

## ORIGINAL RESEARCH

# Do women's fatalistic tendencies affect their attitudes toward the early diagnosis of cervical cancer?

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**Abstract**

**Background:** Cervical cancer is one of the most common types of cancer in women, and early diagnosis can significantly reduce mortality rates. However, cervical cancer screening rates have not reached the desired levels. The purpose of this study is to determine the relationship between women's fatalistic tendencies and their attitudes toward the early diagnosis of cervical cancer. **Methods:** This cross-sectional study was conducted from October 2023 to March 2024 and included 385 women. Data were collected through an online survey, which featured a personal information form, the Attitudes Toward the Early Diagnosis of Cervical Cancer Scale (AEDCCS), and the Fatalistic Tendency Scale (FTS). **Results:** The mean scores for the AEDCCS and the FTS total scales were  $101.2 \pm 10.4$  and  $73.5 \pm 9.3$ , respectively. Linear regression analysis revealed a statistically significant relationship between the AEDCCS total score and the superstition subscale of the FTS ( $t = -2.370$ ;  $\beta = -0.540$ ) ( $p < 0.05$ ). **Conclusions:** The results indicate that women's superstitious beliefs are predictors of their attitudes toward early detection of cervical cancer. It is recommended that health professionals consider women's fatalistic tendencies and superstitious beliefs when designing educational and informational programs to encourage participation in cervical cancer screening.

**Keywords**

Cervical cancer; Early diagnosis; Fatalistic tendency

## 1. Introduction

It is estimated that more than 500,000 women worldwide are diagnosed with cervical cancer each year, resulting in over 300,000 deaths from the disease [1]. Despite its prevalence, cervical cancer is often curable if detected and treated early [2]. The World Health Organization has developed various strategies for the prevention and screening of cervical cancer, including the human papilloma virus (HPV) test and the Pap test for early diagnosis [3]. According to the National Cervical Cancer Screening Standards in Turkey, it is recommended that every woman aged 30–65 years undergo screening with an HPV test every 5 years [4]. However, screening rates are reported to be significantly below the target [5, 6]. Common barriers to screening include lack of awareness about the need for screening, fear of the procedure and its results, shame and stigmatization [7–9].

Fatalism, a belief that all events are predetermined by a supernatural power and cannot be changed, often leads individuals to feel that taking preventive measures is also futile [10, 11]. Therefore, individuals with high levels of fatalistic belief may reject personal control and develop negative attitudes toward cancer screenings [12]. Indeed, studies have shown that certain religious groups with fatalistic beliefs often have lower cervical cancer screening rates [13, 14]. For example, some Muslim women believe that a cancer diagnosis is determined

by God [15] and view screenings as a lack of faith in God [16].

Given the high prevalence of cervical cancer and the low participation rates in screenings, it is clear that effective strategies are needed to improve screening rates [17]. Nurses, who play a crucial role in promoting preventive health behaviors, must be aware of the attitudes and barriers women face regarding cancer screenings. Thus, identifying these attitudes and barriers through current studies is essential. Furthermore, investigating the relationship between these barriers and fatalistic tendencies in a society like Turkey, where the majority of the population is Muslim, can inform efforts to enhance participation in screenings. The aim of this study is to explore women's attitudes toward the early diagnosis of cervical cancer, identify barriers to screening, and assess the role of fatalistic tendencies.

## 2. Materials and methods

### 2.1 Design, data collection and sampling

Women aged 30–65 years living in Çanakkale, a province in western Turkey, participated in this cross-sectional study. Using Epi Info 7.2 software, the required sample size was calculated to be 383, based on a 50% expected rate, a 5% margin of error, and a 95% confidence interval. An online survey was created by the authors and distributed via various

social media platforms (Facebook, Telegram and WhatsApp) between October and December 2023. Participants were also encouraged to share the survey link with their peers. A total of 385 women who met the age criteria and agreed to participate were included in the study.

## 2.2 Measurements

The questionnaire comprised four parts. The first part included questions about the participants' descriptive characteristics, the second part included questions about cervical cancer screenings, the third part included the Attitudes Toward the Early Diagnosis of Cervical Cancer Scale (AEDCCS), and finally the Fatalistic Tendency Scale (FTS).

### 2.2.1 Attitudes toward the early diagnosis of cervical cancer scale

Developed by Ozmen and Ozsoy (2009), this scale includes four sub-dimensions based on the Health Belief Model: Perceived Sensitivity (9 items), Perceived Severity (8 items), Perceived Barriers (7 items), and Perceived Benefits (6 items). Eight items on the scale are negatively worded (items 3, 6, 8, 15, 17, 24, 25 and 27), and these are scored in reverse. The scale uses a 5-point Likert format, with total scores ranging from 30 to 150 [18]. The original scale had a Cronbach's Alpha of 0.89, while this study found a Cronbach's Alpha of 0.86.

### 2.2.2 Fatalistic tendency scale

Developed by Kaya and Bozkur (2015), this scale includes 24 items across four sub-dimensions: Predetermination (8 items), Personal Control (6 items), Superstition (6 items) and Luck (4 items) [19]. The scale uses a 5-point Likert format, with total scores ranging from 24 to 120. The total fatalistic tendency score is calculated by adding the scores from each sub-dimension. Higher scores indicate a greater level of fatalistic tendency. The original scale had a Cronbach's Alpha of 0.86, whereas this study found a Cronbach's Alpha of 0.75.

## 2.3 Data analysis

Statistical analyses were conducted using SPSS (Statistical Package for the Social Sciences) for Windows version 25 (SPSS Inc., Armonk, NY, USA). Descriptive statistical methods, including frequency counts, percentages, means and standard deviations, were used to evaluate the data. Linear regression analysis was employed to examine the relationships between variables, with a significance level set at ( $p < 0.05$ ).

## 3. Results

Table 1 presents the distribution of participants according to various characteristics. The mean age of the women was  $46.72 \pm 7.85$  years. Among the participants, 81.3% were married and 92.5% had children. Most participants were primary school graduates (41.0%) and unemployed (63.1%). Additionally, 30.9% of the women smoked, 13.2% consumed alcohol, and 21.0% engaged in regular physical activity.

Although 52.2% rated their general health status as good or very good, 38.4% of the participants reported a chronic disease. Cervical disease was reported by 9.9% of the participants.

Regarding screening awareness, 55.1% had heard of Pap smear testing, and 50.6% had undergone a Pap smear test in the past 5 years. Of the 344 participants (88.6%) who were aware of cervical cancer screening, 41.7% learned about it from their doctors, and 36.8% learned from their nurses. The most significant barrier to participating in screening tests was not knowing that the test should be done, as reported by 35.6% of participants (Table 2).

Table 3 provides a descriptive presentation of the scale scores and internal consistency estimates. The mean scores for the AEDCCS and the FTS total scales were  $101.2 \pm 10.4$  and  $73.5 \pm 9.3$ , respectively.

Table 4 shows the relationship between the AEDCCS and the FTS total and subscale scores. There was a statistically significant, negative, and low-level relationship between the FTS and the AEDCCS total scores ( $r = -0.117$ ,  $p = 0.022$ ).

Table 5 presents the results of the linear regression analysis between the FTS total score and the total and sub-dimension scores of the AEDCCS. The analysis indicated a statistically significant relationship between the AEDCCS and the superstition.

## 4. Discussion

Cervical cancer, one of the most prevalent cancers affecting women worldwide, can be detected early through screening. However, both this study and other literature indicate that screening rates are not meeting desired levels [6, 12, 20, 21]. In this study, the most common barrier to cervical cancer screening was a lack of awareness about the need for screening. This finding is supported by other studies [22, 23]. Systematic reviews suggest that health education interventions significantly increase screening rates [24]. Given that healthcare workers are the primary source of information on cervical cancer screenings, enhancing their awareness is crucial.

In this study, fatalistic attitudes were reported as a barrier to cervical cancer screening in 9.5% of cases. Correlation analysis revealed that women's fatalistic tendencies were associated with their attitudes toward early diagnosis of cervical cancer ( $p < 0.05$ ). This is consistent with previous studies [8, 12, 21, 25]. Such attitudes may result from misconceptions about cancer screening, leading to negative perceptions of early diagnosis. This study found that as women's superstitious beliefs increased, their attitudes towards early detection of cervical cancer decreased ( $p < 0.05$ ). Thus, educational interventions that address individual beliefs and superstitions could be effective in improving screening rates. For example, a study aimed at increasing screening participation among Scottish Muslim women used a multi-faceted approach—including health education, videos featuring the experiences of Muslim women, and input from a female religious scholar—to successfully enhance knowledge and attitudes toward screening [26]. Employing models and theories that recognize cultural characteristics in early diagnosis behaviors may also be beneficial for designing effective interventions [27, 28].

This study offers current insights into how fatalistic tendencies act as barriers to cervical cancer screening. The findings are expected to contribute to planning early diagnosis activities, which are crucial for combating cervical cancer,

**TABLE 1. Distributions of the participant characteristics (n = 385).**

Variables	Mean $\pm$ SD	Min–Max
Age (yr)	46.72 $\pm$ 7.85	30–63
	n	%
Marital status		
Married	313	81.3
Single	19	4.9
Divorced-widowed	53	13.8
Children		
Yes	356	92.5
No	29	7.5
Education		
Illiterate	4	1.0
Literate	4	1.0
Primary school	158	41.0
Secondary school	43	11.2
Lycee	58	15.1
Bachelor	118	30.7
Employment		
Yes	142	36.9
No	243	63.1
Job		
Housewife	228	59.2
Officer	71	18.4
Employee	58	15.1
Other	28	7.3
Income/Expenses		
Balanced	181	47.0
Minus	183	47.5
Plus	21	5.5
Smoking		
Yes	119	30.9
No	266	69.1
Alcohol use		
Yes	51	13.2
No	334	86.8
Regular physical activity		
Yes	81	21.0
No	304	79.0

*SD: Standard Deviation; Min: Minimum; Max: Maximum.*

TABLE 2. Further descriptive characteristics of the participants (n = 385).

Variables	Count	Percent
Perceived health		
Excellent	24	6.2
Good	177	46.0
Average	168	43.6
Bad	16	4.2
Chronic disease		
Yes	148	38.4
No	237	61.6
Regular check-up		
Yes	163	42.3
No	222	57.7
Cervical disease		
Yes	38	9.9
No	347	99.1
Relative with cervical cancer		
Yes (first degree)	3	0.8
Yes (second degree)	53	13.8
No	329	85.4
Having lost a relative due to cervical cancer		
Yes (first degree)	3	0.8
Yes (second degree)	26	6.8
No	356	92.4
Having heard of cervical cancer screening		
Yes—Pap smear	212	55.1
Yes—HPV	3	0.8
Yes—Both	126	32.7
No	44	11.4
Cervical screening information source (n = 348)*		
Doctor	145	41.7
Nurse	128	36.8
Relative	58	16.7
Media	17	4.9
Having undergone cervical cancer screening (any time)		
Yes	248	64.4
No	137	35.6
Having undergone cervical cancer screening (last five years)		
Yes	195	50.6
No	190	49.4
Barriers to cervical cancer screenings (n = 137)		
Not knowing the necessity	53	38.7
Being embarrassed about the test	37	27.0
Fear of the test result	20	14.6
Believing that destiny is inevitable	13	9.5
Difficulty of access to health facility	5	3.7
Financial difficulties	5	3.7
Fear of pain	4	2.8

\*Values are percentages of the 344 people who have heard of cervical cancer screening. One person may have more than one information source. HPV: human papilloma virus.

**TABLE 3. Descriptive presentation of the scale scores (n = 385).**

Scales	Mean	SD	Median	Min	Max	25%	75%
Total AEDCCS score	101.2	10.4	101	63	127	95	109
Perceived Sensitivity	26.6	4.3	29	14	43	26	31
Perceived Severity	27.8	4.7	28	11	40	25	31
Perceived Barriers	21.3	2.4	22	14	28	20	23
Perceived Benefits	23.3	4.5	24	6	30	20	27
Total FTS score	73.5	9.3	74	49	100	68	79
Predetermination	27.1	5.9	28	8	40	23.5	31
Personal Control	17.1	3.5	17	6	29	14	19
Superstition	17.7	4.0	18	7	30	15	21
Luck	11.3	3.6	12	4	20	9	14

*AEDCCS: Attitudes Toward the Early Diagnosis of Cervical Cancer Scale; FTS: Fatalistic Tendency Scale; SD: Standard Deviation; Min: Minimum; Max: Maximum.*

**TABLE 4. The relationship between values of women's AEDCCS and the FTS total and subscale scores.**

Fatalism Tendency Scale	Perceived Sensitivity	Perceived Seriousness	Perceived Obstacles	Perceived Benefits	AEDCCS Total Score
Predetermination					
<i>r</i>	-0.200	0.274	-0.042	0.050	0.021
<i>p</i>	<0.001	<0.001	0.411	0.330	0.678
Personal Control					
<i>r</i>	0.092	-0.078	0.066	0.010	0.049
<i>p</i>	0.071	0.126	0.199	0.846	0.341
Superstition					
<i>r</i>	-0.178	-0.018	-0.054	-0.192	-0.199
<i>p</i>	<0.001	0.721	0.294	<0.001	<0.001
Luck					
<i>r</i>	-0.199	0.091	-0.052	-0.094	-0.119
<i>p</i>	<0.001	0.074	0.311	0.066	0.020
Total Score					
<i>r</i>	-0.257	0.170	-0.057	-0.104	-0.117
<i>p</i>	<0.001	0.001	0.261	0.041	0.022

*r: Pearson's correlation coefficient,  $p < 0.05$ . AEDCCS: Attitudes Toward the Early Diagnosis of Cervical Cancer Scale.*

**TABLE 5. Linear regression output showing the relation between AEDCCS and the FTS total and subscale scores.**

Dependent variable	UC		SC	<i>t</i>	<i>p</i>	95.0% CI for B	
	B	SE	B			LB	UB
Total AEDCCS score							
(Constant)	107.554	8.094		13.288	<0.001	89.926	119.671
Predetermination	0.269	0.208	0.152	1.295	0.196	-0.139	0.677
Superstition	-0.540	0.228	-0.208	-2.370	0.018	-0.988	-0.092
Luck	-0.268	0.305	-0.093	-0.878	0.380	-0.869	0.332
Total	0.031	0.228	0.027	0.135	0.893	-0.418	0.479
Age	-0.070	0.073	-0.052	-0.957	0.339	-0.213	0.073

*CI: Confidence interval; SE: Standard error; UC: Unstandardized Coefficients; SC: Standardized Coefficients; LB: Lower Bound; UB: Upper Bound; AEDCCS: Attitudes Toward the Early Diagnosis of Cervical Cancer Scale; B: Beta.*

which is expected to grow further. However, one limitation of the study is that it was conducted in a single province, which may limit the generalizability of the results. Additionally, the cross-sectional design of the study affects the causality of the results. The factors should be considered when interpreting the results.

## 5. Conclusions

The study results indicate that cervical cancer screening rates among women are below the desired level and that superstitions impact attitudes toward screening. Considering the rising incidence of cervical cancer, it is recommended to develop educational strategies that address women's superstitions to improve participation rates. Future research could explore superstitions about cervical cancer through in-depth interviews.

## AVAILABILITY OF DATA AND MATERIALS

The data are contained within this article.

## AUTHOR CONTRIBUTIONS

MYG—designed the research study. MYG and BT—performed the research; analyzed the data; wrote the manuscript.

## ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Approval for the study was obtained from the Ethics Committee of Çanakkale Onsekiz Mart University School of Graduate Studies (2023-0739). In addition, consent was obtained from individuals through the informed voluntary consent form explaining the content of the research at the beginning of the survey form.

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## CONFLICT OF INTEREST

The authors declare no conflict of interest.

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