Original Article

Health Beliefs And Fear-Related Factors Regarding Colorectal Cancer Screenings: A Cross-Sectional And Correlational Study

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Abstract

Background: Colorectal cancer is one of the most common types of cancer in the world and is a type of cancer that can be intervened and prevented with early diagnosis. However, individuals' fears of getting cancer negatively affect their early diagnosis. The study aimed to investigate health beliefs and fear-related factors regarding colorectal cancer screenings with a cross-sectional and correlational research design.

Methods: This research has a cross-sectional, correlational design. It included 620 participants who were 50 years old and older. The data were collected through the Participant Information Form, Colorectal Cancer Health Belief Model Scale, and Colorectal Cancer Fear Scale. The data were analysed with SPSS 20 software. Independent samples t-test, one-way ANOVA, the Kaiser-Meyer-Olkin (KMO) and Bartlett tests, EFA, and Cronbach's alpha coefficients and item-total correlation tests were used to evaluate the data.

Results: The mean Colorectal Cancer Fear Scale score of the participants was 27.99±7.68. There was a significant difference between individuals' fear total score and gender, family history of cancer, and smoking ($p<0.05$). There was a significant difference between. The scores for the factors of the CCHBMS and gender, presence of cancer in the family, smoking status, and the perception of seriousness ($p<0.05$).

Conclusions: Turkish colorectal cancer fear scale was subjected to validity and reliability analysis and found to be appropriate. The colorectal cancer fear levels of the participants were found to be above the medium level, and it was found that having a family history of cancer and smoking status were effective on both fear of cancer and colorectal cancer health beliefs. Since women's fear and seriousness perception levels are higher, it is recommended that this group should be prioritized in future studies. [*Ethiop. J. Health Dev.* 2025; 39(4)]

Keywords: Colorectal cancer, fear, health belief, screening

Introduction

According to the 2018 statistics of the World Health Organization (WHO), colorectal cancer constitutes 1/10 of cancer cases and deaths, and it ranks third in terms of incidence and second in terms of mortality (1). It ranks third in both genders among the top 10 cancer types seen in Turkey (2). Colorectal cancer (CC) is a type of cancer that can be treated very successfully when diagnosed early. It can be diagnosed early with a screening program including colonoscopy and fecal occult blood testing. Following the diagnosis, treatment can start, and satisfactory results can be achieved. CC screening is a cost-effective method since the economic burden associated with treatment costs decreases with early diagnosis (3). Despite this, it is seen that the rates of participation in screening programs are low (4,5). Feelings of anxiety and fear may negatively affect the general health level and the rate of participation in screening programs. For this reason, it is necessary to reveal the reasons for and the level of CC anxiety (6). A study showed that nearly half of the participants at screening age complied with the screening guideline, about half of them stated that they were worried about colorectal cancer, and that those who complied with the guideline were more likely to experience higher levels of anxiety about CC, but the relationship between them was insignificant. The participants in the study stated that if they were diagnosed with cancer, they could experience embarrassment and potential social shame due to having a colostomy bag, which prevents participation in screening programs (5). A study that investigated the barriers to participation in colonoscopy screenings revealed that the most common reasons were fear of colonoscopy, embarrassment, fear of being diagnosed with cancer, having to take strong laxatives, and fear of sedation (7). Similarly, Byrd et al (8). found that fear, embarrassment, and cost variables are barriers to CC screening, and the participants' level of knowledge about CC was insufficient. The studies conducted so far, most of which are qualitative, have revealed that people have a fear of CC. There are various scales measuring fear of cancer in the literature (9-12).In reseache, it was observed that there was no Turkish validity and reliability measurement tool directly assessing the level of fear of colorectal cancer. The most important stage of a research study is the data collection stage, and the use of accurate and valid measurement tools is necessary to reach scientifically reliable results (13).

As in all fields, there is a need to use appropriate measurement tools in the field of health protection and improvement (14). Only in this way can problems be detected and changes and developments can be followed. For this reason, first, the adaptation of the Colorectal Cancer Fear Scale is important in terms of revealing the fear levels of individuals about colorectal cancer. This study may contribute to the evaluation of the level of fear of colorectal cancer, to the initiation of intervention studies against the fear barrier in early diagnosis and screening, to increasing participation in screening programs, and to the reduction of future colorectal cancer mortality and morbidity levels. This study aimed to investigate health beliefs and fear-related factors regarding colorectal cancer screenings with a cross-sectional and correlational research

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design. The Turkish validity and reliability of the scale developed to determine the level of fear of colorectal cancer are also tested in the study.

Material and Methods

This research has a cross-sectional, correlational design. It included 620 participants who were 50 years old and older. Since the validity of the Colorectal Cancer Fear Scale was also tested in the study, it was aimed to have participants complete 5-10 times the total number of items in the scale. While Nunally (15) recommends 10 times the number of items for the sample size, Kass and Tinsley (16) suggest that if the sample size is below 300, the number of items should be 5 to 10 times, but when the sample size exceeds 300 (independently of the ratio to the number of items), decisive results can be obtained. In this study, 620 individuals who agreed to participate in the study were included in the study. In line with the literature above, it was decided that the sample of 620 people, to which the 8-item scale was administered, is sufficient. In this study, 620 individuals who were over 50 years old, who had no history of colorectal cancer, and who could communicate were included in the study with improbable sampling. The post hoc power analysis was performed; the sample power was evaluated according to the perception of barrier, and the power of the sample was calculated as 100% with 5% error margin and a 90% confidence interval.

Data Collection Tools

Three tools were used to collect data.

Participant Information Form: It consists of 21 questions about the sociodemographic, colorectal cancer, and healthy living characteristics of the participants (17,18).

Colorectal Cancer Health Belief Model Scale (CCHBMS): The scale was developed by Champion and Scott in 1997 for breast cancer screening beliefs (19). Jacobs (20) adapted this scale to colorectal cancer by changing a few questions and replacing the word "breast cancer" in each of its six dimensions with "colon cancer". The Turkish validity and reliability study of the scale was performed by Özsoy et al. in 2007 (21). The scale consists of 33 items under 5 factors: perception of confidence-benefit-health motivation, perception of susceptibility, perception of barrier, perception of health responsibility, and perception of seriousness. The items are scored on a Likert-type scale from 1 to 5. Higher scores indicate that susceptibility and caring increase, and benefits and barriers are perceived as high. The Cronbach's alpha coefficients of the factors were found to vary between 0.54 and 0.88. In addition, according to the results of the test-retest reliability analysis, the test-retest correlation values of the five factors ranged between 0.72-0.91. In this study, the Cronbach's alpha coefficients of the factors were found to be between 0.43 and 0.90.

Colorectal Cancer Fear Scale (CCFS): The original scale was developed by Leung et al. (11). It is a single-factor scale with eight items. The items are rated on a five-point Likert- type scale from strongly disagree to strongly agree. In this study, the scale was adapted to Turkish culture by making psychometric evaluations. Higher scores indicate higher levels of fear of colorectal cancer. The minimum and maximum scores that can be obtained from the scale are 8 and 40, respectively. The criteria used for internal consistency in this study are Cronbach's alpha and item total score scale reliability. The Cronbach's alpha of the original scale is 0.95, and the factor loadings of the items were found to vary between 0.69-0.93. In this study, Cronbach's alpha was 0.93. The criteria for the evaluation of the Cronbach Alpha coefficient are given below (Özdamar, 1999).

If $0.00 \leq a < 0.40$, the scale is not reliable
If $0.40 \leq a < 0.60$, the scale has low reliability
If $0.60 \leq a < 0.80$, the scale is highly reliable
If $0.80 \leq a < 1.00$, the scale is highly reliable.

Item-total correlation is another criterion for internal consistency. The relationships among the items are revealed with the Pearson Product -Moments Correlation coefficient. For an item to be acceptable, the item-total correlation must be positive and at least 0.20. In this study, the item-total correlation of the scale was found to vary between 0.67 and 0.81. The item analysis revealed that the total score correlations of all items are high. These findings show that the model scales have no problematic items in the final version and have internal consistency.

In addition, there is no item with an alpha value (0.91-0.92) that will increase the total Cronbach's alpha value (0.93) when any item is deleted from the adjusted factors of the model. This result may indicate that each item in the model is significant, and if one item in the model is deleted, reliability will decrease. Thus, it can be said that the model has high reliability.

The factor loadings, mean scores, item-total score correlation, the Cronbach's alpha values if items are deleted, and data quality of the scale are demonstrated in the table below. When the total variance of the 8 items in the scale was examined, it was seen that there is one factor with an eigenvalue above 1, and although it explained 66.7% of the total variance, its eigenvalue was determined as 5.335 (Table 1).

Table 1: Item-total correlation and Cronbach's Alpha value of the Turkish version of the colorectal cancer fear scale

Items (Turkish Items)	Factor load	Item mean score	Total item correlations	Deleted item Cronbach Alpha
The thought of colorectal cancer scares me (Bağırsak kanseri düşüncesi beni korkutur)	.78	3.80	0.70	0.92
When I think about colorectal cancer, I feel nervous (Bağırsak kanserini düşündüğüm zaman gergin hissederim)	.86	3.66	0.81	0.91
When I think about colorectal cancer, I get upset (Bağırsak kanserini düşündüğüm zaman üzülürüm)	.84	3.75	0.78	0.92
When I think about colorectal cancer, I get depressed (Bağırsak kanserini düşündüğüm zaman bunalıma girerim)	.80	3.20	0.74	0.92
When I think about colorectal cancer, I get jittery (Bağırsak kanserini düşündüğüm zaman çok sinirli olurum)	.74	3.08	0.67	0.92
When I think about colorectal cancer, my heart beats faster (Bağırsak kanserini düşündüğüm zaman kalp atışım hızlanır)	.78	3.22	0.72	0.92
When I think about colorectal cancer, I feel uneasy (Bağırsak kanserini düşündüğüm zaman huzursuz hissederim)	.87	3.64	0.81	0.91
When I think about colorectal cancer, I feel anxious (Bağırsak kanserini düşündüğüm zaman endişeli hissederim)	.86	3.64	0.80	0.92
	Cronbach's Alpha			0.93
	Explanatory variance			%66.7
	CVI			0.90
	Eigenvalue			5.335

The items of the scale were translated from the original language into Turkish separately by five faculty members who work in the fields of psychiatric nursing, public health nursing, psychological counseling, and guidance, and who know Turkish and English well. While translating, attention was paid to the use of sentence structures most suitable for Turkish culture and Turkish. Then, the translations were examined by the researchers, and the Turkish scale form was created. Next, the form was back-translated into English by two different linguists, and this translation was compared with the original scale. The Turkish version of the items that were different from the original items was revised.

Content Validity

After the translation process, the scale was sent to 10 academicians in the field of nursing via e-mail, and the scale was evaluated in terms of intelligibility and cultural compatibility by these experts. The Davis technique was used in this content validity method based on expert opinions (22). According to this technique, the experts rated the scale items as not suitable (1 point), the item needs to be modified (2 points), suitable but minor changes are required (3 points), and very suitable (4 points). After the evaluation of experts, the content validity index (CVI) was obtained by dividing the sum of the first two ratings by the number of experts. When the CVI is greater than 0.80, the scale is considered to be sufficient in terms of content validity (22). After the translation and content validity process was completed, the final version of the scale was piloted on a group of 10 individuals. No changes were made to the scale items as a result of the pilot study. The finalized scale was administered to a sample of 620 people, and the validity and reliability were tested with the KMO value, the Bartlett's test, explanatory factor analysis, internal validity analysis, and item-total correlations. The analyses revealed that the CVI score of the study was 0.90.

Construct Validity

The factor structures were examined to test the construct validity of the model and to reach more precise findings. First, the KMO (Kaiser-Mayer Olkin) analysis was performed to determine whether the sample size was sufficient. The KMO value was found to be 0.898. The Bartlett's Test was used to test the suitability of the data for factor analysis. Barlett's test result was calculated as x^2:3957.452 at $p<0.001$, and it was determined that the data set was suitable for factor analysis. Then, the factor structure of the scale was evaluated with the Exploratory Factor Analysis (EFA).

Parallel Form Validity

The colorectal cancer health belief model scale, which evaluates colorectal cancer and screening behaviours in

Turkey, does not directly measure the level of fear while evaluating variables such as health motivations, perceptions of barriers, severity, and sensitivity of individuals regarding colorectal cancer and screening. For this reason, the suitability of the colorectal cancer fear scale for Turkish culture is tested by using the existing colorectal cancer health belief model scale in Turkey as a reference form. The Colorectal Cancer Fear Scale (CCFS) and the Colorectal Cancer Health Belief Model Scale (CCHBMS) were administered to all individuals over 50 years of age who applied to the specified family health centers. A positive significant relationship was found between the CCHBMS's factors of perception of confidence-benefit-health motivation (.12, p<.05), perception of health motivation (.05, p<.05), and perception of seriousness (.33, p<.001) and the CCFS (Table 4). These results can be evaluated as evidence for the similar scale validity of the CCFS.

Data Collection Process

This study was conducted in three family health centres that could be accessed, where permission could be obtained, which had the highest population density, and which served the region where the study was conducted and using the face-to-face interview method.

Data Analysis

The data were analyzed using SPSS 20. The data obtained from the Personal Information Form were analyzed and expressed as mean, number, and percentage. Normality tests were performed for the comparison of the variables based on the skewness and kurtosis values. The Independent Samples t-test was used to compare two variables, and the one-way ANOVA test was performed to compare multiple groups. The Kaiser-Meyer-Olkin (KMO) and Bartlett tests were performed to test sample adequacy. The construct validity of the scale was evaluated with the EFA, and its reliability was evaluated by calculating Cronbach's alpha coefficients and item-total correlation. In addition, Pearson correlation analysis was performed to test parallel form validity. The level of significance was set at p<0.05.

Ethical Considerations

First, permission was obtained from Leung and colleagues, who developed the original version of the Colorectal Cancer Fear Scale, to adapt the scale to Turkish. Official approvals were obtained from the Clinical Research Ethics Committee of a university (Decision Number: B.30.2.ODM.0.20.08/1017) and from the institutions where the research was conducted. In addition, the participants were informed about the aim of the study, and their verbal consent was obtained. The principles of the Declaration of Helsinki, revised in 2013, were adhered to throughout the study.

Results

Findings on descriptive characteristics

The mean CCFS score of the participants was 27.99±7.68. As can be seen in Table 2, the mean age of the participants was 59.94±7.89 years; 53.2% of the participants were female; 44.0% were primary school graduates, and 89.2% were married. 31.8% of the participants had a family history of cancer; 82.3% did not know CC screening methods; 82.6% did not have screening, and 69.0% lost a family member due to cancer. Regarding the habits of the individuals, it was found that 27.3% of the participants smoked, 6.1% consumed alcohol, and 71.9% did not exercise. The total fear score of the individuals was compared with their descriptive characteristics, and a significant difference was found in terms of gender, family history of cancer, and smoking (p<0.05). The total fear score was found to be higher in women, in those with a family history of cancer, and in those who did not smoke. No significant difference was found between other descriptive characteristics and total fear scores (p>0.05).

The mean scores for the factors of the CCHBMS were calculated as 43.71±7.47 for perception of confidence-benefit-health motivation, 14.37±5.01 for perception of susceptibility, 16.64±4.43 for perception of barrier, 15.75±2.92 for health motivation, and 16.65±3.61 for perception of seriousness.

Table 2: Examination of the descriptive characteristics and fear score distributions of the participants

Features	**Mean±SD (min-max)**			**Colorectal cancer Fear scale score**	
Age	59.94±7.89 (min=50, -max=89)				
		n (620)	%	Mean±SD	Statistics p
Sex	Female	330	53.2	28.83±7.69	t=2.915
	Male	290	46.8	27.04±7.57	**p=0.004**
Educational Status	Illiterate	181	29.2	29 (8-40)	
	Primary School	273	44.0	29 (8-40)	KW=1.204
	High School and university	166	26.8	29 (8-40)	p=0.548
Marital Status	Married	553	89.2	27.96±7.71	
	Single	48	7.7	28.06±8.07	F=-0.139
	Divorced	19	3.1	28.89±7.68	p=0.870
Having a child	Yes	589	95.0	28.02±7.69	t=.337
	No	31	5.0	27.55±7.53	p=0.738
Having Social insurance	Yes	550	88.7	27.99±7.58	t=0.007
	No	70	11.3	28.00±8.45	p=0.995
Income Status	Low	78	12.6	27.58±8.69	F=0.409

	Middle	504	81.3	28.12±7.57	p=0.665
	High	38	6.1	27.16±6.91	
Having a chronic disease	Yes	245	39.5	27.93±7.64	t=0.165
	No	375	60.5	28.03±7.71	p=0.869
Familial cancer history	Yes	197	31.8	28.97±8.09	t=-2.112
	No	423	68.2	27.54±7.44	**p=0.035**
Status of knowing Colorectal cancer screening methods	Knowing	110	17.7	28.34±8.26	t=-0.528
	Unknowing	510	82.3	27.91±7.53	p=0.598
Knowing the CC screening age	Knowing	110	17.7	26.87±8.76	t=-1.518
	Unknowing	510	82.3	28.24±7.41	p=0.131
Status of CC screening	Doing	108	17.4	28.16±8.01	t=0.236
	Not doing	512	82.6	27.96±7.61	p=0.814
Status of knowing CC symptoms	Knowing	113	18.2	27.01±8.30	t=-1.418
	Unknowing	507	81.8	28.21±7.52	p=0.158
Death of a family member due to cancer	Yes	192	31.0	28.72±7.96	t=1.556
	No	428	69.0	27.67±7.54	p=0.121

Table 3: Examination of the descriptive characteristics of the participants and the distribution of scores on the colorectal cancer health belief model scale (CCHBMS)

	Colorectal Cancer Health Beliefs Model Scales				
Features	Confidence/benefits and health motivation	Perceived of susceptibility	Perception of Barrier	Health Motivation	Perception of Seriousness
Sex					
Female	43.50(12-55)	13.00(6-21)	16.00(6-26)	15.00(7-22)	17.00(11-25)
Male	42.00(17-53)	13.00(6-28)	17.00(11-22)	15.50(8-18)	17.00(5-23)
Statistic/p	U=43665.500 p=0.060	U=47325.500 p=0.813	U=47421.000 p=0.847	U=44638.000 p=0.146	**U*=41917.000 p=0.007**
Educational status					
Illiterate	43.00 (11-55)	14.00 (6-30)	17.00 (6-28)	15.00 (5-23)	17.00 (5-25)
Primary School	44.00 (11-55)	14.00 (6-30)	16.00 (6-30)	16.00 (7-25)	17.00 (7-25)
High School and university	45.00 (11-55)	13.00 (6-29)	16.00 (6-29)	16.00 (5-25)	17.00 (5-25)
Statistic/p	**KW**=8.624 p=0.003**	KW=0.002 p=0.964	KW=1.779 p=0.182	KW=0.179 p=0.672	KW=0.231 p=0.631
Familial cancer history					
Yes	45.00 (11-55)	15.00 (6-30)	16.00 (6-29)	15.00 (5-25)	18.00 (5-25)
No	44.00 (11-55)	13.00 (6-30)	16.00 (6-30)	16.00 (5-25)	17.00 (5-25)
Statistic/p	U=38412.50 p=0.117	**U=37095.50 p=0.027**	U=40952.50 p=0.731	U=41471.50 p=0.925	**U=35054.50 p=0.001**
Status of knowing Colorectal cancer screening methods					
Knowing	47.00 (11-55)	14.00 (6-30)	16.00 (6-28)	16.00 (5-23)	17.00 (5-25)
Unknowing	44.00 (11-55)	14.00 (6-30)	16.00 (6-30)	16.00 (5-25)	17.00 (5-25)
Statistic/p	**U=22064.00 p=0.000**	U=29994.50 p=0.597	**U=26583.00 p=0.015**	U=28048.00 p=0.104	U=29485.50 p=0.415
Knowing the CC screening age					
Knowing	47.00 (12-55)	13.50 (6-30)	16.00 (7-29)	16.00 (5-25)	17.00 (5-23)
Unknowing	44.00 (1155)	14.00 (6-30)	16.00 (6-30)	16.00 (5-25)	17.00 (5-25)
Statistic/p	**U=21676.00 p=0.000**	U=26353.50 p=0.317	U=26301.00 p=0.303	U=26432.50 p=0.339	U=25844.00 p=0.193
Status of CC screening					
Doing	47.00 (12-55)	14.50 (6-30)	14.50 (6-29)	16.00 (5-25)	17.00 (5-25)
Not doing	44.00 (11-55)	13.00 (6-30)	16.00 (6-30)	15.50 (5-25)	17.00 (5-25)
Statistic/p	**U=20957.00 p=0.000**	U=26081.00 p=0.352	**U=21786.50 p=0.001**	**U=23043.00 p=0.006**	U=24947.00 p=0.109
Status of knowing CC symptoms					
Knowing	47.00 (11-55)	14.00 (6-30)	16.00 (6-29)	16.00 (5-25)	16.00 (5-25)
Unknowing	44.00 (11-55)	14.00 (6-30)	16.00 (6-30)	15.00 (5-25)	17.00 (5-25)
Statistic/p	**U=22131.50 p=0.000**	U=28622.50 p=0.989	U=28256.50 p=0.821	**U=23895.50 p=0.005**	U=26175.00 p=0.149

* Mann-Whitney U test, ** Kruskal-Wallis H test

The descriptive characteristics of the participants and the distributions of the scores for the factors of the CCHBMS were examined (Table 3). It was observed that there was a significant difference between gender, presence of cancer in the family, smoking status, and the perception of seriousness (p<0.05). The perception of seriousness score was found to be higher in non-smokers and those with a family history of cancer. A statistically significant difference was found between education level, knowing the colorectal cancer screening methods, knowing the age for screening, having screening, knowing the colorectal cancer symptoms, and having an adequate-balanced diet, and the score for the factor of perception of confidence-benefit-health motivation (p<0.05). In addition, a significant difference was found between the factor of the perception of susceptibility and the presence of cancer in the family and having colorectal problems, between the factor of perception of barrier and knowing colorectal cancer screening methods and having colorectal cancer screenings, and between the factor of perception of health responsibility and having screening, knowing the symptoms of colorectal cancer, doing exercise and having an adequate and balanced diet (p<0.05). The statistical analysis revealed no significant difference between the other descriptive characteristics of the participants and the scale factor scores (p>0.05).

Table 4: Correlations of Age, Colorectal Cancer Fear scale, and Colorectal Cancer Health Belief Model scales scores

	CC Fear Scale Score	Confidence/ benefits and health motivation	Perceived of susceptibility	Perception of Barrier	Health Motivation	Perception of Seriousness	Age
CC Fear Scale Score	1						
Confidence/benefits and health motivation	**.123****	1					
Perceived of susceptibility	-.045	**-.079***	1				
Perception of Barrier	-.005	**-.112****	**.283****	1			
Health Motivation	**.079***	**.382****	**.127****	**.210****	1		
Perception of Seriousness	**.332****	**.290****	**.193****	**.274****	**.252****	1	
Age	-.062	-.067	.008	**.097***	-.008	.031	1

*p<0.05; **p<0.01

A positive significant relationship was found between the factors of perception of confidence-benefit-health motivation (.12, p<.05), perception of health motivation (.05, p<.05), and the perception of seriousness (.33, p<.001) and the CCFS (Table 3). These results can be considered as evidence for the similar scale validity of the CCFS (Table 4).

Discussion

The results of our study revealed that the knowledge and practices of the participants about colorectal cancer screening were at a very low level. Similarly, in their study with adult individuals in Oman, Al Azri et al (23) found that 76.3% of the participants did not hear about colorectal cancer screenings and were not aware of screening methods. Tastan et al. (24) investigated the health beliefs, knowledge, and behaviors of individuals over 50 years of age about colorectal cancer, and they revealed that few people had heard about colorectal cancer screening methods (15.0% fecal occult blood, 11.3% colonoscopy, 4.4% sigmoidoscopy).

Our study revealed that the Colorectal Cancer Fear Scale is a valid and reliable scale for the Turkish population. In the eight-item scale, factor loadings (0.74-0.87), Cronbach's alpha values (0.93), and explanation variance (%66.7) were found to be high. Obtaining similar results in similar measurement tools (11,25,26) suggests that this scale can be used in the Turkish sample.

The female participants were found to have higher levels of colorectal cancer fear than the male participants. Alduraywish et al. (27) investigated the barriers to colorectal cancer screening in adults and found that women had higher fear levels than men. Similarly, Basch et al. (7) revealed that women had higher levels of fear of colonoscopy screenings. High levels of fear of colorectal cancer in women may negatively affect participation in screening. It can be thought that the factors underlying the fear may be related to life events, and the concerns that different health problems specific to women (menopause, breast cancer, etc.) may emerge with age. We found that women scored higher on the perceived seriousness factor, supporting this interpretation.Our study revealed that those with a family history of cancer had a higher fear level of colorectal cancer than those who did not. Yim et al. (28) found that those with a family history of intestinal polyps or colorectal cancer believed that colonoscopy was effective in reducing deaths from colorectal cancer and had a higher screening rate.

Teixeira et al. (29) reported that individuals between 50-75 years of age with a family history of cancer have a high rate of having colorectal cancer screening. Having a family history of cancer can create awareness about cancer-related processes. It can also lead to anxiety and fear because people feel at risk. As a result, people may have experienced higher fear. The susceptibility and seriousness perceptions of those with a family history of cancer were higher in this study, which supports this interpretation. Susceptibility is the person's belief that s/he can have the disease, and seriousness is one's belief about the problems that may arise when s/he experience the disease. This result may be attributed to the fears underlying the disease.

Our study further revealed that those who have a high level of knowledge about colorectal cancer screening have a high perception of benefit and health motivation, and a low perception of barriers. Taştan, Andsoy, and İyigün (24) reported that 81.3% of the participants in their study expressed a lack of knowledge as a barrier to having colorectal cancer screening. A high perception of benefit and a low perception of barrier increase the possibility of starting preventive health behaviors (30-32). Therefore, the high perception of benefit of those who know about the screenings suggests that their awareness and motivation for participation in colorectal cancer screenings may be high.

It was found that those who had colorectal cancer screening had a higher perception of benefit and health motivation and health responsibilities, while their perception of barriers was low. Genç and Baysal (33) found that the perception of susceptibility and the perception of confidence-benefit increased the behavior of having a fecal occult blood test. A study that investigated the cancer risk perceptions and health beliefs of the first-degree relatives of individuals who had undergone surgery for colorectal cancer revealed that the participants who did not have a colonoscopy had a higher perception of barrier, and that high health motivation reduced the rate of not having a fecal occult blood test (34). The high perception of benefit and health responsibility of those who have had screening may indicate that they have adopted and practiced preventive health behaviors. At the same time, these perceptions may suggest that these people adopt and practice healthy lifestyle behaviors.

It was found that the participants with a high perception of benefit and health motivation, perception of health responsibility, and perception of seriousness had high levels of fear of colorectal cancer. Taştan, Andsoy, and İyigün (24) investigated the health beliefs, knowledge, and behaviors of individuals over 50 years of age towards colorectal cancer screening, and a significant difference was observed between the participants' colorectal cancer risk perceptions and the factor of seriousness in the Health Belief Model Scale. In addition, the two scales produced results that were related to each other. A high perception of seriousness indicates that participants care more about the problems they may encounter when they experience the disease. Therefore, this result may suggest that participants can be more responsible and motivated to participate in colorectal cancer screenings to avoid these problems.

Limitations

In this study, the participants were selected with improbable sampling. Since the study was conducted with two scales, a large sample was selected considering the number of items in both scales. However, since the number of items in the Colorectal Cancer Fear Scale was 8, confirmatory factor analysis could not be performed with the large sample.

Since the research data were collected among the individuals who applied to the family health centre, the data reflect only the results of this group and cannot be generalized to society.

Conclusion And Recommendations

The Turkish adaptation of the Colorectal Cancer Fear Scale was found to be valid and reliable for the Turkish population. Our study revealed that the awareness of the participants about colorectal cancer screenings was low, and the female participants and those with a family history of cancer had higher levels of fear. In addition, women's perception of seriousness was found to be high; those with a family history of cancer had a high perception of seriousness and susceptibility; and those who knew about the screening methods and those who had had screening were found to have a high perception of benefit and health motivation and a low perception of barrier. It was found that the participants who had problems had a high perception of susceptibility. In addition, it was found that the participants with a high perception of benefit and health motivation, health responsibility, and seriousness had a high level of fear of colorectal cancer.

Based on these results, it is suggested that the Colorectal Cancer Fear Scale, whose validity was tested in a Turkish sample, can be used in studies. In addition, it can be suggested that studies should be carried out by health professionals with individuals aged 50 and over who constitute the risk group due to low awareness of colorectal cancer, to increase their awareness about screening methods and to encourage them to participate in screening. The female participants were found to have higher levels of fear and perception of seriousness in our study, which indicates that this group should be considered as a priority group in future studies. It can be suggested that health professionals who will carry out awareness studies for colorectal cancer screenings should investigate the health beliefs and fear levels of the participants and plan appropriate interventional studies.

Conflict of interests: There are no conflicts of interest.

Contribution of authors: FÇ: Conceptualization, Methodology, Formal analysis, Investigation, Resources, Data curation, Writing-original draft, Writing-review& editing, Project administration. IAA: Conceptualization, Investigation, Visualization, Writing -Review & Editing.

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