

Attitudes towards prevention of cervical cancer and early diagnosis among female academicians

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Abstract

Background: It is important for public health to determine the awareness of cervical cancer, which is preventable and treatable when detected at an early stage.

Aim: This study was conducted to determine female academicians' attitudes towards prevention and early diagnosis of cervical cancer and the factors affecting them.

Methods: This descriptive study was conducted with 211 female academicians working in all departments of a university. In the study, the data were collected using questionnaire form, the attitude scale for early diagnosis of cervical cancer, and the attitudes towards prevention of cervical cancer scale.

Results: It was determined that 68.2% of the female academicians had knowledge about the pap smear test; however, 41.0% of them did not have the test because they could not find time, and 56.4% had the knowledge about the pap smear test from a healthcare professional. It was determined that academicians had lower scores from the Attitude Scale for Early Diagnosis of Cervical Cancer (88.55 ± 9.75) and above-average scores from the Attitudes Towards Prevention of Cervical Cancer Scale (74.30 ± 15.92). It was found that area of expertise, income status, history of infectious disease, and vaginal douching affected both the early diagnosis of cervical cancer and the attitudes towards prevention of it.

Conclusion: The female academicians inadequate attitudes towards early diagnosis of cervical cancer and better attitudes towards prevention. Nurses and administrators should encourage female academics and all women to screen for cervical cancer.

Key words: cancer of the cervix, gynecologic oncology, gynecology.

Introduction

Although cervical cancer has a different prevalence around the world, it is described as the most common gynecological cancer after endometrium and ovarian by 3.3% among female cancers.^{1,2} Since its formation and causes of development have been completely clarified, it can be detected and treated at an early stage by effective screening methods. In addition to all these advantages, the developments in healthcare industry have made this type of cancer preventable.^{3,4}

Nowadays, cervical cancer, which is completely treated by screening and early diagnosis, is among the lowest causes of death from cancer, especially in developed countries. In fact, it can even be said that a woman with regular gynecological screenings will not die from cervical cancer.³⁻⁵ However, in a screening study comparing mortality rates between 2012 and 2016, it was determined that mortality due to cervical cancer was twice as high in regions with a low socio-economic level.² For this purpose, the World Health Organization (WHO) recommends that screenings

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should be performed not only regionally but also throughout the country all over the world for a more fair distribution of effective cancer prevention, early detection, and treatment strategies.²⁻⁵

While pap smear is the most common method used in the screening and diagnosis of cervical cancer, it has been proven to be a more valid method in diagnosis compared to HPV tests.⁶ Through these methods, it was observed that there were significant (more than 70%) decreases in the morbidity and mortality of cervical cancer in many countries.^{3,4,7} Raising awareness of cervical cancer in society is as important as the widespread use of screening tests in the primary prevention of cervical cancer. Unfortunately, it was reported that half of the cervical cancer cases observed in Turkey had a decreased chance of cure and were diagnosed in the advanced stage.³ The studies in the literature also suggest that these negative results are caused by the lack of awareness.^{3,5,7}

It has been emphasized that the frequency of screenings in Turkey is not sufficient and that women's attitudes towards the early diagnosis should be examined.^{5,8} The determination of the factors that prevent women from participating in screening programs is important for increasing participation in screening programs by performing necessary strategic interventions.⁸ Moreover, it has also been emphasized that there are not enough scientific studies on prevention and early diagnosis.^{5,9} Although studies on the screening and prevention of cervical cancer were conducted with women from different segments of the society,^{5,10-15} there is no study involving only female academicians. The level of knowledge of female academicians, who are role models through their attitudes and behaviors, should be examined to develop social awareness of cervical cancer and to create a mass effect. This study was conducted to determine female academicians' attitudes towards prevention and early diagnosis of cervical cancer and the factors affecting them.

Methods

This study was conducted as a descriptive study with female academicians in all departments of a university. A total of 230 female academicians actively working in all departments of a university in the 2020–2021 academic year constituted the population of the study. It was intended to reach the whole population of the study without using any sampling

method, and the study was completed with 211 female academicians who agreed to participate in the study.

Data collection

In the study, the data collection process was carried out through an online questionnaire created on Google forms due to the Covid-19 pandemic. The online form was first sent to corporate e-mail addresses of female academicians. In order to increase participation in the study, reminder e-mails were sent three times by the researchers to the corporate e-mails of the participants every 15 days. Finally, the form, which was prepared on the internet using the corporate software program used by the university to send official documents, was sent again to female academicians. It has been reached 89.7% of the population due to the advantage of the participants being academicians and using technology more comfortably. The data collection process was completed when the females filled out the online forms sent to them.

Questionnaire form

The questionnaire form, which was prepared by reviewing the literature, consisted of 30 questions including the demographic characteristics (10 questions) and gynecologic-obstetric characteristics (20 questions) of individuals (Table 1).^{5,13}

Attitude Scale for Early Diagnosis of Cervical Cancer

This scale was developed by Özmen and Özsoy in 2009.¹⁶ In the scale, perceived susceptibility, perceived severity, perceived barriers, and perceived benefits subscales. The Cronbach's alpha coefficient for the whole scale and its subscales is between 0.89 and 0.70. The items in the scale with a Likert-type rating are evaluated as (1) Strongly Disagree, (2) Disagree, (3) Neutral, (4) Partially Agree, and (5) Strongly Agree. The highest and lowest scores obtained from the scale are 150 and 30, respectively. A high score obtained from the scale indicates that the individual has a high attitude towards early diagnosis of cervical cancer.¹⁶ In the present study, the Cronbach's alpha coefficient of the Attitude Scale for Early Diagnosis of Cervical Cancer was 0.701. For the subscales, the Cronbach's alpha coefficients were 0.695 for the perceived susceptibility, 0.710 for the perceived severity, 0.706 for the perceived barriers, and 0.689 for the perceived benefits.

TABLE 1 Sociodemographic and gynecologic-obstetric characteristics

Variables		<i>n</i>	%
Age (years)	23–32	72	34.1
	33–42	111	52.6
	43–52	28	13.3
Body mass index	Weak	18	8.5
	Normal	147	69.7
	Overweight	36	17.1
	Obese	10	4.7
Marital status	Married	134	63.5
	Single (+ divorced)	77	36.5
First marriage age	$X = 28.08 \pm 3.300$ (21–40)		
Graduation degree	Bachelor's	7	3.3
	Master's degree	88	41.7
	Doctorate	116	55.0
Areas of expertise	Faculty of science	69	32.7
	Health sciences	47	22.2
	Social sciences	36	17.0
	Technical sciences	29	13.8
	Educational sciences	30	14.3
Income status	Income less than the expense	51	24.2
	Income equal to expense	140	66.4
	Income more than expense	20	9.4
Family history of gynecological cancer	Yes	9	4.3
	No	202	95.7
Have a gynecological examination	Yes	154	73.0
	No	57	27.0
Knowledge of pap smear test	Yes	144	68.2
	No	67	31.8
Knowledge resource of papsmear test	Neighbor/friend/relative/television/internet/book	92	43.6
	Health professional	119	56.4
	Yes	89	42.2
Having a papsmear test	No	122	57.8
	Average elapsed time after the last pap smear test (year) $X = 2.21 \pm 1.612$ (1–6)		
Reason for having a pap smear test	Regular check and screening	50	56.2
	Having a gynecological problem	39	43.8
Reason for not having papsmear test	Fear of the test	47	38.5
	Not having time	50	41.0
	Fear of the test results	25	20.5
Smoking status	Yes I still use	43	20.4
	No I never used	153	72.5
	I used it before, I quit	15	7.1
Smoking cessation time	$X = 3.13 \pm 1.552$ (1–5)		
Smoking period	$X = 5.16 \pm 2.477$ (1–12)		
First menstrual age	$X = 13.19 \pm 1.446$ (10–16)		
Intermenstrual bleeding	Yes	20	9.5
	No	191	90.5
Postcoital bleeding	Yes	—	—
	No	149	70.6
	Not sexually active	62	29.4

(Continues)

TABLE 1 Continued

Variables		<i>n</i>	%
Using hormonal contraceptive method	Yes	7	3.3
	No	204	96.7
A history of sexually transmitted disease	Yes	9	4.3
	No	202	95.7
A history of gynecological infection	Yes	58	27.5
	No	153	72.5
Giving birth	Yes	90	42.7
	No	121	57.3
Number of births		$X = 1.36 \pm 0.528 (1-3)$	
Vaginal douching status	Yes	33	15.6
	No	178	84.4
Presence of genital warts	Yes	10	4.7
	No	185	87.7
	I do not know	16	7.6
Menopausal status	Yes	10	4.7
	No	201	95.3
Average elapsed time after the menopause		$X = 1.90 \pm 0.875 (1-3)$	

Attitudes Towards Prevention of Cervical Cancer Scale

The scale developed by Dadak and Koyun in 2017 consists of 23 items and three subscales.¹⁷ While the Cronbach's alpha reliability coefficient of the scale was 0.87, it was found to be 0.91 for the cognitive subscale, 0.80 for the affective subscale, and 0.84 for the behavioral subscale. The items in the scale with a Likert-type rating are evaluated with the statements as (1) Strongly Disagree, (2) Partially Agree, (3) Moderately Agree, (4) Mostly agree, (5) Strongly agree. The highest and lowest scores obtained from the scale are 115 and 23, respectively. A high score obtained from the scale indicates that the individual has a high attitude towards the prevention of cervical cancer scale.¹⁷

In the present study, the Cronbach's alpha coefficient of the Attitudes Towards Prevention of Cervical Cancer Scale was 0.919. For the subscales, the Cronbach's alpha coefficients were 0.900 for the cognitive subscale, 0.849 for the affective subscale, and 0.725 for the behavioral subscale.

Statistical analysis

The data were evaluated using a statistical package program in computer environment. Normal distribution of the data was evaluated by using the Shapiro-Wilk normality test. The statistics were analyzed using descriptive statistics (number, percentage, mean, SD, median), Mann-Whitney *U* and Kruskal-Wallis tests. A value of $p < 0.05$ was considered statistically significant. The relationship between the

TABLE 2 Attitudes towards prevention of cervical cancer and early diagnosis

	$X \pm SD$	Min-max
Perceived susceptibility	30.68 ± 4.697	23-80
Perceived severity	23.36 ± 3.519	12-36
Perceived barriers	19.44 ± 3.189	11-34
Perceived benefits	15.06 ± 4.290	6-27
Attitude Scale for Early Diagnosis of Cervical Cancer	88.55 ± 9.753	70-141
Cognitive	35.26 ± 8.605	12-50
Affective	16.62 ± 5.096	5-25
Behavioral	22.42 ± 5.361	11-35
Attitudes Towards Prevention of Cervical Cancer Scale	74.30 ± 15.921	34-106

variables without normal distribution was examined by Spearman correlation analysis. The Cronbach's alpha coefficient method was used to test the reliability of the measurements.

Ethical consideration

Ethics approval was obtained from the noninvasive ethics committee at a university (IRB Number: 15386878-044, Date: 28th February 2020), with the permission of the Rectorate of the University. The aim of the study was explained to the academicians who participated in the study at the beginning of the online form, and their consent was obtained to conduct the study.

Results

Sociodemographic and gynecologic-obstetric characteristics

The mean age of female academicians included in the study was 35.47 ± 5.68 , and their body mass index was 22.78 ± 3.26 . While 95.7% of female academicians did not have a family history of gynecological cancer, 73.0% of them stated that they had at least one gynecological examination before and 68.2% of them stated that they had knowledge about the pap smear test. It was observed that 56.4% of them received knowledge about the pap smear test from a health professional, however, 57.8% of them did not have the test. It was observed that sexually active people had the latest pap smear test 2.21 ± 1.61 years ago and that the reason for it was for regular control or screening (56.2%). Forty-one percent of those who did not have the pap smear test (57.8%) stated that they did not have the test because they could not find time. It was observed that 95.7% of them did not have a history of sexually transmitted infection and that 72.5% of them did not have a history of gynecological infection. It was determined that most of the participants (84.4%) did not use vaginal douching and that 87.7% of them did not have a genital wart (Table 1).

Attitudes towards prevention of cervical cancer and early diagnosis

It was determined that the participants who received a mean score of 88.55 ± 9.75 from the Attitude Scale for Early Diagnosis of Cervical Cancer (ASEDCC) also received lower scores from the subscales of the scale and that their attitudes towards early diagnosis were insufficient. It was determined that the mean score of the Attitudes Towards Prevention of Cervical Cancer Scale (APCCS) was 74.30 ± 15.92 and that their attitudes towards prevention of cervical cancer along with all subscale scores were above the average (Table 2).

Factors associated with attitude scale for early diagnosis cancer and prevention of cervical cancer

Older participants' perceived benefits levels for the early diagnosis of cervical cancer ($p = 0.038$) and mean total scores ($p = 0.042$) were found to be high. It was observed that the participants with bachelor's degree were more susceptible to early diagnosis of cervical cancer ($p = 0.010$) and that especially those working in health sciences had higher mean scores for

all subgroups ($p < 0.05$) and total scores ($p = 0.000$). It was determined that the participants who did not have a family history of gynecological cancer perceived cervical cancer as a threatening condition ($p = 0.009$) and that those who did not go to gynecological examination ($p = 0.005$) and those who did not have a pap smear test ($p = 0.000$) had higher levels of perceived benefits. It was concluded that the participants who had recently had the pap smear compared to the others were more susceptible ($p = 0.049$) and considered cervical cancer as a threatening element ($p = 0.003$). It was found that the perceived severity ($p = 0.004$) and perceived barrier ($p = 0.001$) levels of the participants who were afraid of the results of the pap smear test were high. Although the participants without sexually transmitted infections were more susceptible ($p = 0.006$), it was observed that the perceived susceptibility ($p = 0.006$), perceived barrier ($p = 0.000$), and attitudes towards early diagnosis ($p = 0.002$) of those exposed to this infection were high. It was determined that the perceived severity ($p = 0.003$) and perceived benefit ($p = 0.011$) levels of the participants who had a previous gynecological infection were high. It was determined that those with vaginal douching perceived cervical cancer as a threat ($p = 0.000$) and had high attitudes towards early diagnosis ($p = 0.044$) (Table 3).

It was observed that participants' cognitive ($p = 0.041$) and behavioral ($p = 0.015$) awareness about the prevention of cervical cancer scale increased as they got older. It was determined that the cognitive awareness ($p = 0.000$) and attitudes towards prevention ($p = 0.047$) of the participants in the slightly overweight category were higher compared to others. It was determined that the participants working in health sciences had high cognitive ($p = 0.000$) and affective ($p = 0.030$) awareness and acted more cautiously ($p = 0.002$) towards prevention. It was determined that the participants who indicated that their income levels were high had higher behavioral awareness ($p = 0.019$) and attitudes towards general prevention ($p = 0.035$). It was found that the cognitive levels of the participants with a family history of gynecological cancer ($p = 0.043$) were higher compared to others. It was concluded that the cognitive ($p = 0.015$, $p = 0.006$) and behavioral ($p = 0.000$, $p = 0.000$) awareness and attitudes towards general prevention scores ($p = 0.010$, $p = 0.002$) of those who had gynecological examination and knowledge about the pap smear test were higher. The fact that the health professional provided knowledge about the

TABLE 3 Comparison of attitude scale for early diagnosis of cervical cancer and variables

	Perceived susceptibility			Perceived severity			Perceived barriers			Perceived benefits			Total ASEDDC				
	X ± SD	Z/X ² -p	Z/X ² -p	X ± SD	Z/X ² -p	Z/X ² -p	X ± SD	Z/X ² -p	Z/X ² -p	X ± SD	Z/X ² -p	Z/X ² -p	X ± SD	Z/X ² -p	Z/X ² -p		
	Age (years)	31.44 ± 6.641	5.208 ^a	23.13 ± 3.336	19.80 ± 3.401	1.922 ^a 0.382	15.73 ± 4.141	6.562 ^a	90.12 ± 11.277	6.357 ^a	33-42	30.46 ± 3.127	4.517 ^a	19.11 ± 2.846	14.33 ± 4.185	0.038	87.08 ± 7.429
First marriage age	29.57 ± 4.697	0.074	24.78 ± 3.391	19.82 ± 3.839	0.104	19.22 ± 2.685	-0.818 ^b	16.21 ± 4.685	0.042	21-30	30.87 ± 5.608	-1.239 ^b	19.22 ± 2.685	14.22 ± 4.071	-2.229 ^b	87.30 ± 9.492	-2.372 ^b
Graduation degree	29.23 ± 3.871	0.216	24.65 ± 3.174	19.61 ± 2.467	0.043	19.61 ± 2.467	0.413	16.26 ± 4.045	0.018	31-40	32.57 ± 2.636	9.288 ^a	20.14 ± 2.968	16.00 ± 4.396	1.910 ^b	89.76 ± 7.129	0.018
Area of expertise	30.15 ± 6.034	0.010	23.01 ± 3.116	19.96 ± 3.105	0.093	19.96 ± 3.105	125	15.48 ± 4.362	0.385	Bachelor's	30.96 ± 3.446	30.96 ± 3.446	19.00 ± 3.223	14.68 ± 4.227	0.385	90.57 ± 5.094	1.017 ^a
	30.05 ± 2.748	Faculty of Science	23.46 ± 2.693	19.11 ± 3.393	19.11 ± 3.393	19.11 ± 3.393	19.11 ± 3.393	15.28 ± 3.926	87.92 ± 8.496	32.25 ± 8.114	Health Sciences	24.50 ± 3.956	19.78 ± 2.955	15.73 ± 3.367	10.798 ^a	91.57 ± 8.801	34.097 ^a
	31.44 ± 2.500	Social Sciences	24.47 ± 2.922	24.419 ^a	19.52 ± 3.613	14.078 ^a	14.078 ^a	15.72 ± 5.552	0.029	Technical Sciences	28.44 ± 2.910	0.000	18.24 ± 1.975	12.65 ± 4.073	80.55 ± 8.583	0.000	0.000
	30.90 ± 3.346	Educational Sciences	22.93 ± 4.176	20.73 ± 3.106	20.73 ± 3.106	20.73 ± 3.106	20.73 ± 3.106	15.33 ± 4.365	89.90 ± 12.132	Income less than the expense	30.82 ± 3.680	7.804 ^a	20.72 ± 3.280	16.551 ^a	1.669 ^a 0.434	91.68 ± 10.354	7.807 ^a
	30.12 ± 3.033	Income equal to expense	22.70 ± 2.978	0.000	19.26 ± 2.947	0.000	19.26 ± 2.947	15.11 ± 4.131	87.20 ± 8.653	Income more than expense	34.25 ± 11.186	34.25 ± 11.186	17.45 ± 3.425	15.75 ± 3.143	90.05 ± 13.394	0.020	0.020
Family history of gynecological cancer	27.44 ± 2.788	-2.617 ^b	24.22 ± 4.465	-0.067 ^b	20.22 ± 2.279	-1.204 ^b	20.22 ± 2.279	16.11 ± 6.679	-0.462 ^b	Yes	30.55 ± 3.307	-0.420 ^b 0	19.24 ± 3.248	14.57 ± 4.351	-2.836 ^b	87.88 ± 9.278	-1.875 ^b
Have a gynecological examination	31.01 ± 7.259	0.674	22.96 ± 2.718	0.222	20.00 ± 2.982	0.072	20.00 ± 2.982	16.38 ± 3.853	0.005	No	31.01 ± 7.259	0.674	22.96 ± 2.718	14.57 ± 4.351	-2.836 ^b	90.36 ± 10.816	0.061
Having a papsmear test	30.31 ± 2.998	-0.454 ^b	23.78 ± 2.850	-1.866 ^b	19.39 ± 2.574	-0.638 ^b	19.39 ± 2.574	13.47 ± 3.943	-4.554 ^b	Yes	30.31 ± 2.998	-0.454 ^b	23.78 ± 2.850	13.47 ± 3.943	-4.554 ^b	86.96 ± 7.844	-1.838 ^b
Average elapsed time after the last pap smear test (year)	30.95 ± 5.619	0.650	23.06 ± 3.920	0.062	19.48 ± 3.581	0.524	19.48 ± 3.581	16.22 ± 4.174	0.000	No	30.95 ± 5.619	0.650	23.06 ± 3.920	16.22 ± 4.174	0.000	89.72 ± 10.82	0.066
Reason for not having papsmear test	30.69 ± 2.958	-1.960 ^b	24.27 ± 2.361	-2.925 ^b	19.41 ± 2.655	-0.730 ^b	19.41 ± 2.655	13.07 ± 3.604	-1.242 ^b	1-3	30.69 ± 2.958	-1.960 ^b	19.41 ± 2.655	13.07 ± 3.604	-1.242 ^b	87.45 ± 6.922	-1.739 ^b 0
A history of sexually transmitted disease	29.09 ± 2.861	0.049	22.19 ± 3.682	0.003	19.33 ± 2.352	0.466	19.33 ± 2.352	14.76 ± 4.752	0.214	4-6	29.09 ± 2.861	0.049	22.19 ± 3.682	14.76 ± 4.752	0.214	85.38 ± 10.331	0.082
Fear of the test	30.86 ± 8.689	3.093 ^a	23.48 ± 3.783	19.37 ± 3.243	19.37 ± 3.243	19.37 ± 3.243	19.37 ± 3.243	15.67 ± 4.684	0.924 ^a 0.630	Yes	28.00 ± 1.500	-2.746 ^b	22.66 ± 0.500	17.00 ± 2.291	-1.763 ^b	93.33 ± 0.500	-3.076 ^b
Not having time	31.00 ± 4.129	0.213	23.76 ± 5.246	0.004	19.30 ± 3.183	0.000	19.30 ± 3.183	14.97 ± 4.341	0.078	No	30.80 ± 4.756	0.006	23.26 ± 3.553	14.97 ± 4.341	0.078	88.34 ± 9.915	0.002
Fear of the test results	30.86 ± 3.679	0.213	23.76 ± 5.246	0.004	19.30 ± 3.183	0.000	19.30 ± 3.183	14.97 ± 4.341	0.078	Yes	30.46 ± 2.676	-0.408 ^b	19.81 ± 2.855	13.68 ± 3.789	-2.546 ^b	88.32 ± 5.983	-1.076 ^b
A history of sexually transmitted disease	30.76 ± 5.270	0.683	22.99 ± 3.751	0.003	19.30 ± 3.305	0.082	19.30 ± 3.305	15.58 ± 4.365	0.011	No	30.76 ± 5.270	0.683	22.99 ± 3.751	15.58 ± 4.365	0.011	88.64 ± 10.861	0.282
A history of gynecological infection	30.54 ± 3.666	-0.092 ^b	26.00 ± 3.699	-4.128 ^b	20.12 ± 3.199	-1.431 ^b	20.12 ± 3.199	15.84 ± 5.652	-0.652 ^b	Yes	30.54 ± 3.666	-0.092 ^b	26.00 ± 3.699	15.84 ± 5.652	-0.652 ^b	92.51 ± 11.643	-2.013 ^b
Vaginal douching status	30.70 ± 4.872	0.927	22.88 ± 3.269	0.000	19.32 ± 3.180	0.152	19.32 ± 3.180	14.91 ± 3.991	0.514	No	30.70 ± 4.872	0.927	22.88 ± 3.269	14.91 ± 3.991	0.514	87.82 ± 9.214	0.044

Note: Bold values indicate that $p < 0.05$.
^aKruskal-Wallis test ^bMann-Whitney U test.

TABLE 4 Comparison of attitude scale for protection from of cervical cancer and variables

	Cognitive			Affective			Behavioral		
	X ± SD	Z/X ² p		X ± SD	Z/X ² p		X ± SD	Z/X ² p	X ± SD
Age (years)	23-32	34.08 ± 8.165		17.11 ± 4.831			21.01 ± 4.676		72.20 ± 13.970
	33-42	35.85 ± 7.380	6.412^a	16.37 ± 4.871	0.998 ^a		22.93 ± 5.545	8.381^a	75.17 ± 15.411
	43-52	35.92 ± 13.156	0.041	16.321 ± 6.554	0.0607		24.03 ± 5.627	0.015	76.28 ± 21.725
Body mass index	Underweight	29.72 ± 5.344		17.05 ± 4.940			21.16 ± 3.312		67.94 ± 9.931
	Normal	35.43 ± 9.191	18.760^a	16.33 ± 5.048	6.104 ^a		22.53 ± 5.334	2.308^a	74.29 ± 16.399
	Overweight	37.61 ± 7.140	0.000	17.86 ± 5.717	0.107		22.41 ± 6.682	0.511	77.88 ± 17.285
	Obese	34.20 ± 4.467		15.60 ± 3.204			23.20 ± 3.259		73.00 ± 8.353
Area of expertise	Faculty of Science	34.47 ± 5.587		16.49 ± 4.167			22.37 ± 4.958		73.34 ± 11.745
	Health Sciences	40.42 ± 7.856		18.70 ± 4.348			23.38 ± 5.318		82.51 ± 15.833
	Social Sciences	31.38 ± 11.306	24.220^a	16.05 ± 6.693	10.692^a		22.02 ± 5.944	3.549^a	69.47 ± 18.852
	Technical Sciences	35.82 ± 4.334	0.000	17.00 ± 3.173	0.030		23.03 ± 3.469	0.470	75.86 ± 6.133
	Educational Sciences	33.06 ± 11.138		13.966 ± 6.217			20.93 ± 6.852		67.96 ± 21.565
Income status	Income less than the expense	33.58 ± 11.135	4.498 ^a	16.78 ± 6.338	4.644 ^a		22.31 ± 5.994	7.964^a	72.68 ± 19.668
	Income equal to expense	35.21 ± 7.319	0.106	16.27 ± 4.625	0.098		22.02 ± 4.993	0.019	73.51 ± 13.794
	Income more than expense	39.85 ± 8.393		18.65 ± 4.416			25.50 ± 5.433		84.00 ± 16.767
Family history of gynecological cancer	Yes	39.88 ± 4.781	-2.023^b	17.00 ± 4.743	-0.336^b		20.44 ± 4.876	-1.391^b	77.33 ± 7.905
	No	35.05 ± 8.686	0.043	16.60 ± 5.121	0.737		22.51 ± 5.375	0.164	74.17 ± 16.184
Have a gynecological examination	Yes	35.79 ± 8.914	-2.436^b	16.66 ± 5.132	-0.359^b		23.35 ± 5.625	-4.466^b	75.82 ± 16.521
	No	33.80 ± 7.590	0.015	16.49 ± 5.039	0.720		19.91 ± 3.536	0.000	70.21 ± 13.470
Knowledge of papsmear test	Yes	36.07 ± 8.776	-2.742^b	16.60 ± 5.324	-0.418^b		23.43 ± 5.682	-4.339^b	76.11 ± 16.913
	No	33.50 ± 8.010	0.006	16.65 ± 4.604	0.676		20.25 ± 3.803	0.000	70.41 ± 12.818
Knowledge resource of papsmear test	Neighbor/friend/relative/television/internet/book	35.06 ± 6.567	-1.943^b	17.15 ± 3.839	-0.264^b		20.93 ± 3.890	-3.689^b	73.15 ± 11.633
	Health professional	36.68 ± 9.162	0.052	16.64 ± 5.742	0.792		23.86 ± 5.823	0.000	77.20 ± 17.623
Having a papsmear test	Yes	36.28 ± 8.848	-2.225	16.40 ± 5.944	-0.339^b		24.34 ± 5.910	-4.991^b	77.03 ± 17.568
	No	34.51 ± 8.381	0.026	16.77 ± 4.394	0.735		21.02 ± 4.447	0.000	72.31 ± 14.354
A history of sexually transmitted disease	Yes	45.00 ± 4.500	-3.822^b	22.66 ± 2.783	-3.777^b		26.33 ± 2.645	-2.569^b	94.00 ± 7.399
	No	34.82 ± 8.492	0.000	16.35 ± 5.011	0.000		22.25 ± 5.388	0.010	73.43 ± 15.637

(Continues)

TABLE 4 Continued

	Cognitive		Affective		Behavioral			
	X ± SD	Z/X ² p	X ± SD	Z/X ² p	X ± SD	Z/X ² p		
A history of gynecological infection	Yes	36.46 ± 9.740	16.74 ± 6.570	-1.221 ^b	24.24 ± 5.939	-3.244 ^b	77.44 ± 18.620	
	No	34.80 ± 8.121	16.57 ± 4.436	0.047	0.222	21.73 ± 4.974	0.001	73.11 ± 14.664
Vaginal douching status	Yes	31.12 ± 9.659	14.27 ± 5.880	-2.004 ^b	-2.548 ^b	21.81 ± 5.095	-0.383 ^b	67.21 ± 15.247
	No	36.02 ± 8.197	17.05 ± 4.831	0.045	0.011	22.53 ± 5.415	0.702	75.62 ± 15.735
Presence of genital warts	Yes	40.60 ± 5.378	20.00 ± 3.651	6.160 ^a	12.524 ^a	26.80 ± 3.011	13.819 ^a	87.40 ± 10.936
	No	35.10 ± 8.783	16.74 ± 5.059	0.046	0.002	22.45 ± 5.377	0.001	74.30 ± 15.956
I do not know	33.70 ± 7.160		13.12 ± 4.558		19.31 ± 4.377		66.18 ± 13.024	

^aKruskal–Wallis test. ^bMann–Whitney U test.

pap smear test increased the behavioral awareness of the participants ($p = 0.000$) and made them more cautious towards prevention ($p = 0.017$). The participants who had pap smear test were found to have high cognitive ($p = 0.026$), behavioral ($p = 0.000$), and prevention ($p = 0.009$) scores. It was determined that the participants with a history of STI and genital warts obtained high scores in all subgroups ($p < 0.05$) and total mean scores ($p < 0.5$). The participants with gynecological infections were found to have high cognitive ($p = 0.047$) and behavioral awareness ($p = 0.001$) and attitudes towards general prevention ($p = 0.037$). It was found that the cognitive ($p = 0.045$), affective ($p = 0.011$), and attitudes towards general prevention ($p = 0.014$) of the participants who did not use vaginal douching were high (Table 4). As a result of the correlation analysis between the scales, no statistical significance was found ($r = -0.122$, $p = 0.077$).

Discussion

Early screening is as important as prevention in cervical malignancy, which is a preventable and treatable type of cancer. As a result of the study conducted with academicians, it was determined that although women’s attitudes towards prevention of cervical cancer were above the average (mean score of APCCS 74.30 ± 15.92), their attitudes towards early diagnosis were insufficient (mean score of ASEDCC 88.55 ± 9.75). In other words, the fact that female academicians had knowledge about the prevention of cervical cancer did not affect their behaviors of participation in screening programs. Similarly, in a study conducted with 343 women, 42.6% of which were academicians, the mean scores of APCCS and ASEDCC were found to be 85.28 ± 12.9 and 77.49 ± 11.2 , respectively.⁵ In another study, women’s mean score of the ASEDCC was 101.91 ± 10.77 .⁹ Although all of the women in our study were academicians, it was observed that they received lower scores from ASEDCC and APCCS compared to other studies. Female academicians may not participate in the screening due to their workload. The findings of our study also support the interpretation.

In the literature, women over the age of 30 are recommended to have standard cervical cytology test every 3 years within the scope of cervical cancer screening.¹⁸ In our study, the female academicians who a mean age 35.47 ± 5.68 unfortunately it has been observed that 42.2% of them have a pap smear

test. In studies conducted with women in similar age groups, the rates of having pap smears were not at the desired level as in our study.^{9,10,14,15} In the study conducted with 101 women, 56.4% of whom were instructors, 68.3% of them had the test at least once.¹³ In a study conducted with 255 women in Saudi Arabia only two women had a pap smear test with the recommendation of a doctor.¹¹ Although it is generally known that the pap smear test is an effective method in the diagnosis of cervical cancer, it was observed that most of the women were reluctant to have this test for various reasons.¹⁰ In the study, while 41.0% of the female academicians stated that they did not have a pap smear test because they could not find the appropriate time, 38.5% of them stated that they did not have it because they were afraid of the procedure, and 20.5% of them stated that they did not have it because they were afraid of getting a bad result. It was observed that female academicians who were afraid of the results of the pap smear test also had a high level of severity and barrier attitudes towards early diagnosis. In other studies, it was observed that women did not have the test due to embarrassment, lack of time, fear of bad results, fear of experiencing pain, and lack of knowledge about the screening test.^{10,11,19–21} In the literature it was emphasized that the most important barrier to having a pap smear test was insufficient knowledge^{10,21} and that the facilitators were symptoms of disease, short duration of testing, and recommendations from family, friends, and healthcare professionals.^{10,14,20} In our study, it was observed that 56.4% of female academicians were provided knowledge about the pap smear test and screening programs by health professionals. Moreover, it was also determined that female academicians who were informed about the pap smear test by the healthcare professional increased their behavioral awareness and were more cautious about prevention. Similar to our study, women that the recommendation of doctors/nurses (89.4%) ranked first among the main reasons for having the pap smear test.¹⁴ It was reported that the knowledge about cervical cancer and its screening would increase and the burden of disease could be reduced, especially when healthcare professionals provide regular health education to women and recommend pap smear testing.^{14,18}

It was determined that female academicians' perceptions of early diagnosis of cervical cancer and the usefulness of screening increased as the age increased. It was observed that those who indicated that they

had a high economic status were more susceptible to early diagnosis, and those who indicated that they had a low economic status had high attitudes towards early diagnosis in the severity and barrier dimensions. Previous studies also reported that age and income level affected participation in screening programs and the number of tests.^{9,10,13,15,18} However, in the study of Domgue et al., while the increase in age negatively affected participation in screening,¹⁸ better results were obtained in female academicians' attitudes towards early diagnosis as their age increased.

In our study, it was observed that female academicians were more susceptible to attitude towards early diagnosis of cervical cancer as their education level increased. Contrary to our study, in some studies in the literature, it has been observed that as the level of education increases, the level of knowledge about cervical cancer risk factors, prevention, and screening test increases.^{5,9,11} In the study of Kızıllırmak and Kocaöz, it was indicated that women with a master's degree and higher had higher perception of benefit and motivation and lower susceptibility and pap smear barrier perception scores.¹³ Okunowo et al. reported that a high level of education only increased the knowledge about cervical cancer and the awareness of pap smear test, however, it did not affect the rates of having a test.¹⁴ As a result of the study, it was observed that not only the education level but also the study area affected the attitudes towards the prevention and early diagnosis of cervical cancer. As it was expected, it was observed that female academicians working in health sciences had better attitudes towards early diagnosis of cervical cancer compared to academicians working in other fields. It was determined that academicians working in health sciences had higher cognitive and affective awareness and acted more cautiously for prevention. Studies in the literature support the results of the study.^{9,11}

In the previous study results, it was reported that women who had knowledge about the pap smear test and had genital examination and pap smear test received lower scores in the barriers subscale. It was indicated that especially those who stated that they had knowledge about the pap smear test received higher scores in the benefit and motivation subscales.¹³ It was reported that the knowledge about the pap smear test and cervical cancer was important in predicting performing the pap smear test, and that those with a high level of knowledge also had high a performance in pap smear test.¹⁰ In our study, the conclusion that female academicians who had

recently had the pap smear test were more susceptible to screening programs supported the conclusion that they have knowledge about this subject.

It is known that people with relatives with a history of cervical cancer have a high level of awareness, which significantly increases the behavior of having a pap smear test.¹⁴ In the study, it was determined that female academicians with a family history of gynecological cancer had a high level of awareness while those who did not have a family history had a high level of susceptibility. It is observed that this result partially supports the literature.

It was determined that female academicians who did not go to gynecological examination and did not have a pap smear test had a high perception of benefits. In the literature, it was concluded that the view that it was not necessary to have this test was dominant since women who had no signs or symptoms did not consider themselves in the risk group for cervical cancer.^{9,11,13,19,22}

In the study, it was observed that female academicians who had gynecological examination and had knowledge about the pap smear test had higher scores in attitudes towards general prevention as well as their cognitive and behavioral awareness. In previous studies, it has been observed that the health motivation of women who know the pap-smear test and have gynecological examination and pap-smear test is higher.^{11,13,15}

In the study, it was determined that female academicians' attitudes towards early diagnosis of cervical cancer were insufficient and their attitudes towards prevention were partially sufficient. It was observed that the factors such as history of infectious disease and vaginal douching affected both their attitudes towards early diagnosis and the prevention of cervical cancer. Another issue that needs to be focused is that academicians, who are characterized to have high levels of awareness and consciousness, do not participate in screening programs for reasons such as not having time, fear of the procedure and its results. Increased behaviors towards early diagnosis and prevention among women who are informed by healthcare professionals indicate that the lack of education should be completed. Based on all these results, it is recommended to use mass communication and multi-media tools to develop prevention behaviors by raising social awareness, to try to customize routine screening programs by considering working women, and to perform awareness-raising interventions for individuals who come to receive health services.

Limitations of the study

The fact that the sample included a single center and online collection of data due to pandemic measures constituted the limitation of the study. Due to limitations, the results cannot be generalized to all female academicians.

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Conflict of Interest

None declared.

Author Contributions

Nurhan Doğan: Conceptualization. **Nurhan Doğan and Gamze Fişkin:** supervision; writing-original draft preparation; review and editing. All authors have read and agreed to the published version of the manuscript.

Data Availability Statement

The data generated and/or analyzed during the current study are not publicly available, but data may be provided by the corresponding author upon reasonable request.

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