RESEARCH ARTICLE

The Effect of Fear of Coronavirus (Covid-19) on Attitudes Toward Cancer Screening

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Abstract

Background: Although cancer screening plays a critical role in the early detection of cancer, fear caused by the Covid-19 pandemic is reported to have significantly obstructed cancer screening programs. The purpose of this study was to determine the effect of fear of coronavirus (Covid-19) on attitudes toward cancer screening. This descriptive, cross-sectional study was completed with 300 individuals. The data were collected from patients presenting to the clinic of an education and research hospital between April and July, 2021. An information form, the Fear of Covid-19 Scale, and the Attitude Scale for Cancer Screening were employed as data collection tools. **Results:** The mean age of the participants was 46.66±13.39 years, 56.7% were women, and 44% were university graduates. The mean Fear of Covid-19 Scale score was 20.53, and the mean Attitude Scale for Cancer Screening score was 99.79. **Conclusion:** Participants in this study experienced a moderate level of fear and exhibited positive attitudes toward cancer screening programs, although positive attitudes regarding cancer screening decreased as fear of Covid-19 increased.

Keywords: Cancer Screening- Coronavirus- Fear- Pandemic

Introduction

The importance of early diagnosis and treatment in cancer, one of the 10 main causes of death worldwide, is indisputable [1]. Screening programs mean that recovery with early diagnosis and treatment is now possible in many types of cancer [2, 3]. Both the World Health Organization and national screening programs therefore recommend routine screening [4, 5]

Evidence shows that the importance of early diagnosis in individuals with genetic disposition is increasing on a daily basis [6, 7], that the breast cancer mortality rate has decreased by 20% in at-risk women [8], and that colorectal cancer mortality can be reduced by one-third as a result of routine screening [9, 10].

Although cancer screening plays a critical role in the early detection of cancer, fear caused by the Covid-19 pandemic is reported to have significantly obstructed cancer screening programs [11, 12]. Fear associated with the Covid-19 pandemic has been described as fear of the very idea of coronavirus, and as a problem also accompanied by physical symptoms leading to phenomena such as avoiding crowds, inability to sleep, and stress [13]. Individuals are reported to be reluctant to visit health institutions due to fear of the ongoing Covid-19 pandemic, and cancer screening has declined, with decreases of 94%, 86%, and 94% in routine breast, colon, and cervical cancer screening, respectively [14]. Health professionals have a major responsibility in this context, and it is important to increase awareness of shared uncertainties, fears, and anxieties [12, 15]. This awareness may also lead to a change in attitudes toward cancer screening programs by leading to early diagnosis and treatment. The purpose of this study was therefore to determine the effect of fear of Covid-19 on attitudes toward cancer screening.

Materials and Methods

Design

This descriptive, cross-sectional study was performed

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to determine the effect of fear of Covid-19 on attitudes toward cancer screening. Data were collected for patients presenting to the internal disease clinic of an education and research hospital in Turkey between April and July, 2021.

Sample

Nine hundred thirty-six patients aged 30-70 presenting to the Kırklareli education and research hospital internal diseases clinic in the previous three months, between December 2020 and February 2021, were included in the study. Using the known population sample size formula with a confidence interval (CI) of 95% and a margin of error of 5%, we aimed to contact a minimum of 273 patients during the study dates. All patients (n:303) attending the clinic during the relevant dates (01.04.2021-01.07.2021) and meeting the inclusion criteria were enrolled in the research. The study was completed with 300 patients. The response rate was 99.01%.

Inclusion criteria

Individuals voluntarily consenting to participate, aged 30-70 years (the Attitude Scale for Cancer Screening requires a minimum age of 30 and a maximum age of 70) [16], educated to at least literacy level, with no cognitive, visual, or orthopedic disability capable of preventing their completing the scales, who were willing to communicate and cooperate, who answered the questions fully and comprehensively, and who were not using sleeping medications, or drugs such as anti-depressives and anti-anxiolytics were included in the study. Individuals not meeting the inclusion criteria were excluded.

Data collection tools and data collection

Personal introduction form: This form was developed on the basis of a review of the relevant literature [7, 9] and investigated age, sex, marital status, number of children if any, education level, employment status, income, presence of additional chronic disease, time of diagnosis, and smoking and alcohol use status.

Fear of Covid-19 Scale

Developed by Ahorsu et al. (2020)[17], this scale was adapted and validated for use in Turkey by Bakioğlu et al. (2020)[18].

The scale consists of a single domain and seven items. It contains no reverse items. The total score for all the items on the scale indicates the individual's level of fear of Covid-19. Possible scores range between 7 and 35, with higher scores indicating a higher fear of Covid-19. Information concerning the scale and permission for its use were obtained by e-mail from the corresponding author of the validity and reliability study.

Attitude Scale for Cancer Screening

This scale was developed by Yıldırım Öztürk et al. [16] and was published in 2020. It consists of a single domain and 24 items. The tool is a five-point Likert-type scale – 5: Completely Agree, 4: Partially Agree, 3: Neither Agree nor Disagree, 2: Partially Disagree, 1: Completely. With appropriate sampling and application, it can be used in any situation requiring measurement of attitudes to cancer screening. The lowest possible score is 24, and the highest 120. No specific cut-off point has been determined. Scores closer to 24 indicate a negative attitude toward cancer screening, and scores closer to 120 indicate a more positive attitude. Thirteen items (9, 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, and 24) involving statements of negative meaning must be reverse-coded. Use of the "6−Participant Response" formula is recommended for reverse-coding. The order of the items on the scale is not significant, and researchers can use a mixed sequence. Information concerning the scale and permission for its use were obtained by e-mail from one of its developers and described as the corresponding author.

Following receipt of the requisite institutional permissions, face-to-face interviews were held with patients agreeing to participate and meeting the inclusion criteria. Once the aim of the study had been explained and consent had been obtained, the patients were given the data collection form. This was completed by the participants and collected by the research after approximately 15-20 min.

Ethical Considerations

Approval for the study was obtained from the Kirklareli University Ethical Committee (no. E-69456409-199-11129). Consent was obtained from all participants before commencement. Participants were free to leave the survey at any time without providing any justification. The study was carried out in compliance with the principles of the Declaration of Helsinki.

Statistical Analysis

The research data were analyzed on Statistical Package for Social Sciences for Windows version 25.0 software (SPSS, Chicago, IL, USA). Descriptive methods were employed (number, percentage, min-max, mean, and standard deviation).

The independent t test was used to compare normally distributed qualitative data between two independent groups, while one-way analysis of variance was applied more than two independent groups. The Bonferroni test was applied to identify the group responsible when a difference was identified. Pearson correlation was employed to test relationships between numerical variables.

The reliability analysis results for the scales used in the research are shown in the table. General examination revealed 0.913 reliability for the Fear of Covid-19 Scale and 0.878 for the Attitude Scale for Cancer Screening, representing good reliability.

Results

The distribution of the participants in terms of sociodemographic variables is shown in Table 1. Thirty-six percent of participants were aged 30-39. Additionally, 78.3% of the participants had children, 44% were university graduates, and 47% reported income equal to outgoings (Table 1).

Table 1. Distribution of the Participants in Terms of Sociodemographic Variables

Variables		n	%
Age (X̄±SD, 46.66±13.39)	30-39	108	36
	40-49	90	30
	50-59	43	14.3
	60-69	33	11
	70 and over	26	8.7
Sex	Female	170	56.7
	Male	130	43.3
Marital status	Married	248	82.7
	Single	52	17.3
Children	Yes	235	78.3
	No	65	21.7
Total		300	100
Education	Literate	17	5.7
	Primary school	36	12
	Middle school	14	4.7
	High school	59	19.6
	University	132	44
	Postgraduate	42	14
Employed	Yes	207	69
	No	93	31
Total		300	100
Income	Income lower than outgoings	91	30.3
	Income equal to outgoings	141	47
	Income higher than outgoings	68	22.7
Total		300	100

Table 2. Distribution of Participants in Terms of Disease-related Characteristics

Variables		n	%
Chronic disease	Yes	125	41.7
	No	175	58.3
Smoking status	Smoker	100	33.3
	Non-smoker	200	66.7
Alcohol use	Yes	83	27.7
	No	217	72.3
History of Covid-19	Yes	94	31.3
	No	206	68.7
History of cancer	Yes	8	2.7
	No	292	97.3
History of cancer in a first-degree relative	Yes	90	30
	No	210	70
History of cancer in a second-degree relative	Yes	100	33.3
	No	200	66.7
Cancer screening performed	Yes	79	26.3
	No	221	73.7
Wishing to have cancer screening performed but not being screened	Done	68	22.7
	Not done	232	77.3
Total		300	100

Table 3. Descriptive Statistics for the Scales Employed in the Research

	Min	Max	Mean	Standard deviation
Fear of Covid-19 Scale	7	35	20.53	6.02
Attitude Scale for Cancer Screening	66	120	99.79	12.95

Table 4. Correlation between the Scales

	Attitude Scale for Cancer Screening
Fear of Covid-19 (r)	- 0.223**
p	0.000*

*p<0.05, **Pearson correlation

The distribution of the participants in terms of diseases is shown in Table 2. This shows that 58.3% had no chronic disease, that 66.7% did not smoke, and that 68.7% had not contracted coronavirus. In terms of cancer, 97.3% reported no history of the disease, while a history of cancer in a primary relative was present in 30%, and a history of cancer in a secondary relative in 33.3%. In addition, 73.7% of participants had not been screened for cancer (Table 2).

Descriptive statistics for the scales employed in the research are shown in Table 3. The mean Fear of Covid-19 Scale score was 20.53 and the mean Attitude Scale for Cancer Screening score was 99.79 (Table 3).

Pearson correlation was applied to test the relationship between the scales. This revealed significant negative correlation between fear of Covid-19 and cancer screening (r= -0.223, p<0.05) (Table 4). Positive attitudes toward screening decreased as fear of Covid-19 increased.

Factors emerging as significantly increasing Fear of Covid-19 Scale scores based on the multilinear regression analysis results included advanced age, female gender, being married, and a history of cancer in a first-degree relative. These variables explained 23% of the total variance (Table 5).

Factors significantly increasing Attitude Scale for Cancer Screening scores based on the multilinear regression analysis results were fear of Covid-19 and

a history of cancer in first-degree relatives. These variables explained 8% of the total variance (Table 6).

Discussion

The purpose of this study was to determine the effect of fear of contracting Covid-19 on attitudes toward cancer screening. Positive attitudes toward screening decreased as fear of Covid-19 increased. Knowing the general benefit of cancer screening, the application of routine screening tests, and keeping Covid-19-related screening delays to a minimum are all of great importance despite fear of the pandemic [19]. One study reported that patients failed to attend for screening because of fear of the pandemic, and that diagnoses of endometrial cancer had decreased by 35% as a result [20]. Another study reported that screening for colorectal cancer, one of the three main causes of death in men and women, had also decreased due to fear, anxiety, and isolation procedures caused by the pandemic [21]. Crispo et al. (2020)[22] reported that fear caused by the pandemic had resulted in a decrease in screening and interruption of treatment among cancer patients, leaving them highly vulnerable. It may be concluded that fear of Covid-19 adversely impacts on attitudes to cancer screening.

The mean Fear of Covid-19 Scale score in this study was 20.53, and the mean Attitude Scale for Cancer Screening score was 99.79. This shows that the participants experienced a moderate level of fear, but exhibited positive attitudes toward cancer screening programs. Previous studies have reported decreases in cancer screening programs in the majority of countries, and have linked this to fear of infection and

Table 5. Multiple Regression Analysis Findings between the Fear of Covid-19 Scale and Independent Variables

Model	B	SE	β	T	p	VIF
Fixed	20.375	2.229		9.141	<0.001	
Age	0.166	0.024	0.369	7.016	<0.001	1.066
Gender	-1.718	0.621	-0.142	-2.765	0.006	1.008
Marital status	-2.375	0.828	-0.149	-2.869	0.004	1.044
History of cancer in a first-degree relative	-1.378	0.68	-0.105	-2.025	0.044	1.034

Model R, 0.483; R^2, 0.233; Adjusted R^2, 0.223; F, 22.467; Durbin Watson, 1.721;p< 0.001. Dependent variable: Fear of Covid-19 Scale. Gender 1. Female, 2. Male; Marital status 1. Married 2. Single; History of cancer in a first-degree relative 1. Yes, 2. No

Table 6. Multiple Regression Analysis Findings Regarding the Attitude Scale for Cancer Screening and Independent Variables

Model	B	SE	β	t	p	VIF
Fixed	100.436	4.077		24.633	<0.001	
Fear of Covid-19	0.405	0.122	0.188	3.334	0.001	1.036
History of cancer in a first-degree relative	-5.275	1.596	-0.187	-3.306	0.001	1.036

Model R, 0.289; R^2, 0.084; Adjusted R^2, 0.077; F, 13.538; Durbin Watson, 1.550; p< 0.001. Dependent variable: Attitude Scale for Cancer Screening; History of cancer in a first-degree relative 1. Yes, 2. No

lockdowns [23-25]. Previous studies have shown that the postponement of cancer screening or cancer prevention programs deriving from fear or isolation will exacerbate the disease burden, five-year mortality rates, the economic burden, and physician workloads [26]. In contrast, it has been reported that when the fear of screening is overcome and screening becomes a routine procedure, there will likely be an increase in cancer diagnoses [27]. It may be suggested that fear caused by the pandemic results in a decrease in screening programs even if individuals' attitudes toward screening are positive.

Advanced age, female gender, being married, and a history of cancer in first-degree relatives significantly increased participants' Fear of Covid-19 Scale scores in this study. Disruptions in cancer screening due to fear of Covid-19 have been reported in the literature [19]. One study reported that women avoided colorectal cancer screening in particular due to fear of Covid-19 [21]. Another study, of women with breast cancer, reported no association between fear of cancer and sociodemographic factors, but that fear of cancer was more affected by individual factors [28]. A study investigating disruptions in the treatment and psychological problems of cancer patients during the pandemic reported that patients with low resilience and high levels of anxiety and depression experienced greater fear of Covid-19 [29]. Our findings were largely affected by sociodemographic factors, and sampling and geographical region variations may have played a role.

Since the results of the study were collected from a single center, they cannot be generalized. Another limitation of this study was that no sample selection method was employed. Finally, the results of the study include data for screening tests for all cancer types.

In conclusion, the participants in this study experienced a moderate level of fear, but exhibited positive attitudes toward cancer screening. However, positive attitudes toward cancer screening decreased as fear of Covid-19 increased. This study is important in terms of providing evidence that fear caused by coronavirus can alter attitudes toward cancer screening in a negative direction. We recommend that future studies focus on the outcomes of fear-related delays in screening, and on means of facilitating screening. To the best of our knowledge, this is the first study in the literature to evaluate the effect of fear of Covid-19 on attitudes toward cancer screening.

Acknowledgments

Conflict of interest
The authors have no conflict of interest to declare.

Ethical approval
Approval for the study was obtained from the Kirklareli University Ethical Committee (no. E-69456409-199-11129).

Availability of data
Data are available on request due to privacy/ethical restrictions.

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