ORİJİNAL ARAŞTIRMA ORIGINAL RESEARCH

Assessment of Undergoing a Pap Smear Screening Test and Knowledge Levels of Women Aged 21-65 Years Based on the Health Belief Model: A Cross-sectional Study

21-65 Yaş Arası Kadınların Pap Smear Tarama Testi Hakkındaki Bilgi Durumlarının Sağlık İnanç Modeline Göre Değerlendirilmesi: Kesitsel Çalışma

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ABSTRACT Objective: This study determined women's experiences and awareness of undergoing a Pap smear test for the early diagnosis of cervical cancer based on the Health Belief Model (HBM). **Material and Methods:** The population consisted of 1,193 women registered at a family health center. The sample consisted of 291 people with an error margin of 5% and 0.5 probability. **Results:** This study found no statistically significant associations between undergoing a Pap smear test and the Health Belief Model Scale (HBMS) sub-dimensions (p>0.05). Moreover, awareness of the reasons for a Pap smear test was not associated with the HBMS sensitivity, caring, and health motivation sub-dimensions (p>0.05) but was associated with the benefit motivation and obstacles sub-dimensions (p<0.05). The awareness of undergoing a Pap smear test based on the menstrual cycle was not associated with the HBMS sensitivity sub-dimension (p>0.05) but was associated with the caring, benefit motivation, health motivation, and obstacles sub-dimensions (p<0.05). Awareness of the preparatory stages before the Pap smear test was not associated with the HBMS sensitivity, caring, and health motivation sub-dimensions (p>0.05) but was associated with the benefit motivation and obstacles sub-dimensions (p<0.05). **Conclusion:** This study indicates that the HBM is important for encouraging women to undergo early diagnostic tests for cervical cancer and designing and maintaining health education programs. Public health nurses should plan actions that support and encourage women based on the HBM in health-related education to contribute to the efforts of increasing the rate of participation in preventative screenings.

Keywords: Pap smear test; cervical cancer;
　　　　　health belief model

ÖZET Amaç: Bu çalışma, kadınların serviks kanserinin erken teşhisi için kullanılan Pap smear testini yaptırma durumlarının ve bilgi düzeylerinin Sağlık İnanç Modeline (SİM) göre belirlenmesi amacıyla tanımlayıcı tipte planlandı. **Gereç ve Yöntemler:** Araştırmanın evreni, bir Aile Sağlığı Merkezine kayıtlı 1.193 kadından oluşmaktadır. Araştırmanın örneklemi %5 hata ve 0,5 olasılık yöntemi ile (n) 291 kişi olarak hesaplanmıştır. **Bulgular:** Bu çalışmada, katılımcıların Pap smear taraması yaptırma durumu ve Sağlık İnanç Modeli Ölçeği (SİMÖ) düzeyi arasında istatistiksel olarak anlamlı ilişki saptanmamıştır (p>0,05). Bu çalışmada, Pap smear testinin neden yapıldığını bilme durumu ve SİMÖ düzeyi ilişkisi; duyarlılık, önemseme ve sağlık motivasyonu arasında istatistiksel açıdan anlamlı ilişki saptanmamışken (p>0,05), yarar motivasyonu ve engeller arasında anlamlı ilişki olduğu saptandı (p<0,05). Pap smear testinin menstrüel siklusa göre yapılma durumunu bilme ve SİMÖ düzeyi ilişkisi; duyarlılık arasında istatistiksel açıdan anlamlı ilişki saptanmamışken (p>0,05), önemseme, yarar motivasyonu, sağlık motivasyonu ve engeller arasında anlamlı ilişki saptandı (p<0,05). Pap smear testi öncesinde hazırlıkları bilme durumu ve SİMÖ düzeyi ilişkisi; duyarlılık, önemseme ve sağlık motivasyonu arasında anlamlı ilişki saptanmamışken (p>0,05), yarar motivasyonu ve engeller arasında anlamlı ilişki saptandı (p<0,05). **Sonuç:** Bu çalışma, kadınların rahim ağzı kanseri erken tanı testlerine yaptırma durumlarının, sağlık eğitimi programlarının tasarlanması ve yürütülmesinde SİM'in önemli olduğunu düşündürmektedir. Halk sağlığı hemşiresinin sağlık eğitimlerinde kadınların desteklenmesi ve cesaretlendirilmesin de SİM'e göre yaklaşım planlaması istenilen katılımı arttırmaya katkı sağlayacağı düşüncesindeyiz.

Anahtar Kelimeler: Pap smear test; servikal kanser;
　　　　　　　　sağlık inanç modeli

According to the World Health Organization (WHO), 30-50% of cancer types are preventable.[1] Implementation of evidence-based prevention strategies such as reducing the factors causing cancer by 30 to 50%, generalization of health education, and early diagnostic tests contribute to the efforts of preventing cancer.[2]

Cervical cancer is a preventable cancer owing to a screening program that can be easily used in diagnosing the non-symptomatic pre-clinical lesions and detecting the issue in the early periods. The Pap smear screening test has high sensitivity-selectivity and it is economical, resulting in easy acceptance by patients.[3,4] Various studies in the literature indicate that most women (83-93%) have at least one Pap smear test in their lives.[5,6] However, this rate ranges from only by 50.4% to 3% in many underdeveloped countries.[7-11]

There are various factors affecting women's decisions to participate in cervical cancer screening programs. These factors arise from previous negative experiences related to traditional and cultural values and beliefs, culture, fatalism, beliefs related to sexual attitudes, social environment, protective medical concepts, and the medical system. Determining these factors and subsequently reducing them will increase participation in screening programs.

The Health Belief Model (HBM) developed by Rosenstock and improved by Becker et al. suggests that people's beliefs, values, and attitudes toward health-related issues affect their health-related actions. Problematic beliefs and attitudes can be determined using the HBM to define what motivates people, what can be effective in displaying health-related behaviors, and to predict the cases that can be effective in displaying health-related attitudes. Accordingly, health education or treatment methods can be determined in a more appropriate manner for people.[12,13]

This study determined the knowledge of women aged between 21 and 65 years (the target audience) in terms of the Pap smear test, which enables the early detection of cervical cancer, and assessed the factors affecting this knowledge through the HBM. By determining these factors, plans can be made to increase women's knowledge of and participation in the Pap smear test in the effort to prevent cervical cancer.

MATERIAL AND METHODS
STUDY TYPE
This study was conducted as descriptive research.

RESEARCH QUESTIONS
1. Is there a relationship between undergoing a Pap smear test and HBM scores?

2. Is there a relationship between the awareness of the reason for undergoing a Pap smear test and HBM scores?

3. Is there a relationship between the awareness of the time during the menstrual cycle for undergoing a Pap smear test and HBM scores?

4. Is there a relationship between the awareness of the preparatory stage before undergoing a Pap smear test and HBM scores?

5. Is there a relationship between the state of menopause and undergoing a Pap smear test?

6. Is there a relationship between the state of menopause and awareness of the reasons for undergoing a Pap smear test?

PLACE AND PERIOD OF STUDY
The data were collected between 1 December 2017 and 1 March 2018 at a family health center (FHC) in İzmir, Turkey.

POPULATION AND SAMPLE
The population consisted of 1,193 women aged between 21 and 65 years and registered at the FHC. This study used the Raosoft sampling method to determine a sample size of 291 people at an error margin of 5% and 0.5 probability. The women in the study were selected using a table of simple random numbers.

DATA COLLECTION TOOLS
The data were collected using the 34-item data collection form prepared by the researchers and the "Health Belief Model Scale (HBMS) for Cervical Cancer and Pap Smear Test" (35 items) whose Turkish validity and reliability study was conducted by Guvenc et al. in 2010.[14] The study consisted of 69 items in total.

DATA COLLECTION FORM

Data form was developed by the researchers as a result of the literature review. The data form prepared by the researchers consisted of 6 items for socio-demographic characteristics (age of women, educational, income and employment status of women) 10 items for defining reproductive characteristics (having gynecologic examina-tion regularly) and 18 items for determining knowledge of cervical cancer (timing of Pap smear screening test).

HEALTH BELIEF MODEL SCALE FOR CERVICAL CANCER AND PAP SMEAR TEST

A 5-point Likert type scale ("1=totally disagree", "2=disagree", "3=neutral", "4=agree", and "5=totally agree") was used to assess the HBMS. The scale has five sub-dimensions: sensitivity (3 items), caring (7 items), benefit motivation (8 items), health motivation (3 items), and obstacles (14 items). Each dimension was assessed separately and the results were not collected in a single score. A score as high as the number of sub-dimensions was achieved by each participant. Higher scores indicate higher sensitivity, caring, motivation, perceived benefits, and number of obstacles to undergoing a Pap smear test. Cronbach's alpha reliability coefficients for the five subscales ranged from 0.62 to 0.86, and test-retest reliability coefficients ranged from 0.79 to 0.87 for the subscales.[14]

DATA COLLECTION METHODS

Women in this study were informed and their consents were obtained. The researcher collected data using the data form and HBMS and using the face-to-face interview method. The total data collection duration was 30 minutes on average.

DATA ASSESSMENT

The statistical analysis of the data was performed using SPSS 23.0. The goodness of fit was assessed using the Shapiro-Wilk test. For the data displaying non-normal distribution, the Mann-Whitney U test was used between two groups and the Kruskal-Wallis test was used for comparisons between more than two groups. The relationships between the variables were examined using Spearman's correlation coefficient and Pearson's Chi-square test. For the assess-ment of the categorical data, Pearson's Chi-square test, Fisher's Exact Chi-square Test, and the Fisher-Freeman-Halton test were used. For the dual comparison of significant results, the Bonferroni test, a multiple comparison test, was used. The significance level was set at α=0.05.

ETHICAL CONSIDERATIONS

The permission for using the HBMS was received from the Ethics Committee of Non-interventional Research within Dokuz Eylül University (approval number/date 2017/27-13/23.11.2017), from İzmir Provincial Directorate of Health, and Yelki Family Practice Unit numbered 3513006. The study was conducted in accordance with the principles set out in the Helsinki Declaration. Relevant information regarding the study was provided to the participants by the researcher, and participants' verbal and written consents were received.

RESULTS

Table 1 presents the distribution of participants' descriptive characteristics. The mean age of the participants was 40.69±11.72 (Mean±SD) years, their mean height was 162±6.23 cm, mean body weight was 69.82±13.47 kg, and mean body mass index was 26.37±4.85 kg/m². Of the women in the study, 86.9% were married, 94.8% lived in a district, and 90.0% had social insurance. Of the participants, 36.4% were primary school graduates, 91.8% had a nuclear family, 61.5% were unemployed, 67.7% had a moderate level of perceived income, and 25.4% smoked. Of the participants, 47.8% had a Pap smear test in the last five years, 76.9% knew the reason for undergoing a Pap smear test, and 32.5% stated that the frequency of undergoing a Pap smear test changed with age.

Table 2 presents participants' answers about who should have a Pap smear test. According to the results, 9.3% stated that the test should be done after adolescence, 19.4% after 21 years of age, and 27.7% after menopause; 27.0% considered the 30-year-old women whose last two screening tests were negative and 20.1% stated that women aged 65 years should undergo the test. Regarding the distribution of participants' awareness of undergoing the Pap smear test

TABLE 1: Participants' descriptive characteristics (n=291).		
Characteristic	**(Mean±SD)**	**Minimum-Maximum**
Age	40.69±11.72	21-65
Height	162±6.23	140-178
Weight	69.82±13.47	39-120
BMI	26.37±4.85	13.49-41.02
	n	**%**
Marital status		
Married	253	86.9
Single	18	6.2
Divorced	17	5.8
Other	3	1.1
Longest place of residence		
Province	6	2.1
District	276	94.8
Village	9	3.1
Social insurance		
Yes	262	90.0
No	29	10.0
Educational status		
Illiterate	9	3.1
Literate	6	2.1
Primary school graduate	106	36.4
Secondary school graduate	32	11.0
High school graduate	79	27.1
College/University graduate	59	20.3
Family type		
Nuclear	267	91.8
Extended	19	6.5
Single-person	2	0.7
Other	3	1.0
Perceived economic status		
Excellent	4	1.4
Good	72	24.7
Moderate	197	67.7
Poor	18	6.2
Employment status		
Unemployed	179	61.5
Worker	22	7.6
Officer	25	8.6
Self-employed	34	11.7
Other	31	10.6
Experience of undergoing a Pap smear test in the last five years		
Yes	139	47.8
No	152	52.2
Awareness of the reason for undergoing a Pap smear test		
Yes	217	76.9
No	65	23.1
Awareness of the age-related change in the frequency of undergoing a Pap smear test		
Yes	94	32.5
No	28	9.7
No idea	167	57.8
Total	291	100

SD: Standard deviation; BMI: Body mass index.

TABLE 2: Distribution of participants based on their awareness of appropriate times for Pap smear screening (n=291).		
Timing of Pap smear screening test	**n**	**%**
After adolescence		
Yes	27	9.3
No	49	17.0
No idea	213	73.7
After 21 years of age		
Yes	56	19.4
No	25	8.6
No idea	208	72.0
After menopause		
Yes	80	27.7
No	4	1.4
No idea	205	70.9
30-year-old women whose last two screening tests were negative		
Yes	78	27.0
No	1	0.3
No idea	210	72.7
65-year-old women whose last two screening tests were negative		
Yes	58	20.1
No	12	4.1
No idea	219	75.8
When is the Pap smear test done?		
Anytime	28	9.7
As soon as menstrual bleeding ends	15	5.2
During menstrual bleeding	11	3.8
Between day 10 and 18 in the menstrual cycle	71	24.6
No idea	166	56.7
Total	291	100.0

based on the menstrual cycle, 56.7% indicated they had no knowledge in this regard.

Table 3 presents no statistically significant difference was present between participants' experience of undergoing Pap smear screening and HBMS sensitivity, caring, benefit motivation, health motivation, and obstacle perception sub-dimensions (p>0.05).

Participants' awareness of the reasons for undergoing a Pap smear test did not significantly impact the HBMS sensitivity, caring, and health motivation sub-dimensions (p>0.05) but did impact the benefit motivation and obstacles sub-dimensions (p<0.05). The sub-dimension scores from the benefit motivation were higher among the participants who knew why the Pap smear test was performed. The obstacle perceptions of people who did not know why the test was done were significantly higher than those who did.

No significant association was present between participants' awareness of undergoing a Pap smear test when in the menstrual cycle and the HBMS sensitivity sub-dimension (p>0.05), but a significant association was present for the caring, benefit motivation, health motivation, and obstacles sub-dimensions (p<0.05). The scores regarding the sub-dimensions of caring and obstacles were higher among the people who gave the correct answers. However, the people who gave wrong answers had higher benefit motivation and health motivation scores.

Participants' awareness of the preparatory stage of the Pap smear test did not significantly change with HBMS sensitivity, caring, and health motivation sub-dimensions (p>0.05) but was associated with the benefit motivation and obstacles sub-dimensions (p<0.05). The scores regarding the

TABLE 3: Comparison of participants' HBMS scores according to their level of knowledge and attitudes regarding the Pap smear test (n=291).					
	Sensitivity	Caring	Benefit motivation	Health motivation	Obstacles
	3.00-15.00	6.00-30.00	20.00-40.00	3.00-15.00	14.00-56.00
Experience of undergoing a Pap smear test					
Yes	8.11±3.55	23.08±7.84	34.62±5.79	10.10±3.31	24.64±9.62
No	8.02±3.10	23.61±6.81	33.87±5.78	9.60±3.33	27.21±11.04
t[a]	10539.0	10191.0	9817.0	9550.50	9209.50
p value	0.971	0.602	0.287	0.154	0.058
Awareness of the reason for undergoing a Pap smear test					
Aware	7.99±3.34	23.32±7.57	35.80±5.18	9.98±3.42	23.39±9.07
Unaware	8.23±3.44	23.41±6.83	29.60±4.95	9.63±3.01	33.83±10.45
Z	6705.5	6940.5	2719	6592.5	3241.5
p value	0.533	0.846	**<0.001**	0.422	**<0.001**
Awareness of undergoing a Pap smear test based on the menstrual cycle					
Yes	7.95±3.52	23.94±6.94	33.27±5.81	9.57±3.28	27.59±10.83
No	8.09±3.27	21.46±8.18	37.12±4.77	10.76±3.31	20.74±7.04
Z	7431	6114	4619	5983.5	4825.5
p value	0.602	**0.008**	**<0.001**	**0.004**	**<0.001**
Knowledge of the preparatory stage before the Pap smear test					
None	8.15±3.31	23.76±7.11	33.20±5.77	9.46±3.36	27.64±11.12
One correct answer	7.43±3.54	22.45±8.75	35.35±6.35	10.59±3.42	24.70±9.33
Two correct answers	8.14±1.46	22.71±4.82	33.0±7.87	9.57±3.59	25.14±8.87
Three correct answers	8.36±3.15	23.92±6.95	37.39±3.54	10.78±2.94	21.02±7.15
Four correct answers	7.68±3.99	19.50±7.32	36.31±4.92	10.25±3.08	22.37±7.54
KW	2.491	6.135	24.050	7.281	13.398
p value	0.646	0.189	**<0.001**	0.122	**0.009**

Z: Mann-Whitney U; KW: Kruskal-Wallis Test; t: t-test; HBMS: Health Belief Model Scale.

benefit motivation perception were higher among the people who gave correct answers, whereas obstacle perception scores were higher among those who gave wrong answers.

Table 4 indicates no significant association between undergoing a Pap smear test and being in the menopause period (p>0.05).

In this study, 54.81% of the women in the menopause period and 71.2% of the women who were not in this period understood why a Pap smear test is performed (p>0.05). No significant association was present between the awareness of undergoing a Pap smear test when in the menstrual cycle and being in the menopause period (p>0.05). In addition, no significant association was present between the awareness of the preparatory stage of a Pap smear test and being in the menopause period (p>0.05).

DISCUSSION

Gynecological cancers can be diagnosed early using screening programs, but they differ from many cancer types due to their severe financial and mental burdens. Therefore, reducing the mortality and morbidity caused by gynecological cancers requires developing strategies for controlling the cancer. Assessing people based on HBM and cancer risk will enable handling the issue from a holistic perspective. Women's awareness of cervical cancer as well as knowledge of when to receive a Pap smear test is important for increasing the participation in screening and decreasing the possibility of receiving incorrect results. Therefore, protecting people's health can occur by increasing their awareness.

Among the studies examining the level of knowledge regarding the target population of the Pap

TABLE 4: The relationship between participants' awareness of the Pap smear test, reasons for undergoinga Pap smear test, and menopause (n=291).						
	State of menopause		State of menopause			
	Yes		No			
	(n)	%	(n)	%		
Experience of undergoing a Pap smear test (in the last 5 years)					Test value	p value
Yes	42	48.3	97	47.5	0.013**	0.910
No	45	51.7	107	52.5		
Awareness of the reasons for undergoing a Pap smear test						
Yes	63	54.81	154	71.2	1.609*	0.443
No	24	46.19	48	23.8		
Undergoing a Pap smear test based on the menstrual cycle						
Anytime	13	14.9	15	7.4	9.330**	0.053
As soon as menstrual bleeding ends	4	4.6	11	5.4		
During menstrual bleeding	0	0	11	5.4		
Day 10-18 in the menstrual cycle	18	20.7	53	26.2		
No idea	52	59.8	112	55.4		
Awareness of the preparatory stage before the Pap smear test						
No correct answers	61	70.1	129	63.2		
One correct answer	12	13.8	25	12.3		
Two correct answers	3	3.4	4	2	4.202*	0.374
Three correct answers	8	9.2	33	16.2		
Four correct answers	3	3.4	13	6.4		

*Fisher's exact Chi-square Test; **Pearson's Chi-square Test.

smear test, Örenli indicated that 38.5% of women did not know who needed to undergo a Pap smear test and 32.2% believed women in every age group should undergo this test.[15] Aldohaian et. al. indicated that a majority of the participants (42.6%) selected the age range of 30-40 years, while (33.1%) participants did not know the proper age for undergoing Pap smear screening.[16] Hacıhasanoğlu Aşılar et al. and Karaoğlan indicated no significant difference between the factor of age and awareness regarding when one should undergo a Pap smear test. Şen and Karadağ Başar reflected the distribution of the women who knew whom were supposed to undergo Pap smear test as follows: all women (57.0%), married women (29.0%), women aged over 40 years (1.0%), women who gave birth (4.0%), and women who had a gynecological problem (9.0%).[15,17-19]

Of the participants who were the target audience for the Pap smear test, 9.3% stated that this test was done after adolescence while 19.4% said after the age of 21 years. Moreover, 27.7% considered the right time to be after the menopause period, 27.0% believed the target audience consisted of the women who were 30 years old and whose last two screening tests were negative, and 20.1% reported that this test was to be done on the 65-year-old women whose last two tests were negative. Thus, women's rate of knowledge regarding the target testing population was low, which can be interpreted as women do not have sufficient knowledge about health screening tests (Table 2).

Among the studies examining how often and when in the menstrual cycle to conduct the Pap smear test, Tokgöz indicated that the rate of women knowing the frequency of undergoing a Pap smear test was 38.8%.[20] Özdemir and Bilgili reported that 74.3% of the nurses did not know the frequency of undergoing a Pap smear test.[21] Karaoğlan noted that 56.03% of women believed that the Pap smear test should be done five or six days after the end of the

menstrual cycle, 23.28% thought that sexual intercourse should not occur in the last 24 hours before the test, 18.97% believed that they should go the medical facility for the test without using any suppository medicines within the birth canal in the last 24 hours before the test, and 18.97% stated that the birth canal should not be washed before the test.[18] The study by Arabaci and Ozsoy gave the answers of not during menstrual bleeding and abstaining from sexual actions.[22]

Şen and Karadağ Başar examined the awareness of women in terms of when in the cycle to undergo a Pap smear test and found that 12.0% stated the first day of menstruation, 26.0% the last day, and 62.0% the days 3-10 after the end of menstruation or the period when no bleeding happens was the right time.[19] In our study, 9.7% said anytime, 5.2% stated as soon as the menstrual bleeding ends, 3.8% said during menstrual bleeding, 24.8% mentioned the days 10 to 18 in the menstrual cycle, and 56.7% had no knowledge in this regard (Table 2). The knowledge of the people in this study in terms of the people who need to undergo Pap smear test and when they are to do so was lower than that of the participants of the study by Şen and Karadağ Başar.[19] This lower knowledge rate may be because most participants resided in rural areas or districts. This study supports the fact that sample-related and regional differences should be observed when presenting services.

Among the relevant studies examining the relationship between the experience of undergoing a Pap smear test and HBMS scores, studies conducted by Acar and Cangöl et al. indicated significant differences between the Pap smear test experience and mean HBMS obstacle, benefit, health motivation, and perception sub-dimension scores.[23,24] The mean HBMS benefit and health motivation perception scores of women who have undergone a Pap smear test were higher than those of women who have never undergone a Pap smear test. The mean HBMS obstacle perception scores of these women were higher than of women who have undergone the test. Similar to the studies conducted by Acar and Cangöl et al., the study by Bal indicated that the mean benefit/motivation and health perception scores of women who

have undergone a Pap smear test were high while their mean obstacle score was low and their perception of severity was statistically significant.[23-25] Babazadeh et. al. indicated a significant difference between the Pap smear test experience and mean HBMS perceived benefits scores.[26] Shirazi Zadeh Mehraban et. al. and Babazadeh et. al. stated a significant difference between the Pap smear test experience and mean HBMS perceived severity, perceived benefits, perceived barriers and perceived self-efficacy scores.[27,28] Yanıkkerem et al. showed that the experience of undergoing the test and perceptions related to benefit motivation were significantly associated. The benefit motivation perception of people who have undergone the test was higher.[29] Özen Çınar and Kara found a significant change in the obstacle perception parameters of women who have undergone regular gynecological checks. The obstacle perception scores of women who have not had regular gynecological checks were higher than those who have undergone these checks.[30] Karimy et al. found a significant difference between the Pap smear test history and mean HBMS all of parameters.[31] The present study found no significant association between the experience of undergoing a Pap smear test and HBMS sub-groups (Table 3).

Among the studies examining the relationship between the awareness of the reasons for undergoing a Pap smear test and HBMS scores, Acar and Bal indicated that the HBMS benefit and health motivation perception and knowledge scores of women who have heard of the Pap smear test were higher than those who have not, and the obstacle perception of the former was at a lower level.[23,25] Yanıkkerem et al. indicated that women who have heard of the Pap smear test had higher benefit motivation and sensitivity perception than those who have never heard about the test, whereas the obstacle perception was higher among the women who have yet to hear about the test.[29] Egelioglu Cetisli et al. found there was a directly proportional relationship between people's sensitivity, health motivation, and benefit motivation perceptions with awareness of the Pap smear test, whereas there was a reversely proportional relationship with their obstacle perceptions.[32] Aldohaian et al. indicated significance regarding the scores of aware-

ness and knowledge about Pap smear test and obstacle perception score.[16] Obstacle perception scores of women who knew about the Pap smear test were lower than those who did not have this knowledge. Similar to the studies in the relevant literature, the present study demonstrated that the benefit motivations of people who were aware of the reasons for undergoing the Pap smear test were at a higher level and their obstacle perception was lower than those who did not (Table 3). The higher number of motivating factors for the women who have heard about the Pap smear test has a key role in the transformation of knowledge into practice. Pirzadeh and Mazarheri indicate that health-related education creates significant differences in all parameters of HBMS.[33] Therefore, awareness of the Pap smear test is critical for ensuring the spread of preventative medical practices for early diagnosis. People whose awareness of the reasons for a Pap smear test is at a higher level aim to learn about their medical problems and understand that undergoing regular Pap smear tests will reduce the risk of death due to cervical cancer.

The literature review found no studies examining the relationship between the awareness of when in the menstrual cycles to undergo a Pap smear test or the knowledge regarding the preparatory stage before undergoing the test and HBMS scores. The present study indicated that HBMS caring and obstacle perception scores of women who knew when the Pap smear test was to be done based on the menstrual cycle were higher and that their benefit motivation and health motivation perceptions were lower than the women who were not aware of the afore-noted period (Table 3). Women's unawareness of when the Pap smear screening test was to be done prevents them from visiting medical institutions due to their failure of minding their medical problems, feeling embarrassment, or financial issues.

The data obtained from this study indicated a significant association for the awareness of the preparatory stage before the Pap smear test, HBMS scores, and health motivation and obstacle perception (Table 3). The health motivation perception scores were higher among the people who gave correct answers, while the obstacle perception scores were higher among the people who gave wrong answers.

Awareness of the Pap smear test helps women participate in early diagnostic programs such as a Pap smear test and display healthy attitudes for improving their health and maintaining their current medical status. Women who were unaware of the preparatory stages for the test might abstain from the test due to reasons such as embarrassment or fear.

The studies conducted by Gökgöz and Aktaş and Cangöl et al. to examine the relationship between the state of menopause and undergoing Pap smear test indicated a significant relationship between the experience of this test and state of menopause.[24,34] According to the results of these studies, the rate of undergoing a Pap smear test among the women in menopause was higher than those who did not have a Pap smear test. This study found no statistically significant relationship between menopause and participation in Pap smear tests (Table 4).

In addition, the results indicated no relationship between the experience of menopause and awareness of the reasons for undergoing a Pap smear test, the timing of this test, and the preparatory stage (Table 4). The literature review found no studies in this regard. The perception of the women in menopause that they are not at risk of cervical cancer may prevent them from taking action for early diagnosis. The model based on health motivation is critical for designing and maintaining health education programs and promoting women's actions in this regard.

LIMITATIONS OF THE STUDY

The limitation of this study was that it was conducted at a FHC.

CONCLUSION

According to the data obtained from this study, women's knowledge and experiences regarding the Pap smear test were limited. Raising women's educational level and knowledge about the Pap smear test would increase the practicability of the screening tests, help women make correct decisions about their own health, reduce the risk of making mistakes, and minimize the impact of cultural, religious, and gender-related characteristics preventing women from benefiting from this medical service.

The model based on health belief is critical for designing and maintaining health education programs and for promoting the practices of protecting and improving women's health. The HBM helps medical staff eliminate embarrassment as well as cultural and religious obstacles preventing participation in cervical cancer screening programs. Using this model, women can be supported and encouraged to develop positive health behaviors. Planning actions in health education programs based on HBM by public health nurses will contribute to efforts to increase the desired rate of participation.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

All authors contributed equally while this study preparing.

REFERENCES

1. World Health Organization. [Internet]. © 2021 WHO [Cited: 19.03.2021]. Cancer. Available from: [Link]

2. Kokkun M. Malatya il merkezinde bulunan aile sağlığı merkezlerinde çalışan sağlık personelinin ulusal kanser tarama programlarındaki taramalar konusunda bilgi tutum ve davranışlarının incelenmesi. [Master Thesis]. Malatya: T.C. İnönü Üniversitesi; 2014. [Link]

3. Selvi M. Kadın hastalıkları ve doğum uzmanları ile pratisyen hekimlerin pap smear alma sıklığının belirlenmesi. [Master Thesis]. Afyon: Afyon Kocatepe Üniversitesi; 2006. [Link]

4. Vatansever G. Sağlık çalışanlarının human papilloma (HPV) aşısı ve HPV ile serviks kanseri hakkında bilgi düzeyinin değerlendirilmesi. [Master Thesis]. Manisa: Celal Bayar Üniversitesi; 2010. [Link]

5. Calle EE, Flanders WD, Thun MJ, Martin LM. Demographic predictors of mammography and Pap smear screening in US women. Am J Public Health. 1993;83(1):53-60. [Crossref] [PubMed] [PMC]

6. Sirovich BE, Welch HG. The frequency of Pap smear screening in the United States. J Gen Intern Med. 2004;19(3):243-50. [Crossref] [PubMed] [PMC]

7. Eo YS, Kim JS. Associations of health belief and health literacy with Pap smear practice among Asian immigrant women. Eur J Oncol Nurs. 2019;42:63-8. [Crossref] [PubMed]

8. Ampofo AG, Adumatta AD, Owusu E, Awuviry-Newton K. A cross-sectional study of barriers to cervical cancer screening uptake in Ghana: An application of the health belief model. PLoS One. 2020;15(4):e0231459. [Crossref] [PubMed] [PMC]

9. Nigussie T, Admassu B, Nigussie A. Cervical cancer screening service utilization and associated factors among age-eligible women in Jimma town using health belief model, South West Ethiopia. BMC Womens Health. 2019; 19(1):127. [Crossref] [PubMed] [PMC]

10. Öztürk Y. Pap smear testi yaptırmamış kadınların bu teste yönelik farkındalıklarının ve testi yaptırmama nedenlerinin değerlendirilmesi. [Master Thesis]. Eskişehir: T.C. Eskişehir Osmangazi Üniversitesi; 2017. [Link]

11. Ashtarian H, Mirzabeigi E, Mahmoodi E, Khezeli M. Knowledge about Cervical Cancer and Pap Smear and the Factors Influencing the Pap test Screening among Women. International journal of community based nursing and midwifery. 2017;5(2):188-95. [PMC]

12. Johnson CE, Mues KE, Mayne SL, Kiblawi AN. Cervical cancer screening among immigrants and ethnic minorities: a systematic review using the Health Belief Model. J Low Genit Tract Dis. 2008;12(3):232-41. [Crossref] [PubMed]

13. Gözüm S, Çapık C. [A Guide in the development of health behaviours: Health Belief Model (HBM)]. Dokuz Eylül Üniversitesi Hemşirelik Yüksekokulu Elektronik Dergisi. 2014;7(3):230-7. [Link]

14. Guvenc G, Akyuz A, Açikel CH. Health belief model scale for cervical cancer and pap smear test: psychometric testing. J Adv Nurs. 2011;67(2):428-37. [Crossref] [PubMed]

15. Örenli G. İlköğretim ikinci kademede öğrenim gören kız öğrencilerin annelerinin rahim ağzı kanseri ve HPV aşısı konusunda bilgi tutum davranışları. [Master Thesis]. Zonguldak: T.C. Bülent Ecevit Üniversitesi; 2015. [Link]

16. Aldohaian AI, Alshammari SA, Arafah DM. Using the health belief model to assess beliefs and behaviors regarding cervical cancer screening among Saudi women: a cross-sectional observational study. BMC Womens Health. 2019;19(1):6. [Crossref] [PubMed] [PMC]

17. Hacıhasanoğlu Aşılar R, Köse S, Yıldırım A. [Women's knowledge, beliefs and behaviors about cervical cancer and pap smear test]. Türkiye Klinikleri Journal of Nursing. 2015; 7(2):102-11. [Crossref]

18. Karaoğlan D. Kadınların Servîks kanserî rîsk faktörlerî ve erken tanı yöntemlerî îlîşkîn bîlgî ve uygulamalarının belîrlenmesî. [Master Thesis]. Lefkoşa: K.K.T.C. Yakın Doğu Üniversitesi; 2016. [Link]

19. Şen S, Karadağ Başar F. [Awareness among women living in Kütahya region about pap smear test]. Sted/Sürekli Tıp Eğitimi Dergisi. 2019;28(1):28-30. [Crossref]

20. Tokgöz T. Gebe Kadınların Pap smear testi konusunda bilgi düzeylerinin incelenmesi. [Master Thesis]. İstanbul: T.C. Haliç Üniversitesi; 2009. [Link]

21. Özdemir Ö, Bilgili N. [Knowledge and practices of nurses working in an education hospital on early diagnosis of breast and cervix cancers]. TAF Preventive Medicine Bulletin. 2010;9(6):605-12. [Crossref]

22. Arabaci Z, Ozsoy S. The pap-smear test experience of women in Turkey: a qualitative study. Asian Pac J Cancer Prev. 2012;13(11): 5687-90. [Crossref] [PubMed]

23. Acar GB. Reprodüktîf dönemdekî kadınların servîks kanserî taramasına yönelîk sağlık înanışları ve etkîleyen faktörler. [Master Thesis]. Ankara: T.C. Yıldırım Beyazıt Üniversitesi; 2014. [Link]

24. Cangöl E, Söğüt S, Berberoğlu U, Dolu I. Evaluation of women having pap smear test by health belief model scale. International Journal of Caring. 2020;13(1):333. [Link]

25. Bal MD. [Evaluation of women having pap smear test by health belief model scale]. Journal of Marmara University Institute of Health Sciences. 2014;4(3):133-8. [Link]

26. Babazadeh T, Ghaffari-Fam S, Oliaei S, Sarbazi E, Shirdel A, Mostafa-Gharabaghi P, et al. Predictors of pap smear screening behavior among rural women in tabriz, Iran: An application of health belief model. International Journal of Cancer Management. 2019;12(5). [Crossref]

27. Babazadeh T, Nadrian H, Rezakhani Moghaddam H, Ezzati E, Sarkhosh R, Aghemiri S. Cognitive determinants of cervical cancer screening behavior among housewife women in Iran: An application of Health Belief Model. Health Care for Women International. 2018.39(5):555-70. [Crossref] [PubMed]

28. Shirazi Zadeh Mehraban S, Namdar A, Naghizadeh MM. Assessment of Preventive Behavior for Cervical Cancer with the Health Belief Model. Asian Pac J Cancer Prev. 2018;19(8):2155-63. [PubMed] [PMC]

29. Yanikkerem E, Karakuş Selçuk A, Esmeray N. women's attitude and beliefs about cervical cancer and pap smear test by using the health belief model. International Journal of Cancer and Clinical Research. 2018;5(2):1-9. [Crossref]

30. Özen Çınar İ, Kara E. Evaluation of awareness of cervical cancer and pap spear test of working women by health belief model. Bezmialem Science. 2020;8(2):113-9. [Crossref]

31. Karimy M, Azarpira H, Araban M. Using health belief model constructs to examine differences in adherence to pap test recommendations among Iranian women. Asian Pac J Cancer Prev. 2017;18(5):1389-94. [PubMed] [PMC]

32. Egelioglu Cetisli N, Top ED, Işık G. Cervical cancer and pap smear test health beliefs and health- promoting lifestyle of women in Turkey. International Journal of Caring Sciences. 2016;9(2):630-9. [Link]

33. Pirzadeh A, Mazaheri MA. The effect of education on women's practice based on the health belief model about pap smear test. Int J Prev Med. 2012;3(8):585-90. [PubMed] [PMC]

34. Gökgöz N, Aktaş D. [Determination of women awareness level of cervical cancer & conducting pap-smear test]. Yıldırım Beyazıt Üniversitesi Sağlık Bilimleri Fakültesi Hemşirelik E-Dergisi. 2015;3(2):11-22. [Link]