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NURSING AND HEALTH POLICY PERSPECTIVE

The relationship between HPV testing attitudes and beliefs, knowledge, and vaccination attitudes: A cross-sectional study

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Abstract

Objective: This study aims to examine the relationship between human papillomavirus (HPV) testing attitudes and beliefs, knowledge, and vaccination attitudes.

Design: This study was a cross-sectional design.

Sample: This study was conducted between March 15, 2024, and June 2, 2024, through social media platforms such as Facebook, Instagram, Twitter, and Telegram, by sharing on forum pages, and involved 674 women who volunteered to participate.

Measurements: The research data were collected using the "health belief model scale regarding HPV infection and vaccination (HBMS-HPVV)" and the "HPV Testing Attitudes and Beliefs Scale (HTABS)," which were developed by the researchers through a literature review.

Results: The average age of the women participating in the study was 46.59 ± 11.15 years; 81.5% were married, 57.6% had no knowledge about cervical cancer, and 62.2% had no knowledge about the HPV vaccine, a protective vaccine against cervical cancer. The average scores for the subdimensions of severity, barriers, benefits, and susceptibility of the HBMS-HPVV were 3.19 ± 0.60, 2.96 ± 1.22, 2.29 ± 1.40, and 3.92 ± 0.49, respectively. The average scores for the subdimensions of personal barriers, social norms, confidence, and worries of the HTABS were 31.14 ± 19.27, 7.57 ± 4.47, 30.03 ± 7.18, and 11.91 ± 2.52, respectively. A statistically significant positive relationship was found between all HBMS-HPVV subdimensions and the HTABS subdimensions ($p < 0.001$).

Conclusion: The study found that as the perceived severity increases, the perceived benefits, susceptibility, and confidence increase, while the perceived barriers, personal barriers, social norms, and worries decrease. Based on these results, it is recommended that women's health nurses provide education and seminars to raise awareness about cervical cancer, early screening and diagnosis programs, and the HPV vaccine.

KEYWORDS
attitude, belief, HPV testing, HPV vaccine, knowledge

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1 | BACKGROUND

Cervical cancer is a largely preventable disease that negatively affects the quality of life in women (Chen et al., 2022; Grywalska et al., 2019). It is the fourth most common cancer among women worldwide, with 604,000 new cases and 342,000 deaths annually (Urick & Bell, 2019). Targeted strategies are needed to achieve the World Health Organization's goal of eliminating cervical cancer and reducing global cervical cancer disparities (Barnabas et al., 2023). In the United States, the number of deaths from cervical cancer has significantly decreased due to widespread cervical cancer screening, dropping from 2.8 per 100,000 women in 2000 to 2.3 per 100,000 women in 2015 (Shaw et al., 2016). Studies in Nigeria have revealed low levels of awareness and uptake of the vaccine (Akande & Akande, 2024). Less than half of Chinese parents are aware of human papillomavirus (HPV) and the HPV vaccine, with a voluntary vaccination rate of less than 70% (Tan et al., 2024). Another study indicated significant knowledge gaps about HPV and a low vaccination rate (16.4%) among Lebanese medical students (Haddad et al., 2022). In Turkey, cervical cancer is the 10th most common cancer among women of all age groups, with an incidence rate of 4.2 per 100,000 women. Annually, 2125 women are diagnosed with cervical cancer, with 54.5% of cases being diagnosed at a localized stage (global cancer observatory (GLOBOCAN), 2022).

HPV is the most common sexually transmitted infection worldwide (Webb & Jordan, 2017). Women living with human immunodeficiency virus (HIV) are six times more likely to develop cervical cancer compared to women without HIV (Urick & Bell, 2019). Globally, HPV DNA testing is recommended for primary cervical screening (Jessmon et al., 2017). Screening improvements continue to be a significant priority for women's health. The main reason for recommending HPV testing is its strong ability to detect high-grade cervical lesions (Small et al., 2017).

The primary screening for cervical cancer is transitioning from the long-established Pap smear to an HPV-DNA test, which is more sensitive in detecting high-risk lesions and provides greater protection against invasive cervical carcinomas. Numerous studies have indicated that HPV testing is more sensitive than cytology in detecting cervical intraepithelial neoplasia in primary cervical cancer screening (Bulkmans et al., 2007; Clarke, 2023; Gilham et al., 2019; Tatar et al., 2018). Based on these findings, many countries recommend and implement screening programs based on HPV testing (Shrestha et al., 2018). Interventions must consider not only how to enhance knowledge but also how to foster accurate beliefs and positive attitudes toward this screening method to increase the acceptance and uptake of HPV testing (Gu et al., 2018).

Studies have shown that women who perceive their personal HPV risk as low and fear the negative impacts of a positive result are more likely to express negative attitudes, while positive attitudes are particularly expressed by women who understand the purpose of the screening (La Rosa et al., 2020). Research also revealed that the acceptance rate of the HPV vaccine is high and is significantly related to knowledge about cervical cancer, attitudes toward the HPV vaccine, and household welfare status (Alene et al., 2020). Thus, educating the public about cervical cancer and its prevention is crucial for increasing awareness and acceptance. In this context, developing education and communication strategies to support the implementation of HPV-based cervical cancer screening is essential (Bektaş & Akdemir, 2006; La Rosa et al., 2020). Despite the advancements in HPV testing becoming more visible worldwide, it is still not at the desired level. Health professionals play vital roles in informing individuals and the general public and protecting community health (Doss et al., 2022). Understanding the factors, such as knowledge and attitudes, that influence the acceptability of HPV testing among women is critical for ensuring adequate public health practices to optimize cervical screening utilization (Tatar et al., 2018).

Studies conducted in Turkey have found that although most women are aware of the Pap smear and HPV testing, they do not undergo cervical screening or HPV testing (Muhandiramge et al., 2022). Another study indicated that as women's knowledge about cervical cancer and screening increased, there was a corresponding increase in positive health behaviors (La Rosa et al., 2020). This study aims to examine the relationship between HPV testing attitudes and beliefs, knowledge, and vaccination attitudes. A literature review on the planned research topic did not find any studies at the international or national levels, suggesting the originality of this study.

2 | METHOD

2.1 | Design

This cross-sectional study used a web-based survey through social media platforms (Facebook, Instagram, Telegram, or X) between March 15, 2043, and June 2, 2024, involving 674 women. The study was conducted following the strengthening the reporting of observational studies in epidemiology (STROBE) guidelines.

2.2 | Sample

A priori power analysis was performed using the G-Power 3.1.9.4 software to determine the sample size. The analysis indicated that 490 women needed to be included in the study for an effect size of 0.80, a significance level of 0.05, and a power level of 0.95. However, considering potential losses, the sample size was increased by 10%, resulting in a required sample size of 539 women. The study ultimately reached 674 women using the snowball sampling method. Women who met the following criteria were included in the study: able to speak Turkish, over 18 years old, not diagnosed with a hearing impairment, social media users, provided electronic consent, and willing to participate.

2.3 | Data collection

Women were invited to participate in the study through an online survey link shared on social media platforms (Facebook, Instagram, Telegram, or X). The first page of the online survey provided information about the study, and participants provided electronic consent before starting the survey. The survey included a Personal

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Information Form, the Health Belief Model Scale for Human Papilloma Virus and Its Vaccination (HBMS-HPVV), and the HPV Testing Attitudes and Beliefs Scale (HTABS). Completing the survey took approximately 10–15 min.

2.4 | Measures

Women who agreed to participate in the study were provided with the following instruments developed by the researchers through a literature review: a personal information form, the HBMS-HPVV, and the HTABS.

2.4.1 | The personal information form

This form consists of three sections and 31 questions covering sociodemographic information, knowledge about HPV, vaccination attitudes, and attitudes and beliefs about HPV testing (Bektaş & Akdemir, 2006; Doss et al., 2022; Muhandiramge et al., 2022).

2.4.2 | HBMS-HPVV

Guvenc et al. adapted this scale into Turkish in 2016. The scale consists of four subdimensions: perception of seriousness (4 items), perception of barriers (5 items), perception of benefits (3 items), and perception of susceptibility (2 items). The scale items are in a four-point Likert type, with responses ranging from "not at all" (1 point), "a little" (2 points), "quite a bit" (3 points), to "very much" (4 points). Participants' responses are scored based on item points, and the total scores for each subdimension are calculated. The total score is divided by the number of items in the subdimension to calculate the scores for severity, barriers, susceptibility, and benefits. The mean score for each subdimension ranges from 1 to 4. A high benefit perception score indicates that the participant perceives the HPV vaccine as beneficial, a high seriousness perception score indicates that the participant considers HPV infection to be a serious issue, a high barrier perception score indicates that the participant perceives many obstacles to vaccination, and a high susceptibility perception score indicates significant awareness of susceptibility to HPV (Guvenc et al., 2016). The Cronbach's alpha reliability coefficients for the subdimensions are as follows: perception of seriousness, .78; perception of barriers, .71; perception of benefits, .78; and perception of susceptibility, .72. Since the total score of the scale is not calculated, the overall Cronbach's alpha reliability coefficient is not available (Guvenc et al., 2016). In this study, the Cronbach's alpha coefficient for the scale was 0.99.

2.4.3 | HTABS

This scale was developed by Tatar et al. (2023) and its validity was confirmed by Cangöl Sögüt et al. 2023. The scale consists of 20 items and 4 subdimensions. It is a seven-point Likert type ([1] Strongly Disagree, [2] Disagree, [3] Slightly Disagree, [4] Neutral, [5] Slightly Agree, [6] Agree, [7] Strongly Agree). The subdimensions of the scale are personal barriers (7 questions), social norms (4 questions), confidence (6 questions), and worries (3 questions) (Cangöl Sögüt et al., 2023). In this study, the Cronbach's alpha coefficient for the scale was 0.96.

2.5 | Analytic strategy

The findings obtained in the study were evaluated using the SPSS (Statistical Package for the Social Sciences) version 26 software (IBM Corp., Armonk, NY, USA). The normality of the scores obtained from each continuous variable was examined using descriptive, graphical, and statistical methods. The Shapiro–Wilk test was used with statistical methods to test the normality of the scores obtained from continuous variables. Categorical variables were presented as frequency (*n*, %); continuous variables were presented as mean and standard deviation. Comparisons between two groups for continuous variables were made using the one-way analysis of variance (ANOVA). The relationship between two continuous variables was examined using Pearson's correlation test. Results were evaluated within a 95% confidence interval, with significance considered at $p < .05$.

2.6 | Ethical considerations

Ethical approval for the study was obtained from a state university's Social and Human Sciences Ethics Committee with the approval number 2024-SBB-0055 (dated 14.03.2024). Women were informed about the purpose of the study, and it was emphasized that participation was voluntary. The e-survey was set up to allow each participant to respond only once. The first section of the e-survey provided information about the study and its purpose to the women undergoing gynecological cancer treatment, and only those who consented to participate proceeded to the second section, which included the survey questions and scales. The study was conducted following the principles of the Helsinki Declaration.

3 | RESULTS

The personal characteristics of the women who participated in the study are shown in Table 1. The average age of the participants was 46.59 ± 11.15, the average age at marriage was 20.17 ± 2.63, and the average number of pregnancies was 2.26 ± 0.82. It was found that 34.0% of the women were primary school graduates, 82.0% had income equal to their expenses, 96.6% were unemployed, 81.5% were married, 32.5% had spouses who were primary or high school graduates, 73.6% had spouses who were retired, 80.3% had chronic illnesses, 85.2% did not engage in walking, 92.9% did not smoke, and 94.1% did not consume alcohol.

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TABLE 1 Personal characteristics of women ($n = 674$).

Variables		$\bar{X} \pm$ SD	
Age		46.59 ± 11.15	
Age at marriage		20.17 ± 2.63	
Number of pregnancies		2.26 ± 0.82	
Number of births		2.01 ± 1.17	
		n	**%**
Education level	Primary school	229	34.0
	Secondary school	120	17.8
	High school	160	23.7
	University and above	165	24.5
Income status	Less than expenses	121	18.0
	Equal to expenses	553	82.0
Employment status	Unemployed	651	96.6
	Employed	20	3.0
	Retired	3	0.4
Marital status	Married	549	81.5
	Single	125	18.5
Spouse's education level	Primary school	180	32.5
	Secondary school	141	25.5
	High school	180	32.5
	University and above	52	9.4
Spouse's employment status	Employed	146	26.4
	Retired	407	73.6
Chronic disease status	Yes	541	80.3
	No	133	19.7
Walking and/or exercise status	Yes	100	14.8
	No	574	85.2
Smoking status	Yes	48	7.1
	No	626	92.9
Alcohol consumption status	Yes	40	5.9
	No	634	94.1

Abbreviation: SD, stanadard deviation.

The characteristics of the women related to cervical cancer, HPV, and the vaccine are shown in Table 2. It was determined that 71.7% did not have a first-degree relative diagnosed with cancer, 56.7% had not heard of early cancer screening, 60.2% did not know about early cancer screening, 69.9% did not participate in early cancer screening, 70.5% did not have regular gynecological examinations, 57.6% did not have knowledge about cervical cancer, 28.3% of those who had knowledge obtained it from the internet, TV, and newspapers, 53.1% believed that cervical cancer could be prevented, 60.8% did not have knowledge about the cervical smear test conducted for screening women for cervical cancer, 28.8% of those who had knowledge obtained it from the internet, TV, and newspapers, 70.5% did not undergo the cervical smear test, 57.9% had not heard of the human papillomavirus

TABLE 2 Characteristics related to cervical cancer, HPV, and vaccine ($n = 674$).

Variables		***n***	**%**
First-degree relative diagnosed with cancer	Yes	191	28.3
	No	483	71.7
Heard about early cancer screening	Yes	292	43.3
	No	382	56.7
Knows about early cancer screening	Yes	268	39.8
	No	406	60.2
Participated in early cancer screening	Yes	203	30.1
	No	471	69.9
Has regular gynecological examination	Yes	199	29.5
	No	475	70.5
Knowledge about cervical cancer	Yes	284	42.1
	No	390	57.6
Source of information about cervical cancer*	Internet, TV, newspaper	191	28.3
	Family and friends	105	15.6
	Doctor and nurse	137	20.3
	School	21	3.1
	Health institutions	117	17.4
Believes cervical cancer is preventable	Yes	316	46.9
	No	358	53.1
Knowledge about cervical smear test	Yes	264	39.2
	No	410	60.8
Source of information about cervical smear test*	Internet, TV, newspaper	194	28.8
	Family and friends	105	15.6
	Doctor and nurse	137	20.3
	School	21	3.1
	Health institutions	115	17.1
Has undergone cervical smear test	Yes	199	29.5
	No	475	70.5
Heard about HPV causing cervical cancer and warts	Yes	284	42.1
	No	390	57.9
Knowledge about HPV transmissibility	Yes	280	41.5
	No	4	0.6
	Don't know	390	57.9
If transmissible. mode of transmission*	Sexual contact	296	43.9
	Contact	137	20.3
	Shared items such as towels	146	26.4
Knowledge about HPV vaccine	Yes	255	37.8
	No	419	62.2
Wants to learn about HPV infection and vaccine	Yes	296	43.9
	No	378	56.1

(Continues)

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TABLE 2 (Continued)

Variables		*n*	%
Source of information about HPV vaccine*	Internet, TV, newspaper	167	24.8
	Family and friends	95	14.1
	Doctor and nurse	116	17.2
	Municipality	110	16.3
	Health institutions	146	26.4
Timing of HPV vaccine administration	0–8 years old	56	8.3
	9–12 years old	130	19.3
	13–26 years old	81	12.0
	Don't know	407	60.4
Has vaccinated child with HPV vaccine	Yes	257	38.1
	No	417	61.9
Consideration of having a child vaccinated with the HPV vaccine	1 dose	22	8.6
	2 doses	58	22.6
	3 doses	117	68.9
Reason for not vaccinating child	No information	219	52.5
	Financial inability	20	4.8
	Don't know side effects	129	19.1
	No child	49	7.3
Considerations for having child vaccinated with HPV vaccine*	If it were free	48	18.7
	If recommended by a doctor	46	17.9
	If I were at risk	15	5.8
	If it becomes common	13	5.1
	As a preventive measure	135	52.5

Abbreviation: HPV, human papillomavirus.
*More than one option has been marked.

(HPV) that causes cervical cancer and genital warts, 57.9% did not have knowledge about the transmissibility of the HPV that causes cervical cancer, 43.9% of those who knew about the transmissibility stated that it was sexually transmitted, 62.2% did not have knowledge about the HPV vaccine, which is protective against cervical cancer, 26.4% of those who had knowledge obtained it from municipalities, 56.1% did not want to learn about HPV infection and its vaccine, 60.4% did not know when the HPV vaccine should be administered, 38.1% had their children vaccinated with the HPV vaccine, 68.9% of those who vaccinated their children planned to have all three doses of the HPV vaccine administered, 52.5% did not vaccinate their children with the HPV vaccine due to lack of knowledge, and 52.5% would consider vaccinating their children with the HPV vaccine as a preventive measure.

The average scores for the subdimensions of the HBMS-HPVV and HTABS among the women who participated in the study are shown in Table 3. The average score for the perceived severity subdimension of the HBMS-HPVV was 3.19 ± 0.60, for perceived barriers 2.96 ± 1.22, for perceived benefits 2.29 ± 1.40, and for perceived susceptibility 3.92 ± 0.49. The average scores for the subdimensions of the HTABS were: personal barriers 31.14 ± 19.27, social norms 7.57 ± 4.47, confidence 30.03 ± 7.18, and worries 11.91 ± 2.52. A statistically significant positive relationship was found between all HBMS-HPVV subdimensions and the HTABS subdimensions ($p < .001$).

The differences between the sociodemographic characteristics, cervical cancer, HPV, and vaccination-related characteristics, and the subdimensions of the HBMS-HPVV among the women who participated in the study are shown in Table 4. A statistically significant difference was found between the sociodemographic characteristics, cervical cancer, HPV, and vaccination-related characteristics and the subdimensions of the HBMS-HPVV ($p < .001$).

The differences between the sociodemographic characteristics, cervical cancer, HPV and vaccination-related characteristics, and the subdimensions of the HTABS among the women who participated in the study are shown in Table 5. A statistically significant difference was found between the sociodemographic characteristics, cervical cancer, HPV, and vaccination-related characteristics and the subdimensions of the HTABS ($p < .001$).

4 | DISCUSSION

This study examined attitudes and beliefs in the context of HPV-based screening practices, HPV infection, and vaccination attitudes. Our results generally showed that participants with inadequate screening were less knowledgeable about cervical cancer, HPV testing, and HPV and had weaker attitudes toward the HPV vaccine.

Most of the women who participated in the study did not have knowledge about the cervical smear test conducted for screening women for cervical cancer, did not undergo the cervical smear test, had not heard of HPV that causes cervical cancer and genital warts, and did not have knowledge about the transmissibility of HPV. Additionally, the study found that the women did not have knowledge about the HPV vaccine, did not know when the HPV vaccine should be administered, did not vaccinate their children with the HPV vaccine due to a lack of knowledge, but considered vaccinating their children with the HPV vaccine as a preventive measure (Table 2). In a study by Alherz et al. (2024) examining knowledge about cervical cancer, HPV, and the acceptance of the HPV vaccine among parents with daughters in Riyadh, Saudi Arabia, it was found that 82% of the women had heard of cervical cancer, 51.2% had heard of HPV, and 42.7% had heard of the HPV vaccine. In a study by Waller et al. (2023) examining awareness and knowledge about HPV and primary HPV screening among women in Great Britain, it was found that 77.6% of the 1995 women had heard of HPV, and 57.7% misunderstood primary HPV diagnosis. In a study by Varer Akpınar and Alanya Tosun (2023) examining knowledge and perceptions about HPV and the willingness to receive the HPV vaccine among university students in a city in northeastern Turkey, it was reported that 95.7% of the 512 female students did not have a family history of genital cancer, 49% had heard of HPV but did not have sufficient knowledge, 43.6% had heard of HPV

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TABLE 3 Relationship between subdimension averages of the Health Belief Model Scale for Human Papilloma Virus and Its Vaccination (HBMS-HPVV) and the HPV Testing Attitudes and Beliefs Scale (HTABS).

	$\bar{X} \pm$ SD (min-max)	1	2	3	4	5	6	7	8
HBMS-HPVV									
Perceived severity (1)	3.19 ± 0.60 (1.75–4.00)	–	−0.797 **0.000**	0.857 **0.000**	0.154 **0.000**	−0.803 **0.000**	−0.745 **0.000**	0.727 **0.000**	−0.340 **0.000**
Perceived barriers (2)	2.96 ± 1.22 (1.20–4.00)	–	–	−0.930 **0.000**	−0.131 **0.001**	0.953 **0.000**	0.791 **0.000**	−0.696 **0.000**	0.241 **0.000**
Perceived benefits (3)	2.29 ± 1.40 (1.00–4.00)	–	–	–	−0.197 **0.000**	−0.974 **0.000**	−0.836 **0.000**	0.596 **0.000**	0.087 **0.024**
Perceived susceptibility (4)	3.92 ± 0.49 (1.50–4.00)	–	–	–	–	−0.284 **0.000**	−0.163 **0.000**	0.417 **0.000**	0.538 **0.000**
HTABS									
Personal barriers (5)	31.14 ± 19.27 (7.00–49.00)	–	–	–	–	–	−0.815 **0.000**	−0.574 **0.000**	−0.069 0.075
Social norms (6)	7.57 ± 4.47 (4.00–20.00)						–	−0.560 **0.000**	0.257 **0.000**
Confidence (7)	30.03 ± 7.18 (6.00–42.00)							–	−0.707 **0.000**
Worries (8)	11.91 ± 2.52 (3.00–15.00)								–

*Pearson correlation.

screening tests but did not have sufficient knowledge, 41.8% had heard of the HPV vaccine but did not have sufficient knowledge, 96.5% had not received the HPV vaccine, and 20.3% were willing to receive the HPV vaccine. The findings from our study indicate that the proportion of individuals who had heard of HPV and the HPV vaccine was similar to those found in studies conducted in Turkey but lower than those reported in international literature. This finding is significant as it suggests that efforts to increase awareness about HPV infection, the HPV vaccine, and preventive health screening programs for HPV in Turkey are insufficient.

In the study, women's perceptions of seriousness, barriers, and benefits regarding HPV infection and vaccination were high, while their perception of susceptibility was very high according to the Health Belief Model. In the study conducted by Shao et al. (2023) on HPV vaccination behavior, vaccine preference, and health beliefs among Chinese female healthcare workers nationwide, it was found that the perceptions of seriousness, susceptibility, and benefits were high, while the perception of barriers was lower compared to other perceptions. In the study by Yarıcı and Mammadov (2023) that examined the knowledge, attitudes, and beliefs about HPV and the HPV vaccine among adults aged 18–45 living in Cyprus, it was found that the perceived severity, barriers, and benefits were moderate, while the perceived susceptibility was low. In the study by Yıldız et al. (2023) that investigated the relationship between individuals' knowledge, beliefs, and vaccination status regarding HPV, it was shown that the perceived severity, susceptibility, and benefits were medium-high, while the perceived barriers were higher than other perceptions. In the study by Mahmoud et al. (2021), which examined the effect of an educational package based on the health belief model on nursing students' knowledge and attitudes regarding HPV and cervical cancer, it was found that the perceived severity and susceptibility were low, while the perceived barriers were higher compared to others. Other studies have also shown that the perceived severity, susceptibility, and benefits were high, while the perceived barriers were lower compared to other perceptions (Doğan & Beydağ, 2024; Ergün, 2023). In the study by Çınar and Çetin (2024), which examined the health belief levels regarding HPV infection and vaccination for the prevention of cervical cancer among women aged 18–65, it was concluded that women believed that HPV infection and its consequences were a serious issue, that HPV vaccination would be beneficial in preventing HPV infection and cervical cancer, and that they were sensitive about this issue. The study by Sezgin et al. (2024) conducted with female students of reproductive age revealed low perceived barriers, while the perceived severity, susceptibility, and benefits were high. In the study by Koç et al. (2023) that examined the relationship between women's beliefs about cervical cancer screening and their beliefs about the HPV vaccine, it was shown that women found the HPV vaccine beneficial, were sensitive about HPV, considered HPV infection a serious issue, and had moderate barriers to vaccination. The study by Altıntaş et al. (2022) determined that their susceptibility was very high, their perceived severity and benefits were high, and their perceived barriers, although relatively lower than other subdimensions, were still high. Based on the literature review, it was found that HPV infection was perceived as a serious issue and that their perceived susceptibility ranged from moderate to high. Accordingly, it was concluded that the participants believed the HPV vaccine to be beneficial and that HPV infection required severity.

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TABLE 4 Differences between sociodemographic characteristics, cervical cancer, HPV, and vaccine-related characteristics of women and the subdimensions of the Health Belief Model Scale for Human Papilloma Virus and Its Vaccination (HBMS-HPVV).

Variables		Perceived severity	Perceived barriers	Perceived benefits	Perceived susceptibility
Age		99.616 **.000**	103.943 **.000**	97.335 **.000**	101.597 **.000**
Age at marriage		134.703 **.000**	178.986 **.000**	120.071 **.000**	145.575 **.000**
Number of pregnancies		−20.561 **.000**	−17.850 **.000**	−3.247 **.000**	−42.793 **.000**
Education level	Primary school	2.75 ± 0.12	3.93 ± 0.37	1.06 ± 0.31	3.95 ± 0.29
	Secondary school	3.16 ± 0.60	3.03 ± 1.31	2.09 ± 1.44	3.92 ± 0.45
	High school	3.54 ± 0.63	2.14 ± 1.22	3.15 ± 1.29	3.88 ± 0.38
	University and above	3.48 ± 0.58	2.34 ± 0.92	3.31 ± 0.96	3.52 ± 0.66
Test ***p***		226.666 **.000**	275.706 **.000**	317.490 **.000**	130.349 **.000**
Income status	Less than expenses	3.14 ± 0.58	3.06 ± 1.27	2.02 ± 1.39	3.93 ± 0.33
	Equal to expenses	3.39 ± 0.65	2.47 ± 0.75	3.52 ± 0.62	3.32 ± 0.73
Test ***p***		17.708 **.000**	33.826 **.000**	97.677 **.000**	208.814 **.000**
Employment status	Unemployed	3.18 ± 0.59	2.97 ± 1.22	2.24 ± 1.40	3.82 ± 0.47
	Employment	3.80 ± 0.41	2.64 ± 0.91	3.73 ± 0.55	3.60 ± 0.82
	Retired	1.75 ± 0.00	1.40 ± 0.00	4.00 ± 0.00	4.00 ± 0.00
Test ***p***		2572.00 **.000**	5284.00 .114	2794.00 **.000**	5994.00 .323
Marital status	Single	3.42 ± 0.58	2.43 ± 0.64	3.50 ± 0.54	3.23 ± 0.76
	Married	3.13 ± 0.60	3.08 ± 1.28	2.02 ± 1.40	3.95 ± 2.26
Test ***p***		25746.00 **.000**	22691.00 **.000**	17665.00 **.000**	14490.00 **.000**
Spouse's education level	Literate	3.45 ± 0.56	2.41 ± 0.65	3.49 ± 0.55	3.29 ± 0.70
	Primary school	2.77 ± 0.19	3.98 ± 0.15	1.13 ± 0.59	3.94 ± 0.37
	Secondary school	2.78 ± 0.29	3.75 ± 0.71	1.28 ± 0.81	3.94 ± 2.23
	High school	3.66 ± 0.58	1.88 ± 1.16	3.29 ± 1.24	3.93 ± 0.33
	University and above	3.47 ± 0.62	2.28 ± 1.32	2.78 ± 1.45	3.88 ± 0.40
Test ***p***		269.786 **.000**	312.322 **.000**	286.792 **.000**	3.748 .290
Chronic disease status	Yes	3.16 ± 0.58	3.07 ± 1.29	2.02 ± 1.41	3.97 ± 0.15
	No	3.31 ± 067	2.48 ± 0.68	3.39 ± 0.65	3.19 ± 0.78
Test ***p***		29102.00 **.000**	24907.00 **.000**	18923.00 **.000**	14818.00 **.000**
Walking and/or exercise status	Yes	3.41 ± 0.67	2.22 ± 0.63	3.63 ± 0.52	3.36 ± 0.75
	No	3.15 ± 0.58	3.09 ± 1.25	2.06 ± 1.38	3.90 ± 0.73
Test ***p***		21932.00 **.000**	17238.00 **.000**	13060.00 **.000**	16156.00 **.000**
Smoking status	Yes	3.18 ± 0.59	3.01 ± 1.24	2.18 ± 1.39	3.85 ± 0.44
	No	3.25 ± 0.73	2.22 ± 0.55	3.72 ± 0.33	3.38 ± 0.80
Test ***p***		14274.00 **.000**	9616.00 **.000**	7556.00 **.000**	9312.00 **.000**
Alcohol consumption status	Yes	3.17 ± 0.60	3.01 ± 1.23	2.20 ± 1.39	3.65 ± 0.46
	No	3.48 ± 0.49	2.10 ± 0.51	3.77 ± 0.34	3.83 ± 0.49

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TABLE 4 (Continued)

Variables		Perceived severity	Perceived barriers	Perceived benefits	Perceived susceptibility
Test		9010.00	7692.00	5948.00	9540.00
p		**.001**	**.000**	**.000**	**.000**
First-degree relative diagnosed with cancer	Yes	3.91 ± 0.28	1.46 ± 0.72	3.92 ± 0.28	3.86 ± 0.49
	No	2.90 ± 0.43	3.55 ± 0.79	1.64 ± 1.12	3.80 ± 0.49
Test		6822.00	4378.00	6016.00	42485.00
p		**.000**	**.000**	**.000**	**.000**
Heard about early cancer screening	Yes	3.75 ± 0.48	1.74 ± 0.76	3.79 ± .44	3.70 ± 0.59
	No	2.76 ± 0.20	3.88 ± 0.42	1.14 ± 0.52	3.91 ± 0.36
Test		7939.00	3180.00	1160.00	45541.00
p		**.000**	**.000**	**.000**	**.000**
Knows about early cancer screening	Yes	3.75 ± 0.50	1.69 ± 0.73	3.84 ± 0.36	3.71 ± 0.60
	No	2.82 ± 0.30	3.79 ± 0.59	1.27 ± 0.74	3.89 ± 0.38
Test		10765.00	4042.00	2618.00	46791.00
p		**.000**	**.000**	**.000**	**.000**
Participated in early cancer screening	Yes	3.82 ± 0.49	1.47 ± 0.63	3.94 ± 0.24	3.81 ± 0.56
	No	2.92 ± 0.41	3.60 ± 0.77	1.58 ± 1.06	3.82 ± 0.45
Test		10840.00	3972.00	4846.00	46381.00
p		**.000**	**.000**	**.000**	.314
Regular gynecological examination status	Yes	3.87 ± 0.44	1.41 ± 0.54	3.98 ± 0.08	3.89 ± 0.43
	No	2.90 ± 0.40	3.61 ± 0.74	1.58 ± 1.05	3.79 ± 0.51
Test		9378.00	3084.00	4268.00	43047.00
p		**.000**	**.000**	**.000**	**.003**
Knowledge about cervical cancer	Yes	3.77 ± 0.48	1.73 ± 0.73	3.83 ± 0.37	3.72 ± 0.57
	No	2.77 ± 0.19	3.85 ± .51	1.17 ± 0.58	3.89 ± .040
Test		8051.00	3318.00	1238.00	46299.00
p		**.000**	**.000**	**.000**	**.000**
Believes cervical cancer is preventable	Yes	3.69 ± 0.53	1.80 ± 0.77	3.74 ± 0.49	3.64 ± 0.63
	No	2.74 ± 0.08	3.98 ± 0.21	1.01 ± 0.11	3.98 ± 0.21
Test		9405.00	1884.00	16.00	40693.00
p		**.000**	**.000**	**.000**	**.000**
Knowledge about cervical smear test	Yes	3.73 ± 0.53	1.68 ± 0.72	3.82 ± 0.40	3.71 ± .60
	No	2.84 ± 0.31	3.78 ± 0.61	1.31 ± 0.82	3.89 ± 0.39
Test		11885.00	4176.00	3910.00	46433.00
p		**.000**	**.000**	**.000**	**.000**
Has undergone cervical smear test	Yes	3.84 ± 0.49	1.41 ± .56	3.95 ± 0.22	3.86 ± 0.49
	No	2.92 ± 0.41	3.60 ± 0.75	1.60 ± 1.07	3.81 ± 0.48
Test		11607.00	3187.50	4866.50	43244.00
p		**.000**	**.000**	**.000**	**.020**
Knowledge about HPV transmissibility	Yes	3.76 ± 0.49	1.72 ± 0.73	3.82 ± 0.43	3.71 ± 0.59
	No	2.75 ± 0.00	2.20 ± 0.00	3.00 ± 0.00	2.50 ± 0.00
	Don't know	2.78 ± 0.22	3.86 ± .51	1.18 ± 0.60	3.91 ± 0.36
Test		82.000	300.000	84.000	76.000
p		**.000**	.076	**.000**	**.000**
Knowledge about the HPV vaccine as a preventive measure against cervical cancer	Yes	3.79 ± 0.46	1.62 ± 0.65	3.85 ± 0.33	3.77 ± 0.52
	No	2.82 ± .31	3.77 ± 0.61	1.34 ± 0.84	3.85 ± 0.46

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TABLE 4 (Continued)

Variables		Perceived severity	Perceived barriers	Perceived benefits	Perceived susceptibility
Test		9120.00	3140.00	3656.00	48694.00
p		**.000**	**.000**	**.000**	**.000**
Status of having a child vaccinated with HPV vaccine	Yes	3.77 ± 0.49	1.62 ± 0.69	3.82 ± 0.43	3.78 ± 0.51
	No	2.83 ± 0.32	3.78 ± 0.57	1.34 ± 0.85	3.84 ± 0.47
Test		10612.50	4054.00	3938.00	50386.00
p		**.000**	**.000**	**.000**	**.000**

Abbreviation: HPV, human papilloma virus.
*One-way ANOVA.

However, the low awareness of this issue is thought to stem from insufficient awareness about HPV, differences in participants' sociocultural characteristics, and varying value judgments regarding HPV.

In this study, personal barriers and trust related to attitudes and beliefs about HPV testing were found to be high, while social norms and worries were moderate. In the study by Haward et al. (2023), which investigated the readiness, knowledge, attitudes, and beliefs of Canadian women transitioning to primary HPV testing for cervical screening, it was found that the mean scores for personal barriers, social norms, confidence, and worries sub-dimensions of the HTABS were 3.23 ± 1.05, 3.31 ± 1.36, 5.87 ± 0.78, and 3.97 ± 1.37, respectively, for insufficiently screened women, and 2.60 ± 1.02, 3.14 ± 1.43, 5.67 ± 0.83, and 3.78 ± 1.23, for sufficiently screened women. Our study findings are original in that they use a newly introduced measurement tool in both international and national literature and show the levels of Turkish women's attitudes and beliefs about HPV testing. Our study determined that attitudes and beliefs play a significant role in decision-making related to HPV testing. The literature, especially when focusing on the sexual effects experienced by women who received a positive HPV test result, has found that partners' opinions pose a barrier to HPV screening programs (Tatar et al., 2018). Additionally, encouraging discussions about HPV screening and vaccinations with partners and utilizing partner communication in screening programs can contribute to increased participation in the screening program.

In the study, as perceived severity of HPV increased, perceived benefits, sensitivity, and confidence increased, while perceived barriers, personal barriers, social norms, and concerns to HPV vaccination decreased. In the study by Yıldız et al. (2023), a positive correlation was found between the subdimensions of the HBMS-HPVV (perceived benefits, susceptibility, and severity) and a negative correlation with the perception of barriers. A weak positive correlation was found between HPV knowledge levels and perceived susceptibility and severity. In the study by Yarıcı and Mammadov (2023), it was found that as the perceived benefits and susceptibility increased and the perceived barriers decreased, general HPV knowledge, HPV diagnostic test knowledge, and general HPV vaccination knowledge increased. In the study by Çınar and Çetin (2024), it was found that women in the cervical cancer screening age group (30–65 years) had lower perceived benefits, barriers, susceptibility, and severity compared to those not in the screening age group, and a statistically significant relationship was found between age groups and the perceived barriers and susceptibility. Additionally, it was discovered that the perceived susceptibility differed significantly by marital status and the number of children; the perceived severity, benefits, and susceptibility increased with higher education levels, and the perceived barriers decreased. Furthermore, it was found that working women had higher mean scores for perceived severity, benefits, and susceptibility compared to nonworking women. While the study findings differ from the literature, this difference is thought to arise from sociocultural differences and differing attitudes towards HPV testing in the sample group.

In this study, women who were older, married at an older age, high school graduates, with income equal to expenses, employed, single, had a high school graduate spouse, without chronic illness, engaged in walking, did not smoke or drink alcohol, had a first-degree relative diagnosed with cancer, were aware of, knowledgeable about, and participated in early cancer screening, had regular gynecological examinations, had knowledge about cervical cancer and believed it was preventable, were aware of and had undergone cervical smear tests, believed HPV was transmissible, were aware of and vaccinated their children against HPV, had higher perceived severity, benefits, and susceptibility compared to other women, and lower perceived barriers. In the study by Yıldız et al. (2023), it was revealed that people who were high school graduates, had income equal to expenses, and had an acquaintance diagnosed with HPV had higher perceptions of benefits, and those with income equal to expenses and an acquaintance diagnosed with HPV had higher perceived susceptibility and severity. In the study by Koç et al. (2023), it was found that single people, university graduates, those who had never been pregnant, and those who had never given birth thought that the HPV vaccine was more beneficial, considered HPV infection a serious issue, and were more sensitive about this issue. The relationship between the knowledge of smear tests, HPV tests, and HPV transmission routes and the perceived benefits, susceptibility, severity, and barriers was significant. Women who knew about smear tests, HPV tests, and HPV transmission routes thought that the HPV vaccine was more beneficial and that HPV infection was a serious issue, and they were more sensitive about this issue, while those who did not know thought that there were more barriers to vaccination. Additionally, it was observed that as women's age

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TABLE 5 differences between sociodemographic characteristics, cervical cancer, HPV, and vaccine-related characteristics of women and the subdimensions of the HPV Testing Attitudes and Beliefs Scale.

Variables		Personal barriers	Social norms	Confidence	Worries
Age		22.521 **.000**	76.286 **.000**	36.604 **.000**	91.172 **.000**
Age at marriage		−18.807 **.000**	50.929 **.000**	−29.577 **.000**	47.105 **.000**
Number of pregnancies		−40.328 **.000**	−28.842 **.000**	−100.440 **.000**	−111.253 **.000**
Education level	Primary school	47.88 ± 5.92	4.26 ± 1.38	26.77 ± 1.58	11.88 ± 0.80
	Secondary school	34.17 ± 9.80	7.27 ± 4.31	31.80 ± 7.33	12.94 ± 1.51
	High school	19.51 ± 17.74	10.21 ± 4.34	35.02 ± 8.23	13.47 ± 1.93
	University and above	16.99 ± 12.40	9.81 ± 4.51	28.44 ± 7.70	9.70 ± 3.44
Test ***p***		298.607 **.000**	252.862 **.000**	116.063 **.000**	178.764 **.000**
Income status	Less than expenses	34.63 ± 19.36	6.96 ± 4.15	31.14 ± 7.02	12.62 ± 1.81
	Equal to expenses	15.20 ± 6.73	10.31 ± 4.86	24.98 ± 5.55	8.66 ± 2.74
Test ***p***		63.499 .000	63.520 .000	28.973 .000	234.238 .000
Employment status	Unemployed	31.70 ± 19.28	7.56 ± 4.41	30.13 ± 7.19	12.02 ± 2.38
	Employed	16.60 ± 10.56	8.00 ± 636	26.80 ± 6.57	8.40 ± 4.08
	Retired	7.32 ± 0.27	5.74 ± 0.15	30.28 ± 0.62	11.26 ± 0.26
Test ***p***					
Marital status	Single	15.10 ± 5.13	10.08 ± 4.43	25.07 ± 4.93	8.35 ± 2.22
	Married	34.80 ± 19.44	6.99 ± 4.28	31.16 ± 7.13	12.72 ± 1.77
Test ***p***		20701.500 .000	20234.000 .000	22098.000 .000	3719.000 .000
Spouse's education level	Literate	14.80 ± 4.95	10.02 ± 4.49	25.21 ± 4.95	8.29 ± 2.22
	Primary school	48.12 ± 4.19	4.53 ± 2.62	26.93 ± 1.02	12.03 ± 0.55
	Secondary school	44.97 ± 11.51	4.45 ± .75	27.03 ± 1.00	11.69 ± 1.51
	High School	16.70 ± 17.20	10.78 ± 3.82	37.35 ± 7.72	13.91 ± 1.98
	University and above	22.85 ± 19.73	9.65 ± 4.23	34.81 ± 8.93	13.65 ± 1.61
Test ***p***		294.345 .000	286.451 .000	244.045 .000	225.261 .000
Chronic disease status	Yes	34.80 ± 19.63	6.91 ± 4.15	31.42 ± 6.85	12.70 ± 1.83
	No	16.26 ± 6.21	10.23 ± 4.76	24.38 ± 5.51	8.72 ± 2.42
Test ***p***		22165.500 .000	21760.000 .000	21972.000 .000	5795.000 .000
Walking and/or exercise status	Yes	14.16 ± 5.04	8.72 ± 4.01	26.16 ± 4.12	8.01 ± 2.47
	No	34.10 ± 19.30	7.36 ± 4.52	30.71 ± 7.38	12.59 ± 1.81
Test ***p***		16496.000 .000	21180.000 .000	21786.000 .000	2879.000 .000
Smoking status	Yes	32.54 ± 19.23	7.34 ± 4.41	30.21 ± 7.37	12.15 ± 2.32
	No	12.92 ± 5.71	10.25 ± 4.35	27.67 ± 2.80	8.85 ± 2.95
Test ***p***		8400.000 .000	8676.000 .000	14856.000 .887	5327.000 .000
Alcohol consumption status	Yes	32.30 ± 19.26	7.41 ± 4.45	30.18 ± 7.35	12.15 ± 2.30
	No	12.80 ± 4.20	10.00 ± 4.18	27.70 ± 2.27	8.10 ± 2.84
Test ***p***		7600.000 .000	7930.000 .000	11068.000 .136	2864.000 .000

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TABLE 5 (Continued)

Variables		Personal barriers	Social norms	Confidence	Worries
First-degree relative diagnosed with cancer	Yes	8.76 ± 5.52	12.54 ± 2.45	39.19 ± 6.59	14.15 ± 2.15
	No	39.99 ± 15.14	5.60 ± 3.44	26.41 ± 2.89	11.03 ± 2.07
Test		3317.500	8262.000	7720.000	11269.000
p		.000	.000	.000	.000
Heard about early cancer screening	Yes	10.70 ± 5.91	11.52 ± 3.65	34.71 ± 8.60	12.10 ± 3.66
	No	46.77 ± 8.00	4.54 ± 1.99	26.46 ± 2.19	11.77 ± 0.96
Test		1136.000	8053.000	22880.000	45275.000
p		.000	.000	.000	.000
Knows about early cancer screening	Yes	10.16 ± 5.69	11.58 ± 3.64	35.34 ± 8.69	12.36 ± 3.67
	No	44.99 ± 10.69	4.85 ± 2.42	26.53 ± 2.18	11.62 ± 1.20
Test		1888.000	9259.000	20034.000	37993.000
p		.000	.000	.000	.000
Participated in early cancer screening	Yes	8.42 ± 4.87	12.25 ± 3.17	38.73 ± 6.66	13.57 ± 3.25
	No	40.94 ± 14.22	5.55 ± .27	26.28 ± 2.81	11.20. ± 1.69
Test		2289.500	9528.000	6428.000	15307.000
p		.000	.000	.000	.000
Regular gynecological examination status	Yes	8.65 ± 5.14	12.10 ± 3.25	39.33 ± 5.49	13.72 ± 3.00
	No	40.57 ± 14.65	5.67 ± 3.42	26.14 ± 3.01	11.16 ± 1.82
Test		2693.500	10834.000	2908.000	14923.000
p		.000	.000	.000	.000
Knowledge about cervical cancer	Yes	10.54 ± 5.78	11.57 ± 3.61	34.75 ± 8.81	12.19 ± 3.67
	No	46.15 ± 9.06	4.65 ± 2.19	26.60 ± 2.15	11.71 ± 1.04
Test		1456.000	8357.000	24628.000	42825.000
p		.000	.000	.000	.000
Believes cervical cancer is preventable	Yes	11.28 ± 6.11	11.50 ± 3.55	33.58 ± 9.23	11.85 ± 3.67
	No	48.68 ± 3.05	4.09 ± 0.84	26.90 ± 0.95	11.97 ± 0.32
Test		144.000	5537.000	30182.000	51473.000
p		.000	.000	.000	.027
Knowledge about cervical smear test	Yes	9.97 ± 5.55	11.71 ± 3.62	35.30 ± 8.96	12.44 ± 3.62
	No	44.78 ± 10.74	4.90 ± 2.50	26.64 ± 1.89	11.57 ± 1.31
Test		1680.000	9765.000	19794.000	36569.000
p		.000	.000	.000	.000
Has undergone cervical smear test	Yes	8.37 ± 4.83	11.99 ± 3.12	39.12 ± 6.45	13.78 ± 3.00
	No	44.64 ± 14.57	5.70 ± 3.56	26.37 ± 2.70	11.15 ± 1.81
Test		2162.000	11593.000	5194.500	13687.000
p		.000	.000	.000	.000
Knowledge about HPV transmissibility	Yes	10.53 ± 5.91	11.64 ± 3.56	34.80 ± 8.94	12.23 ± 3.67
	No	17.00 ± 0.24	10.00 ± 0.36	26.00 ± 0.52	9.00 ± 0.21
	Don't know	46.09 ± 9.24	4.62 ± 2.18	26.65 ± 1.94	11.71 ± 1.04
Test		176.000	260.000	196.000	240.000
p		.006	.037	.014	.029
Knowledge about the HPV vaccine as a preventive measure	Yes	9.51 ± 4.54	11.60 ± 3.51	35.93 ± 8.28	12.57 ± 3.51
	No	44.31 ± 11.22	5.11 ± 2.95	26.44 ± 2.67	11.51 ± 1.52
Test		1693.500	10384.000	19486.000	35107.000
p		.000	.000	.000	.000
Status of having a child vaccinated with HPV vaccine	Yes	10.62 ± 6.20	12.11 ± 3.20	35.94 ± 8.20	12.68 ± 3.44
	No	43.86 ± 12.45	4.75 ± 2.31	26.40 ± 2.66	11.44 ± 1.55
Test		4003.500	7752.500	18311.000	33656.500
p		.000	.000	.000	.000

*One-way ANOVA.

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decreased and the age of first menstruation increased, they thought the HPV vaccine was more beneficial and were more sensitive about this issue (Koç et al., 2023). While the study findings are consistent with the literature, similar findings have not been encountered in many studies in this field. The study findings support the literature and provide a different perspective.

In the study, women with the following characteristics had higher perceived personal barriers, social norms, and worries and lower perceived confidence compared to other women: older age, married at a younger age, primary school education, income less than expenses, unemployed, married with a primary school graduate spouse, chronic illness, did not engage in walking, smoked, drank alcohol, no first-degree relatives diagnosed with cancer, not aware of, knowledgeable about, or participating in early cancer screening, did not have regular gynecological examinations, no knowledge about cervical cancer and did not believe it was preventable, not aware of or had not undergone cervical smear tests, did not believe HPV was transmissible, and not aware of or did not vaccinate their children against HPV. In the study by Haward et al. (2023), it was found that sufficiently screened participants ($n = 1853$) had higher scores on the confidence and worries subscales of the HTABS, while insufficiently screened participants ($n = 1871$) had higher scores on the personal barriers and social norms subscales. The study findings have not been encountered in the reviewed literature, and the newness of the scale's usage provides this difference. In this context, the study findings support the literature by providing new information.

4.1 | Limitations

This nationwide study on knowledge, attitudes, and beliefs about HPV-based cervical screening in Turkey is critically essential in revealing awareness and attitudes. Additionally, women may have difficulty recalling their screening experiences due to the long time passed, and the subjective information provided by participants may limit the applicability of our screening findings. Future studies should consider using health records to determine screening histories. While using a web-based e-survey allowed for participation from women across the country, it may have excluded women who do not use digital platforms. These findings highlight the need for a broader population-based examination.

5 | CONCLUSION AND RECOMMENDATIONS

The study found that as the perceived severity increased, the perceived benefits, susceptibility, and confidence also increased, while the perceived barriers, personal barriers, social norms, and worries decreased. Based on these results, it is recommended that women's health nurses provide educational programs and seminars to raise awareness about cervical cancer, early screening, diagnosis programs, and the HPV vaccine. Nurses should also evaluate women's knowledge, attitudes, and beliefs about HPV. Further, professional health teams (doctor, gynecological nurse, midwife etc.) should conduct population-based research to address and reduce women's perceived barriers, personal barriers, social norms, and worries, thus supporting the breaking down of these norms. It is also suggested that health policies take into account Turkey's cultural variables and that advanced studies be conducted to predict population-based variables and develop health policies accordingly.

AUTHOR CONTRIBUTIONS

Study design: Burcu Küçükkaya. *Data collection*: Burcu Küçükkaya, Seda Cangöl Sögüt, and Eda Cangöl. *Data analysis*: Burcu Küçükkaya, Seda Cangöl Sögüt, and Eda Cangöl. *Study supervision*: Burcu Küçükkaya, Seda Cangöl Sögüt, and Eda Cangöl. *Manuscript writing*: Burcu Küçükkaya, Seda Cangöl Sögüt, and Eda Cangöl. *Critical revisions for important intellectual content*: Burcu Küçükkaya, Seda Cangöl Sögüt, and Eda Cangöl.

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CONFLICT OF INTEREST STATEMENT

The authors report no conflicts of interest.

DATA AVAILABILITY STATEMENT

Data derived from public domain resources. The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

ETHICS STATEMENT

This study was conducted in accordance with relevant guidelines and regulations that guide ethical human research. The Bartın University Social and Human Sciences Ethics Committee 2024-SBB-0055 (dated 14.03.2024) approved this study. The authors e-approval obtained informed consent from all participants.

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