45		5.07				2.17			
25-34 years	7.96 ± 2.28		24.11 ± 5.25		33.29 ± 10.10		12.69 ± 1.59		30.26 ± 4.66	
35-37 years	7.80 ± 2.38		25.80 ± 2.28		33.60 ± 5.94		12.33 ± 1.42		29.61 ± 3.71	
Educational Background										
Illiterate	8.47 ± 2.27		24.42 ± 3.61		45.26 ± 6.72		11.42 ± 1.12		27.26 ± 3.14	
Literate	7.32 ± 2.79		23.72 ± 5.04		38.68 ± 9.08		12.11 ± 1.34		27.84 ± 3.93	
Primary school	7.74 ± 2.31	1.007 .403	24.52 ± 5.13	.296 .881	36.37 ± 9.08	12.299 .000	12.36 ± 1.97	53.985 .000	29.29 ± 4.27	41.843* .000
High School	7.89 ± 2.35		24.49 ± 5.12		33.98 ± 10.44		12.59 ± 2.15		29.48 ± 4.86	
University and higher education	7.91 ± 2.40		24.17 ± 5.39		31.83 ± 9.86		13.37 ± 1.77		31.51 ± 4.49	
Age of Marriage										
13-17 years	8.04 ± 2.53		24.01 ± 5.96		36.49 ± 9.09		11.87 ± 2.46		27.85 ± 5.05	
18-24 years	7.74 ± 2.35	.648	24.57 ± 4.87	.851	35.34 ± 9.63	.721	12.63 ± 1.86	11.118	29.62 ± 4.29	16.378*
25-29 years	7.84 ± 2.38	.585	23.71 ± 5.64	.467	34.16 ± 11.86	.540	12.71 ± 2.06	.011	30.84 ± 4.78	.001
30-35 years	8.56 ± 2.19		23.89 ± 5.99		35.78 ± 9.86		12.57 ± 1.97		29.61 ± 4.49	
Age of First Pregnancy										
14-17 years	8.00 ± 2.09		23.38 ± 4.67		36.13 ± 8.19		11.87 ± 2.46		27.86 ± 5.05	
18-24 years	7.73 ± 2.45	.421	24.60 ± 5.07	.928	36.20 ± 9.92	3.224	12.63 ± 1.86	20.397	29.62 ± 4.29	22.085*
25-34 years	7.96 ± 2.28	.738	24.11 ± 5.25	.427	33.29 ± 10.10	0.022	12.71 ± 2.06	.000	30.83 ± 4.78	.000
35-37 years	7.80 ± 2.38		25.80 ± 2.28		33.60 ± 9.92		13.56 ± 1.24		31.00 ± 4.49	

Income status										
Income less than expenditure	7.98 ± 2.26		25.04 ± 4.47		37.69 ± 9.03		12.39 ± 1.68		28.78 ± 3.99	
Income equal to expenditure	7.73 ± 2.45	.530 .589	24.20 ± 5.24	1.398 .248	34.65 ± 10.08	5.045 .007	12.49 ± 2.07	12.211 .002	29.34 ± 4.50	28.599* .000
Income more than expenditure	7.82 ± 2.26		24.21 ± 5.44		34.70 ± 9.71		13.04 ± 1.93		31.52 ± 4.49	

*Kruskal Wallis Test

Discussion

Papanicolau (pap) test is a reliable test for early diagnosis of cervical cancer and plays a vital role in preventing and reducing the deaths caused by cancer (Gumus and Cam, 2011). In the study, almost half of the women had the pap smear test for at least once. In similar studies conducted in different groups and regions in Turkey, these rates are around 29%, 30%, 34%, 51% and 52%, which shows a parallelism with the study (Akyuz et al., 2006; Bal, 2014; Esin et al., 2011; Duman et al., 2015; Gokgoz and Aktas, 2016). The results indicate that the rates of having the pap smear test in Turkey are not at desired level, yet. Behaviours of having the pap smear test vary according to women's age, education, race, socio-economic condition and cultural characteristics (Juon et al., 2006). As a matter of fact, in the study, it was also determined that there was a statistically significant difference between age, menopause, pregnancy, miscarriage, abortion, parity, number of children and the state of obtaining information about cancer and the state of having the pap smear.

Health motivation is a component of Health Belief Model which shows the general intention and desire of forming behaviours in the health maintenance and promotion (Bal, 2014). In the study, when the scores obtained by the women from the subscales of Cervical Cancer and Pap Smear Test Health Belief Model Scale were examined, it was determined that the highest scores were obtained in the subscales of health motivation, pap smear benefit/health motivation and CC severity perception. In the study, as the educational level increased, individuals' health motivation increased. Similar results were determined in studies (Bal, 2014; Gokgoz and Aktas, 2016).

Barriers perceived by women concerning the pap smear test were reported as lower health perception, lack of health insurance, fear of cancer, transportation insufficiency, remoteness of health institution, lack of information about cancer and early diagnosis, culture and traditional practices (Addawe et al., 2018; Aydogdu and Bahar, 2011; Markovic et al., 2005; Wong et al., 2009). In the study, it was determined that there was a statistically significant difference between women's state of menstruating regularly, the state of getting information about cancer, the state and frequency of having the pap smear test, age, educational background, age of first pregnancy

and income status and the pap smear barrier perception. The results of the study support the literature.

Conclusion and suggestions

As a result of the study, it was found that women's rates of having the pap smear test were not at desired level, yet. It was determined that there was a significant correlation between the state of having the pap smear test and several variables and it was concluded that low pap smear benefit/health motivation perception significantly affecting the state of having the pap smear test was common especially among women with low educational and income levels. It is recommended to increase the information and susceptibilities of women concerning cervical cancer and pap smear test screening with repetitive trainings and media support.

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