International Journal of Health Services Research and Policy
www.dergipark.org.tr/ijhsrp

IJHSRP

e-ISSN: 2602-3482

Research Article

THE RELATIONSHIP BETWEEN WOMEN'S ATTITUDES TOWARD EARLY DIAGNOSIS OF CERVICAL CANCER AND HEALTH LITERACY LEVELS

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Abstract: *The purpose of this study is to determine the relationship between women's attitudes toward early diagnosis of cervical cancer and their health literacy levels. The sample of the descriptive and cross-sectional study consisted of 714 women aged 30 to 65 who lived in a district center. Data were collected through the "Personal Information Form", the "Attitude Scale Towards Early Diagnosis of Cervical Cancer (ASTEC)" and the "Health Literacy Scale (HLS)". Data were analyzed using SPSS (Statistical Package for Social Sciences) for the Windows 16.0 program. Percentage distribution, t-test, ANOVA test, and Spearman correlation were used for data analysis, and statistical significance was accepted p<0.05. The participants' ASTEC total mean score was found 95.33±7.64, and their HLS mean score was found 82.32±20.33. A statistically significant and positive correlation was detected between both scales. A significant relationship was found between the scale mean scores and education, economic condition, knowledge of cervical cancer, and knowing and having the pap-smear test. Increasing women's health literacy levels and raising their awareness are important for the elimination of cervical cancer.*

Keywords: *Cervical cancer, health literacy, attitude, behavior.*

Received: August 10, 2023 *Accepted: November 3, 2023*

1. Introduction

Human papillomavirus (HPV), comprising over 200 types, is a globally prevalent group of viruses [1;2]. Approximately 40% of HPV types, by affecting the genital tract epithelium, cause almost all cervical cancers [1;3;4]. The high incidence of the HPV virus has also led to an increase in the incidence of cervix cancer, which has made it the fourth most common cancer among women worldwide. The incidence frequency of cervix cancer among female cancers is 13.3 per 100,000 and the mortality rate is 7.3 in the world. As for Turkey, with an incidence rate of 4.8 per 100,000 and a mortality rate of 2.2, it ranks 12th among female cancers [5].

Cervical cancer is distinguished from other cancers in that it is preventable cancer due to factors such as the availability of effective screening methods, effective treatment of preinvasive lesions, and the availability of vaccination. For this reason, strategies have been developed worldwide for the elimination of cervical cancer and HPV, which is considered the most important cause of cervical cancer. Within the scope of the fight against cervical cancer, the World Health Assembly aims to fully vaccinate 90% of girls with the HPV vaccine by age 15, screen 70% of women with a high-performance test at ages 35 and 45, and provide women diagnosed with cervical cancer with treatment at a rate of 90% between the years 2020 and 2030. Achieving these goals is predicted to prevent 300,000 deaths from cervical cancer by the year 2030, and over 14 million by the year 2070 [6]. Primary prevention is

one of the most important ways to support HPV and cervical cancer elimination. Raising awareness, vaccination, using barrier contraceptive methods, participating in screening programs, and adopting healthy lifestyle behaviors can be listed among these prevention factors [7].

Health literacy is one of the important conditions for the realization of primary prevention. There are several definitions of health literacy, but the World Health Organization defines it as the cognitive and social skills that determine to gain access to, understand, and use information in ways that promote and maintain good health. High health literacy leads to an increase in health knowledge and healthy lifestyles and a decrease in health care costs and duration of hospitalization [8,9]. Low health literacy was found to be associated with low health knowledge [10], increased incidence of chronic diseases [11], reduced benefits from preventive health services, and decreased frequency of participation in screening programs [12]. Health literacy is one of the social determinants of health associated with cancer-related inequalities [13]. Therefore, determination of the level of health literacy is highly important for the prevention of cancer and the improvement of health literacy [14]. This is important for individuals to take responsibility for their own health. While women's taking responsibility for their health increases their participation in cervical cancer screening programs, it is also important in determining their attitudes and beliefs toward screening programs. In line with all this information, the purpose of this study is to determine the relationship between women's attitudes toward early diagnosis of cervical cancer and their health literacy levels. In the literature, it seems that studies on women's attitudes towards cervical cancer early diagnosis are mostly about increasing knowledge and awareness. However, women's participation in screening programs is not at the desired level. For this reason, it is thought that the results obtained from the study will guide other studies in planning interventions aimed at increasing women's knowledge and awareness of health literacy and taking responsibility for their own health.

2. Materials and Methods

2.1. Research Design

This study used a descriptive and cross-sectional design.

2.2. Target Population and the Sample

This study was conducted in a Family Health Center (FHC) located in a district center. The target population of the study included menopausal women who were registered in the Family Health Center (FHC). The population of women aged between 30-65 years old is 5396 in the region. Hence, the determination of the number of samples in the groups with a known population was done using the n=N.t2.p.q/d2.(N-1)+t2.p.q formula, and when t=1,96; p=0,50, q=0,50; d=0,05 is taken, the number of the sample was determined as 359. The study was completed with 714 people who sought treatment in the FHC for any reason between March 2023 and June 2023 and who agreed to participate in the study.

2.3. Data Collection Tools

Data were collected through the "Personal Information Form", "Attitude Scale Towards Early Diagnosis of Cervical Cancer ", and the "Health Literacy Scale".

2.3.1 Personal Information Form

This form consists of a total of 19 questions to determine the participants' sociodemographic and cervical cancer-related features [15,16].

2.3.2 Attitude Scale Towards Early Diagnosis of Cervical Cancer (ASTEC)

The scale developed by Özmen and Özsoy (2009) consists of four sub-scales and 30 items. Eight items in the scale are scored reversely, and the scores to be obtained from the scale range between 30 and 150. Higher scores indicate a positive attitude toward early diagnosis of cervical cancer. Cronbach's alpha coefficient was reported to be between 0.89 and 0.70 for the whole scale and its sub-scales [16]. Cronbach's alpha coefficient was found to be 0.81 in this study.

2.3.3 Health Literacy Scale (HLS)

The Health Literacy Scale consists of four sub-scales and 25 items, and its Turkish validity and reliability were conducted by Aras and Bayık Temel. Scores to be obtained from the five-point Likert scale range from 25 to 125. The scale includes no reverse items. While lower scores indicate inadequate, problematic, or poor health literacy, higher scores indicate adequate and very good health literacy [17]. The Cronbach alpha reliability coefficient of the scale is 0.92 and in this study, it is 0.87.

2.4. Data Collection

Those who gave written informed consent to participate in the study were administered the data collection forms at the FHC; they filled out the forms individually; and the forms were collected back by the researchers.

2.5. Ethical Considerations

Ethics approval was obtained from the Non-Invasive Clinical Research Ethics Committee of Sivas Cumhuriyet University (2023-03/30) and written permission was obtained from Sivas Provincial Health Directorate and Family Health Centers. Additionally, each woman in the study was verbally informed on the context of the study and voluntary participation, and written permissions from the women were taken. The study was conducted under the ethical standards of the Helsinki Declaration.

3. Statistical Analysis

Data analysis was performed using SPSS package software, and while descriptive data were given as means and standard deviations for continuous variables, numbers, and percentages were given for categorical variables. The normality distribution of the variables was analyzed by Kolmogorov-Smirnov/Shapiro-Wilk tests and homogeneity of variances was examined by Levene's test. $P<0.05$ was considered significant by using t-test, ANOVA test, and Spearman correlation in the analyses.

4. Results and Discussion

4.1. Results

The average age of the participants was 35.89±5.29 (lowest: 30, highest:65) years. Of all the participants, 58.2% were high school graduates, 63.4% had low economic status, 89.9% were married, 30% had a chronic disease, 1.7% had a history of cancer, and 1.2% had a history of cervical cancer in the family. While 56.8% had heard of the pap-smear test and mainly received information from their friends, 24.5% knew about cervical cancer and received this information from health personnel. In addition, 52.6% of the women had at least one pap-smear test (Table 1).

Table 1. Distribution of Women by Some Individual Characteristics (n=714)

Participants' average age: 35.89±5.29 (lowest: 30, highest:65)		
	N	**%**
Education level		
Primary school	71	9.9
High school	416	58.2
Associate	117	16.4
Undergraduate	93	13.1
Postgraduate	17	2.4
Economic level		
Low	453	63.4
Middle	250	35.1
High	11	1.5
Marital status		
Single	93	13.1
Married	621	86.9
Having a chronic disease		
Yes	214	30.0
No	500	70.0
History of cancer		
Yes	12	1.7
No	702	98.3
History of cervical cancer in the family		
Yes	8	1.2
No	706	98.8
Hearing about the Pap-smear test		
Yes	406	56.8
No	308	43.2
Sources of information about the Pap-smear test *		
Health personnel	312	43.6
Internet	250	35.1
Visual and print media	117	16.3
Family, relatives	257	35.9
Friends	327	45.7
Knowledge of cervical cancer		
Yes	175	24.5
No	539	75.5
Sources of knowledge of cervical cancer*		
Health personnel	368	51.5
Internet	125	17.5
Visual and print media	10	1.4
Family, relatives	47	6.5
Friends	68	9.5
Having Pap-smear test		
Yes	376	52.6
No	338	47.4

*More than one option was selected

The participants' ASTEC scores were found 95.33±7.64 points, and the sub-scale scores were 24.68±3.45 for "Perceived Sensitivity", 22.43±3.10 for "Perceived Severity", 20.31±4.20 for "Perceived Barrier", and 27.34±3.12 for "Perceived Benefit" sub-scales. HLS mean score was found 82.32±20.33, and the sub-scale scores were 16.53±5.13 for "Finding Health Information", 24.74±6.12 for "Understanding Health Information", 29.41±7.01 for "Appraising/Evaluating Health Information", and 19,36±4,47 for "Applying/Using Health Information" (Table 2).

Table 2. Distribution of the Participants' ASTEC and HLS Scores (n=714)

Scale	Number of Items	Mean ± SD	Min-Max
ASTEC total	30	95.33±7.64	30-150
Perceived Sensitivity	9	24.68 ±3.45	9-45
Perceived Severity	8	22.43±3.10	8-40
Perceived Barrier	7	20.31±4.20	7-35
Perceived Benefit	6	27.34±3.12	6-30
HLS total	25	82,32±20,33	25-125
Finding Health Information	5	16,53±5,13	5-25
Understanding Health Information	7	24,74±6,12	7-35
Appraising/Evaluating Health Information	8	29,41±7,01	8-40
Applying/Using Health Information	5	19,36±4,47	5-25

ASTEC and the HLS mean scores were significantly higher in women who had postgraduate degrees, had good economic status, knew and had the pap-smear test done, and had knowledge of cervical cancer (Table 3). No statistically significant relationship was found between the participants' other characteristics and the scale mean scores.

Table 3. Comparison of the Participants' Socio-demographic Characteristics and ASTEC and HLS scores (n=714)

	ASTEC **Mean ± SD**	**HLS** **Mean ± SD**
Education level		
Primary school	64.72±13.71	54.55±25.62
High school	78.14±8.95	68.57±19.18
Associate	86.48±9.61	86.24±17.89
Undergraduate	88.13±11.35	87.27±19.03
Postgraduate	91.18±12.26	92.11±18.31
[a]Test/p	11.09/ **<0.001****	6.30/**0.001****
Economic level		
Low	68.34±11.19	63.48±16.73
Middle	77.29±10.68	71.62±13.37
High	93.57±12.17	86.28±10.36
[a]Test/p	7.13/ **0.002****	7.20/**0.003****
Hearing about the Pap-smear test	98.53±12.21	78.27±9.21
Yes	86.31±11.32	32.17±11.13
No		
[b]Test/p	5.21/ **0.001****	6.07/**0.001****
Knowledge of cervical cancer		
Yes	74.27±9.05	71.32±12.35
No	56.36±13.25	49.50±8.98
	3.37/ **<0.001****	9.11/**0.004****
Having Pap-smear test		
Yes	108.17±9.87	98.85±10.33
No	74.78±14.12	65.67±9.28
	5.48/ **0.003****	3.65/**0.002****

[a]Test: one-way ANOVA; [b]Test: student-t-test; $\bar{x}$± SD = mean and standard deviation; **:p<0.01

Spearman rank correlation test was conducted to determine the relationship between ASTEC and HLS mean scores of participants and the results were showed in Table 4.

Table 4. Relationship between ASTEC and HLS mean scores (n=714)

		HLS
ASTEC	r	0. 828
	p	0.000***
	n	714

r: Spearman Correlation; p<0,001

According to the results shown in Table 4 a statistically significant, positive, and strong relationship was detected between the ASTEC and the HLS.

4.2. Discussion

Health literacy has a crucial role in the prevention of cervical cancer, which is an important public health problem. ASTEC mean score was found 95.33±7.64 in this study. Lower scores were obtained in the majority of other studies using the same scale [18-22]. The difference in the findings might result from different sample groups.

While the ASTEC sensitivity, severity, and barrier perception sub-scale mean scores were found to be moderate, the benefit perception mean score was found to be high. According to the Health Belief Model, sensitivity perception refers to the individual's perception of danger and risk that may occur in his/her health status. Therefore, the likelihood of reducing risky behavior increases with the increase in perceived sensitivity. Perceived severity, on the other hand, refers to the severity of a disease perceived according to its consequences. Hence, when a woman believes that cervical cancer is associated with serious complications, she demonstrates behaviors that aim to reduce the risk. The perceived barrier is the individually perceived barrier to performing the recommended health behavior. Therefore, reducing the perceived barrier is highly important for the implementation of preventive health behaviors. Perceived benefit refers to the perceived benefit of reducing the risk of developing the disease as a result of the individual's behaviors to prevent the disease or reduce the severity of the disease. Preventive health behavior is realized when the perceived benefit, perceived sensitivity, and perceived severity reduce the perceived barrier [23,24].In this regard, there seems to be a need for strategies to increase women's knowledge and awareness about early screening programs for cervical cancer.

HLS mean score was found 82.32±20.33 in this study. Other studies conducted in female sample groups using different scales reported a low level of health literacy. For example, HL levels were reported to be adequate in 19.3% of women and low in 80.7% of women by Yilmazel [25], low in 94% of women, inadequate in 3.3% of women, and adequate in 2.7% of women by Aghaeian [26]; inadequate in 11.7% of women, problematic-limited in 44.4% of women, adequate in 29.8% of women, and excellent in 14.1% of women by Astantekin et al. [27]. Health literacy has a quite high contribution to the improvement of women's health. Women with adequate health literacy levels are known to demonstrate gynecological cancer screening and care-seeking behaviors and postpone the age of first sexual intercourse [28]. Considering the positive effects of improving women's health on both family and community health, it is important to improve health literacy levels in women.

Women with higher education levels and better economic status were found to have higher ASTEC and HLS mean scores in this study. Several studies have demonstrated the relationship between women's HL levels and education [29;30] and economic status [30;31]. High health literacy levels in this group seem to positively affect women's attitudes toward early diagnosis of cervical cancer.

ASTEC and the HLS scores were significantly higher in women who knew and had Pap-smear tests and women with knowledge of cervical cancer. Yılmazel (2019) found that women with inadequate health literacy were less likely to have Pap smears [25]. Kiracılar and Kocak (2023) reported that the rate of those who knew about Pap smear tests was high among women with excellent health literacy levels [8].

A statistically significant and positive relationship was detected between the ASTEC and the HLS. Like the present study, Baharum et al. (2020) reported a positive relationship between cervical cancer screenings and health literacy levels [32]. This result is important as it shows that initiatives that will primarily increase health literacy are valuable in increasing attitudes toward early diagnosis of cervical cancer.

5. Conclusion

Improving women's health indicators is the most important condition for improving family and community health. In this regard, increasing women's health literacy is one of the important conditions to be met. Increasing women's health literacy is believed to lead to a decrease in the incidence and mortality rates of cervical cancer, which is preventable cancer. Thus, a significant contribution is believed to be made to the fight against cervical cancer by the World Health Assembly.

Limitations of the study:

The major limitation of our study is that it is a single center. The results obtained may not be generalized to other parts of the country.

Ethical Considerations

Ethics approval was obtained from the Non-Invasive Clinical Research Ethics Committee of Sivas Cumhuriyet University (2023-03/30) and written permission was obtained from Sivas Provincial Health Directorate and Family Health Centers. Additionally, each woman in the study was verbally informed on the context of the study and voluntary participation, and written permissions from the women were taken. The study was conducted under the ethical standards of the Helsinki Declaration.

Conflict of interest:

The authors declared no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

Funding:

The authors received no financial support for the research, authorship, and/or publication of this article.

Author Contributions:

Conceptualization: B.Y., A.Y; Research design: B.Y., A.Y; Data collection and/or processing: B.Y., A.Y; Analysis and/or Interpretation: B.Y., A.Y; Literature Review: B.Y; Writing up the original draft: B.Y; Review and Editing: B.Y., A.Y.

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