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The Effects of Health Literacy on Early Diagnosis Behaviors of Breast and Cervical Cancer in Women Aged 18-65

18-65 Yaş Arası Kadınlarda Sağlık Okuryazarlığının Meme ve Servis Kanserinin Erken Tanı Davranışlarına Etkisi

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Abstract

Aim: It is stated that the level of health literacy is related to preventive health services, and low level of health literacy prevents screening tests. This study aimed to determine the effect of health literacy level on early diagnosis behaviors of breast and cervical cancer in women between the ages of 18 and 65.

Material and Method: The descriptive and cross-sectional study was conducted with female patients who admitted to the Obstetrics and Gynecology Outpatient Clinics of a Training and Research Hospital in the Central Black Sea region. Data were collected using the Introductory Information Questionnaire prepared by the researcher and the European Health Literacy Scale (HLS-EU) between June 2019 and January 2020. The sample of the study included 395 women who were not pregnant, had not undergone hysterectomy, were between the ages of 18 and 65, were married or sexually active, had no psychiatric, hearing or visual impairments, and were not diagnosed with breast and cervical cancer before.

Results: 41.8% of women are between the ages of 18-34. 42.3% of women are graduates of higher education, 46.8% of them are not working. 91.9% of all women are married and 83.8% have a nuclear family. The mean general health literacy score of women on the HLS-EU is 32.43±7.36. 40.3% of women have a problematic-limited level of health literacy. In the study, a statistically significant relationship was determined between the general score of HLS-EU and the state of knowing Clinical Breast Examination (CBE) (p=0.027) gender of the doctor in CBE (p=0.019), having gynecological examination before (p=0.008), knowing Pap-smear test (p=0.027), having Pap-smear test before (p=0.044),

Conclusion: The level of health literacy of women is problematic- limited. It has been determined that breast and cervical cancer information and early screening practices are insufficient, and insufficient health literacy level prevents participation in cancer screenings.

Keywords: Breast cancer, health literacy, cervical cancer, nurse

Öz

Amaç: Bu araştırmanın amacı 18 ve 65 yaş arası kadınlarda sağlık okuryazarlığı düzeyinin meme ve serviks kanseri erken tanı davranışlarına etkisinin belirlenmesidir.

Gereç ve Yöntem: Tanımlayıcı ve kesitsel türdeki araştırma, Orta Karadeniz bölgesinde yer alan bir Eğitim ve Araştırma Hastanesinin Doğum ve Kadın Hastalıkları Polikliniklerine başvuran kadın hastalar ile yürütülmüştür. Araştırma verileri Haziran 2019-Ocak 2020 tarihleri arasında araştırmacı tarafından hazırlanan Tanıtıcı Bilgiler Soru Formu ile Avrupa Sağlık Okuryazarlığı Ölçeği Türkçe formu (ASOY-TR) kullanılarak toplanmıştır. Araştırmanın örneklemine gebe olmayan, histerektomi geçirmemiş, 18 ve 65 yaş arasında olan, evli veya cinsel yönden aktif, psikiyatrik, işitme ve görme engeli olmayan, daha önce meme ve serviks kanseri tanısı almayan 395 kadın dahil edilmiştir.

Bulgular: Kadınların %70,1'i 25-44 yaş aralığındadır. Kadınların %42,3'ü yükseköğretim mezunudur, %46,8'i çalışmamaktadır. Tüm kadınların %91,9'u evlidir ve %83,8'i çekirdek aileye sahiptir. Kadınların Avrupa Sağlık Okuryazarlığı Ölçeği (ASOY- TR) genel sağlık okuryazarlığı puan ortalaması 32,43±7,36'dir. Kadınların %40,3'ü sorunlu- sınırlı sağlık okuryazarlığı düzeyine sahiptir. Araştırmada ASOY-TR genel puanı ortalaması ile Klinik Meme Muayenesi (KMM)'nin ne olduğunu bilme (p=0,027), tarama/ kontrol amaçlı KMM yaptırmada hekimin cinsiyetinin kadın olması (p= 0,019), jinekolojik muayene yaptırma durumu (p=0,008), Pap-smear testini bilme durumu (p=0,027), daha önce Pap-smear testi yaptırma durumu (p=0,044) arasında istatistiksel olarak anlamlı düzeyde bir ilişki belirlenmiştir.

Sonuç: Kadınların sağlık okuryazarlığı düzeyinin sorunlu- sınırlı düzeydedir. Meme ve serviks kanseri bilgi ve erken tarama uygulamalarının yetersiz olduğu, yetersiz sağlık okuryazarlığı düzeyinin kanser taramalarına katılımın engellediği belirlenmiştir.

Anahtar Kelimeler: Meme kanseri, sağlık okuryazarlığı, serviks kanseri, hemşire

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INTRODUCTION

There were an estimated 19.3 million new cancer cases and approximately ten million cancer-related deaths in 2020 worldwide. The most frequently diagnosed type of cancer in women is breast cancer and it is estimated that approximately 2.3 million people are newly diagnosed globally.[1] The most significant challenges encountered in breast cancer treatment are the inability to detect cancer at an early stage and the low awareness in women about the disease. Methods, such as Breast Self-Examination (BSE), Clinical Breast Examination (CBE) and mammography, are used in the early diagnosis and breast cancer treatment.[2-4] The national breast cancer screening program in Turkey provides counseling for monthly breast self-examination (BSE), clinical breast examination once a year and mammography every two years for women aged 40-69 years.[5]

Cervical cancer is a late-onset result of a sexually transmitted infection, Human Papillomavirus (HPV), and is cancer that can be prevented by vaccination and early screening.[6] In 2018, it was estimated that approximately 570,000 women worldwide were diagnosed with cervical cancer, and approximately 311,000 women died due to cervical cancer.[7] On the other hand, it is stated that 2532 women are diagnosed with cervical cancer every year and 1245 women die from cervical cancer in Turkey.[8] The first finding in the early diagnosis of cervical cancer is the abnormal result of the Pap smear test or HPV DNA test, which has become widespread in recent years.[7] The standard cervical cancer screening program in our country is for women in the 30-65 age group to have a Pap smear test every five years at the Early Diagnosis, Screening and Education Center of Cancer (KETEM).[5]

Today, individuals are expected to adopt behaviors that will protect and improve their health, benefit from the health services offered, be able to make decisions about their own health status, and be aware of their own responsibilities and rights. On the other hand, factors, such as constantly developing and changing technology, complexities encountered in the diagnosis process, cultural differences, limited health literacy and age affect the self-care and competence of individuals, the use of health services provided and their communication with health personnel. In this respect, health literacy is a significant step, and it facilitates the ability to search and understand health-related information and communicate with health care providers.[9]

The definition of health literacy made by World Health Organization (WHO) is "cognitive and social skills that describe the motivation and ability of people to access, understand and use the information to improve and maintain their health".[10] Studies have determined that there is a relationship between breast and cervical cancer screening behaviors and health literacy level.[11-17] It is stated that the level of health literacy of women affects their beliefs and behaviors in cancer prevention.[18] When the relationship between health literacy level and preventive health services is examined, it is stated that a low health literacy level prevents performing screening tests.[19] There are few published data on health literacy in Turkey, so the relationship between individuals' health literacy and cancer screening is significant.

MATERIAL AND METHOD

This descriptive and cross-sectional study aimed to determine the effect of health literacy level on early diagnosis behaviors of breast and cervical cancer in women between the ages of 18 and 65. This study was conducted with female patients who were admitted to the Obstetrics and Gynecology Outpatient Clinics a Training and Research Hospital, located in the Central Black Sea region of Turkey, between June 2019 and January 2020. The study population was female patients between the ages of 18-65.

Inclusion criteria for this study were not being pregnant, not having a history of total hysterectomy due to a benign tumor, being married or sexually active between the ages of 18 and 65, not having a psychiatric problem, hearing and visual impairment, and not having been diagnosed with breast and cervical cancer before. Oral and written consent was obtained from the patients before the interview, and then the data were collected with a 15-minute face-to-face interview in a private room before the examination.

The known universe sampling formula was used to determine the sample of this study. The present study was completed with 395 volunteer women who met the selection criteria according to the result obtained from the 'sampling with known universe' formula given below. In collecting research data, the 64-question Introductory Information Questionnaire prepared by the researcher and the European Health Literacy Scale (HLS-EU) Turkish version which Abacıgil, Harlak and Okay performed their Turkish validity and reliability study in 2016, were used.[20]

The questionnaire, which was prepared by reviewing the literature, consisted of the first part with 26 questions about sociodemographic characteristics (age, education, occupation, employment, income, marital status, place of residence, family type, duration of marriage (years), body mass index, smoking, alcohol use) and obstetric information (age at menarche, number of pregnancies, age at first birth, last birth type, number of children, duration of breastfeeding, use of contraception, duration of contraceptive pill use, presence of Sexually transmitted infections (STIs), menopause, menopausal age, using of Menopaual Hormone therapy (MHT), the second part with 20 questions about early diagnosis behaviors of breast and cervical cancer (knowing what BSE is, knowing how to do BSE, performing BSE, frequency of performing BSE, time of performing BSE, knowing what CBE is, status of having CBE, frequency of having CBE administered, knowing what mammography is, status of having mammography,

frequency of having mammography, having gynecological examination for screening/control, frequency of gynecological examination, knowing what Pap-Smear test is, previous Pap-Smear status, Pap-Smear test frequency, knowing what HPV vaccine is, doing HPV vaccination, consideration of getting the HPV vaccine to their children) and the third part with 18 questions about early diagnosis behaviors of cervical cancer.

European Health Literacy Scale (HLS-EU)

European Health Literacy Scale (HLS-EU), which was adapted into Turkish with the Turkish Health Literacy Scales Reliability and Validity Study, is the Turkish version of the European Health Literacy Scale. The scale was developed by the European Health Literacy Research Consortium (HLS-EU Consortium, 2012). The scale is a self-report scale developed to assess health literacy in people over the age of 15. This scale includes three health-related dimensions as treatment, prevention of diseases and health promotion, and four information-acquisition processes about health-related decision-making and practices, including reaching, understanding, decision-making and application. The scale consists of 3 sub-dimensions and 47 items. Each item is rated as 1= 'Very difficult', 2= Difficult, 3= 'Easy', 4= 'Very easy'. Code 5 is used for the expression "I don't know". Those who tick 'I don't know' will not be given points. Each participant can mark only one option from the five-point Likert scale. The total score that can be obtained from the scale is between 47-188. For ease of calculation, the total score is calculated using the formula, with a range of 0-50. According to the score obtained, cut-off points were determined for four dimensions (general treatment, prevention of diseases, and health promotion). If the health literacy level is between 0-25 points, it is classified as insufficient Health Literacy, if it is between 25-33 points, it is classified as problematic-limited Health Literacy, if it is between 33-42 points, it is adequate Health Literacy, and between 42-50 points it is classified as perfect Health Literacy. The Cronbach's alpha value of the scale is 0.95.

Statistical Analysis

Statistical Package for the Social Sciences (SPSS) version 22.0 was used to evaluate the data in this study. Descriptive statistics were shown as number (n), percent (%) and mean ± standard deviation (X±SD). The Kolmogorov-Smirnov test was used to examine the normality distribution of the scale mean scores. In line with the results obtained, the Chi-Square test was performed. The results were evaluated at a 95.0% confidence interval, $p<0.05$ significance level and $p<0.01$ and $p<0.001$ advanced significance level.

Ethical Approval

This study was conducted in accordance with the Principles of Helsinki and ethical approval was obtained from the non-interventional ethics committee of Hitit University (Date: 28.03.2019, Number: 2019-116).

RESULTS

In **Table 1**, the distribution of the descriptive characteristics of the women participating in this research is given. The mean age of the women participating was 37.26± 9.91, and 41.8% of the women were in the 18-34 age range. When the education level of women was examined, it was seen that 42.3% of them were university graduates and above, and 31.6% of them were primary school graduates. Almost half of the women in the study were not working and were housewives (51.4%). While 83.8% of women had a nuclear family, 71.9% perceived their income as a sufficient, and 59% live in rural ares, district or villages. In the study 91.9% of the women were married and the average duration of marriage was 14.13± 11.14 years, and 62.5% of them were married for 1-19 years. The mean BMI of the women was 25.32±5.05 kg/m², and 50.6% were in the normal weight, smoking and alcohol use rates were 21% and 5.3%, respectively.

Table 1: Demographic characteristics of the women (n=395)

Sociodemographic characteristics	Groups	Number	Percent
Age mean±SD 37,26±9,91	18-34	165	41.8
	35-44	138	34.9
	45-65	92	23.3
Educational status	Primary school	125	31.6
	High school	103	26.1
	University	167	42.3
Working status	Working	192	48.6
	Not working	203	51.4
Income (level)	Good	90	22.8
	Sufficient	284	71.9
	Low	21	5.3
Marital status	Married	363	91.9
	Single	32	8.1
Place of residence	Rural (district-village)	233	59.0
	Urban (province)	162	41.0
Family type	Extended family	64	16.2
	Nuclear family	331	83.8
Marriage duration (Year) mean±SD 14.13±11.14	Single	25	6.3
	1-9	128	32.4
	10-19	119	30.1
	20-29	75	19.0
	> 30	48	12.2
BMI mean±SD 25.32±5.05	Underweight	16	4.1
	Normal weight	200	50.6
	Overweight	118	29.9
	Obese	61	15.4
Active or passive smoker	Yes	83	21.0
	No	312	79.0
Drinking alcohol	Yes	21	5.3
	No	374	94.7

SD= Standard Deviation BMI=Body Mass Index

The mean HLS-EU score of women is 32.43±7.36. The mean score of the treatment and service sub-dimension is 34.04±7.32, the disease prevention sub-dimension is 32.42± 8.51, and the health promotion sub-dimension is 30.45± 9.20. It was determined that 41.5% of the women had sufficient health literacy in the treatment and service sub-dimension,

35.2% in the disease prevention sub-dimension, and 31.9% in the health promotion sub-dimension. In general, 40.3% of women have a problematic-limited level of health literacy.

Table 2 shows the relationship between participation in breast cancer screening and the health literacy levels of women in the present study. The highest rate of those who did not know BSE was among women with insufficient health literacy (20.0%). The highest rate of women who performed BSE was among women with excellent health literacy at 65.9%. In the study, a statistically significant relationship was determined between knowing what CBE is and the significance of having a female doctor in CBE and the general score of HLS-EU. (p=0.027 and p=0.019, respectively). While the rate of women who did not know what CBE was 31.7% among women with insufficient health literacy, this rate was 22.7% among women with excellent health literacy. The rate of women who stated that it was not important for them to be a female doctor in BSE was among the women with the highest health literacy of 68.2%. In the study, no statistically significant relationship was found between knowing what BSE is, performing BSE, having CBE, knowing what mammography is, having mammography and the general score of HLS-EU.

Table 3 shows the relationship between participation in cervical cancer screening and HLS-EU levels of women in this study. In the study, no statistically significant relationship was found between the HPV Vaccination Status and the HLS-EU general score. It was determined that 41.7% of the women who said no to 'knowing cervical cancer diagnosis and screening methods' had an insufficient level of health literacy and 29.5% had an excellent level of health literacy. A statistically significant relationship was determined between the level of knowing the cervical cancer diagnosis and screening methods and the general HLS-EU score (p= 0.011). It was determined that 15.1% of the women who said yes to 'the condition of having a gynecological examination' had a problematic/limited level of health literacy, and 23.3% had an insufficient level of health literacy. A statistically significant correlation was determined between the status of having a gynecological examination and the general HLS-EU score (p=0.008). While it was determined that 40.9% of the participants who stated that it is important for them to have a female gynecological examination doctor had a problematic-limited level of health literacy, this rate was 22.7% among women with an excellent level of health literacy. A statistically significant correlation was determined between that it was important for the participant herself and her husband to have a female doctor who performed a gynecological examination and the general score of HLS-EU (p=0.005 and p=0.005, respectively). While 72.7% of those who knew what the Pap smear test was, had an excellent level of health literacy, this rate was 53.3% among women with insufficient health literacy, and there was a statistically significant relationship was determined between knowing the Pap smear test and the general HLS-EU score (p=0.027). It was determined that 58.5% of the women who had a Pap smear test before had a problematic/limited level of health literacy, and 53.3% had an insufficient level of health literacy. A statistically significant relationship was determined between the status of having a Pap smear test before and the general HLS-EU score (p=0.044).

Table 2. Comparison of women's participation in breast cancer screening and the levels of HLS-EU-Q47 total and sub-dimensions

Breast cancer knowledge and early diagnostic behaviors		Insufficient		Problematic		Sufficient		Excellent		Overall		Test Statistic
		n	%	n	%	n	%	n	%	n	%	
Knowing what BSE is	Yes	38	63.3	120	75.5	89	67.4	32	72.7	279	70.6	p=0.508 x²=5.287
	Undecided	10	16.7	20	12.6	25	18.9	6	13.6	61	15.4	
	No	12	20.0	19	11.9	18	13.6	6	13.6	55	13.9	
Having BES	Yes	28	46.7	99	62.3	68	51.5	29	65.9	224	56.7	p=0.059 x²=7.431
	No	32	53.3	60	37.7	64	48.5	15	34.1	171	43.3	
Knowing what CBE is	Yes	26	43.3	105	66.0	81	61.4	31	70.5	243	61.5	p=0.027* x²=14.286
	Undecided	15	25.0	19	11.9	24	18.2	3	6.8	61	15.4	
	No	19	31.7	35	22.0	27	20.5	10	22.7	91	23.0	
Having CBE	Yes	13	21.7	57	35.8	35	26.5	10	22.7	115	29.1	p=0.093 x²=6.409
	No	47	78.3	102	64.2	97	73.5	34	77.3	280	70.9	
Knowing what mammography is	Yes	52	86.7	139	87.4	107	81.1	39	88.6	337	85.3	p=0.571 x²=4,793
	Undecided	3	5.0	11	6.9	11	8.3	1	2.3	26	6.6	
	No	5	8.3	9	5.7	14	10.6	4	9.1	32	8.1	
Having mammography	Yes	22	36.7	55	34.6	39	29.5	8	18.2	124	31.4	p=0.151 x²=5.305
	No	38	63.3	104	65.4	93	70.5	36	81.8	271	68.6	
The importance of the doctor being a woman in CBE	Yes	21	35.0	78	49.1	48	36.4	10	22.7	157	39.7	p=0.019* x²=15.159
	Undecided	4	6.7	12	7.5	17	12.9	4	9.1	37	9.4	
	No	35	58.3	69	43.4	67	50.8	30	68.2	201	50.9	

* p<0.05 ** p<0.01 BSE: Breast Self-Examination CBE: Clinical Breast Examination (CBE)

Table 3. Comparison of women's participation in cervical cancer screening and the levels of HLS-EU-Q47 total and sub-dimensions

Cervical cancer knowledge and early diagnostic behaviors		Insufficient		Problematic		Sufficient		Excellent		Overall		Test Statistic
		n	%	n	%	n	%	n	%	n	%	
Knowing cervical cancer screening methods	Yes	35	58.3	127	79.9	91	68.9	31	70.5	284	71.9	p=0.011* x²=11.088
	No	25	41.7	32	20.1	41	31.1	13	29.5	111	28.1	
Undergoing a gynecological examination	Having	46	76.7	135	84.9	100	75.8	27	61.4	308	78.0	p=0.008** x²=11.954
	Not having	14	23.3	24	15.1	32	24.2	17	38.6	87	22.0	
The importance of the doctor being a woman in the gynecological examination	Yes	13	21.7	65	40.9	37	28.0	10	22.7	125	31.6	p=0.005** x²=18.735
	Undecided	6	10.0	12	7.5	24	18.2	4	9.1	46	11.6	
	No	41	68.3	82	51.6	71	53.8	30	68.2	224	56.7	
Knowing what a Papsmear test is	Yes	32	53.3	107	67.3	74	56.1	32	72.7	245	62.0	p=0.027* x²=14.241
	Undecided	6	10.0	16	10.1	21	15.9	0	0	43	10.9	
	No	22	36.7	36	22.6	37	28.0	12	27.3	107	27.1	
Undergoing a Pap smear test	Doing	32	53.3	93	58.5	56	42.4	20	45.5	201	50.9	p=0.044* x²=8.124
	Not doing	28	46.7	66	41.5	76	57.6	24	54.5	194	49.1	
Having HPV vaccination	Having	3	5.0	9	5.7	11	8.3	2	4.5	25	6.3	p=0.699 x²=1.429
	Not having	57	95.0	150	94.3	121	91.7	42	95.5	370	93.7	

*p<0.05 **p<0.01

DISCUSSION

Three hundred ninety-five women were included in this study, which examined the effects of health literacy on breast and cervical cancer early diagnosis behaviors in women aged 18-65 living in Çorum. As the health literacy rate of women increases, health protection behaviors, including protection from diseases and early diagnosis of diseases, increase. It is possible that people with insufficient health literacy may not understand crucial health-related conditions and may not be aware of the importance of early diagnosis and screening in cancer prevention.[21,22]

In study, the mean HLS-EU Turkish version score of women was 32.43±7.36, and the health literacy level of women was problematic/limited. In the European Health Literacy Turkish Adaptation study conducted by Okyay and Abacıgil,[20] the mean score was 32.8±7.3. In studies, the mean EHLC-TR score ranges between 32.8±7.32 and 36.2±7.2.[23-26] Our findings are consistent with the findings obtained from national and international studies in the literature.

In this study the ratio of women with excellent health literacy who know the BSE are higher than those with insufficient health literacy (%72.7 and 67.4) although there is no statistically significant difference. In a study, it was determined that the health literacy level and cancer knowledge of women who participated in breast cancer screenings were better.[27]

In a study that there was a significant relationship between health literacy and breast cancer knowledge and that women with low health literacy were less likely to report their participation in monthly BSE.[12,28] In this study the highest rate of women performing BSE is 65.9% and women with excellent health literacy although here was no statistically significant difference between health literacy level and performing BSE in our study. In a study, it was determined that women with adequate health literacy were more likely to trust BSE than those with insufficient health literacy.[29] Rakhshkhorshid et al.[28] determined that women with high health literacy levels performed BSE more than others.

In this study the rate of women who do not know what CBE is higher among women with insufficient health literacy than women with excellent health literacy (31.7% and 22.7%, respectively) (**Table 2**). It has been determined that the health literacy level of women who did not undergo breast cancer screening was lower than that of women who had screening.[27] and that the increase in health literacy level increases compliance with early diagnosis behaviors.[11] It is stated that a limited level of health literacy is associated with less information-seeking behavior and this may prevent participation in screening programs.[30] This result in our study supports the view that women with a high level of health literacy have more information about breast cancer screenings and participate more in screenings.

The relationship between women's having CBE status and their health literacy level according to the EHLC-TR mean score was not statistically significant (p=0.093) (**Table 2**). The women with the lowest CBE rate are those with insufficient health literacy (21.7%). Similar to our findings, in a study conducted in Iran, no significant relationship was found between the level of health literacy and the status of CBE.[28] It is stated that individuals with a high level of health literacy may be more aware of free screening programs and this may lead the individual to have more information about screening services and benefit from non-recommended screenings.[31]

In the study, the lowest rate of those who did not know exactly what mammography was, 9.1%.was among women with excellent health literacy. In the study while the rate of not having mammography among women with limited health literacy level is 65.4%, this rate is 81.8% among women with excellent health literacy level (**Table 2**). The rate of women who have never had breast cancer screening or who have had irregular screening is 95.2% for women with insufficient health literacy and 88.2% for women with problematic

health literacy levels.[32] In a study conducted in our country, no statistically significant difference was found between the mammography status of women and the general and sub-dimension scale scores of health literacy; however, in the same study, the total and all sub-dimension scale mean scores of those who had breast cancer screening were higher. Unlike our findings, In a study it has been determined that women who had never had a mammogram before (55.2%) had a lower level of health literacy than those who had a mammogram at least once.[11] In an another studuy it has been determined that women with low and high health literacy levels had unrecommended breast cancer screening at a rate of 46.8% and 67.7%, respectively.[30] The results obtained in the studies in the literature do not show similarities with our findings. The differences in the socio-cultural characteristics of the provinces and countries where the studies were conducted may have been effective in the difference in the findings.

In study the ratio of women who has stated that it is not important for them to have a female doctor in CBE is the highest among women with excellent health literacy (68.2%) (**Table 2**). In the Muslim Turkish society, it is common for women to prefer a female physician for clinical breast examination. As a matter of fact, the barriers preventing women from participating in breast cancer screening programs are embarrassment during the examination and avoiding the examination due to religious beliefs.[33]

The ratio of women with excellent health literacy who know the cervical cancer early diagnosis and screening methods are higher than those with insufficient health literacy (70.5% and 58.3%, respectively) (p=0.011) In another study, as the level of health literacy decreases, the rate of those who have never had cervical cancer screening before or at intervals longer than 3 years increases.[32] The relationship between gynecological examination status and health literacy level according to the HLS-EU Turkish version mean score was statistically significant (p=0.008) (**Table 3**). While the rate of women with excellent health literacy level is 61.4% among women who do not have a gynecological examination, this rate is 84.9% for women with a problematic/limited level of health literacy. In a study it has been determined that women with insufficient health literacy are less likely to have a gynecological examination in the last five years compared to those with sufficient health literacy.[16] In the study of Doğan and Çetinkaya,[34] the rate of consulting to a physician for control purposes in the last 12 months is higher for people with good health literacy levels. Rutan et al.[30] determined that respectively 33.8% and 48.4% of women with low and high health literacy levels had cervical cancer screening, which is not recommended. It is stated that people with low health literacy level know less about their health, receive less preventive services, have worse physical and mental functions, and it is difficult to control chronic diseases in these individuals.[35]

The relationship between the gender of the doctor who performed the gynecological examination for screening/control purposes and the level of health literacy according to the HLS-EU Turkish version score average was statistically significant. Women with a low level of health literacy attach more importance to the gender of the doctor performing the gynecological examination. (p=0.005) (**Table 3**). While the rate of those who state that it is important for them to have a female doctor in screening/control gynecological examinations is 22.7% among women with excellent health literacy levels, this rate is 40.9% among women with problematic/limited health literacy levels. Studies on this subject are very limited. In a study conducted by Özcan et al.[36] in Gümüşhane, 86.3% of women stated that the gender of the physician who examined them was important, while 94.8% stated that they preferred a female physician.In the study of Bilgin and Doğan Merih,[37] 63.4% of women preferred a female physician for gynecological examination and 84.3% of them considered the gender of the physician when making an appointment or being examined.In the literature, that the woman does not determine the doctor who will perform the gynecological examination, privacy and the feeling of shame are shown as obstacles to the gynecological examination.[37,38] In our study, this situation may arise from that women with low health literacy levels do question their doctors' gender but rather their knowledge/experience when consulting for a gynecological examination.

The relationship between knowing what a Pap smear test is and having had a Pap smear test before and the level of health literacy according to the HLS-EU Turkish version score average was statistically significant (p=0.044) (**Table 3**). Among women with excellent health literacy levels, the rate of those who know what the Pap smear test is the highest, with 72.7%. Among women who had a previous Pap smear test, the ratio of women with excellent health literacy was higher than those with adequate health literacy (45.5% and 42.4%, respectively). While Dilli[16] determined that as the health literacy level of women increases, the level of knowledge about cervical cancer and Pap smear test increases, in another study Yılmazel[17] found that women with insufficient health literacy are less likely to have a Pap smear test than those with adequate health literacy. Thompson et al.[39] determined that there is a relationship between 'knowing that HPV is a cause in the development of cervical cancer' and having a Pap smear test in the last three years.Differently, Tiryaki and Yılmaz[14] and Şensoy[40] determined that there is no significant relationship between health literacy and Pap smear test status. Kim and Han[15] and Baharum et al.[40] state that there is a positive relationship between the level of health literacy and screening for cervical cancer. National and international findings are similar to our study results. The inadequacy of women's health literacy and health knowledge is a major obstacle to participation in cancer screenings.

In our study there was no statistically significant correlation between HPV vaccination status and health literacy level according to the HLS-EU Turkish version mean score (p=0.699). In a different study, women with insufficient health literacy were more likely to report that they had

never heard of the Pap smear test and HPV vaccine.[16] In the same study, it was stated that women with insufficient health literacy were significantly less likely to indicate that they would have a Pap smear every five years. This situation may arise because individuals with low health literacy level do not question screening procedures, or those with high health literacy level actively seek screening procedures.[30] Studies have shown that the rate of HPV vaccination among women in our country is very low.[16,41] Therefore, in our study, a significant relationship between health literacy level and HPV vaccination status may not have been determined.

CONCLUSION

In this study, it was determined that women's breast and cervical cancer information and early screening practices were insufficient and that low health literacy levels prevented women from being screened for cancer. In line with these results, it is recommended to increase awareness of breast and cervical cancer, identifying women with insufficient and limited health literacy levels, and making interventions that improve the level of health literacy through training and counseling activities which is one of the roles of nurses. In addition, planning of experimental studies examining the effects of health literacy levels on breast and cervical cancer early diagnosis behaviors are lacking. Nurses and midwives working in the field of women's health should plan initiatives to improve health literacy to increase women's participation in cancer screening.

ETHICAL DECLARATIONS

Ethics Committee Approval: This study was conducted in accordance with the Principles of Helsinki and ethical approval was obtained from the non-interventional ethics committee of Hitit University (Date: 28.03.2019, Number: 2019-116).

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