

Selected paper of 6th International Congress of Nursing (ICON-2022) 12 – 15 October 2022 Antalya, Turkey
(ONLINE CONFERENCE)

A study of colorectal cancer screening behaviors, benefits, and barriers among people aged 50 to 70

Ebru Turhal¹, Karadeniz Technical University, Medical Simulation Center, Trabzon, 61000, Turkey,
<https://orcid.org/0000-0003-4781-4944>

Zeliha Koç, Ondokuz Mayıs University, Samsun 55200, Turkey, <https://orcid.org/0000-0002-8702-5360>

Suggested Citation:

Turhal, E. & Koç, Z. (2022). A study of colorectal cancer screening behaviors, benefits, and barriers among people aged 50 to 70. *New Trends and Issues Proceedings on Advances in Pure and Applied Sciences*. 2022(1), 14-24. <https://doi.org/10.18844/gjpaas.v2022i1.8770>

Received from October 28, 2022; revised from November 26, 2022; accepted from December 15, 2022.

Selection and peer review under the responsibility of Prof. Dr. Nilgun Sarp, International Final University, Faculty of Health Sciences, Kyrenia, North Cyprus

©2022 by the authors. Licensee Birllesik Dunya Yenilik Arastirma ve Yayıncılık Merkezi, North Nicosia, Cyprus. This article is an open-access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Abstract

This study was conducted as a descriptive study to find out the colorectal cancer screening behaviors, benefits, and barriers perceptions of individuals between the ages of 50 and 70. The study was carried out with the participation of 271 individuals who were referred to a university hospital and who agreed to participate in the study. The data were collected by using a questionnaire form which consisted of 14 questions prepared by the researcher consistent with the literature, to find out the sociodemographic characteristics of individuals and their behaviors about colorectal cancer and "Instruments to Measure Colorectal Cancer Screening Benefits and Barriers." An analysis of the data was conducted using the Kruskal-Wallis test, the Mann-Whitney U test, and one-way ANOVA. In this study, in line with the scores of individuals from Instruments to Measure Colorectal Cancer Screening Benefits and Barriers factors, the participants were found to have a high level of Fecal Occult Blood Test (FOBT) Benefits, FOBT Barriers, Colonoscopy Benefits, and Colonoscopy Barriers perceptions.

Keywords: Colorectal cancer; early screening; FOBT barrier.

* ADDRESS FOR CORRESPONDENCE: Ebru Turhal, Karadeniz Technical University, Medical Simulation Center, Trabzon, 61000, Turkey.

E-mail address: eebru_aydin555@hotmail.com

1. Introduction

Cancer is ranked as the second leading cause of death worldwide, following cardiovascular diseases. The World Health Organization (WHO) forecasts the incidence of cancer, which was 12.7 million in 2008, to reach 21.4 million by 2030 [1]. Globocan 2018 data revealed that approximately 11% of cancer cases in the world are colorectal cancer [1]. In Turkey, colorectal cancer is the third most common type of cancer in men and women [2]. Colorectal cancer, when diagnosed at an early stage, may be treated with surgical interventions with lower mortality and morbidity [3-7]. American Cancer Society has reported that the chance of survival of individuals increases by 90% when colorectal cancer is diagnosed at an early stage [8]. WHO draws attention to the need for men and women to participate in a screening test after the age of 50 for the early diagnosis of colorectal cancer [9]. Today, colorectal cancer screening tests are implemented in many countries of the world within the scope of national targets for the early diagnosis of colorectal cancer [10].

The rate of participation in colorectal cancer screening tests is 80% in the U.S.A, 71% in Finland, 48% in Italy, 26.4% in Taiwan, and 27% in the Asia Pacific countries [1,11]. According to the report published by the Ministry of Health in 2016, this rate in Turkey is reported as between 20-30%. To carry out an effective cancer screening program, the rate of participation on a country basis should be increased to at least 70% [10]. Accordingly, it is rather significant to determine the factors affecting the attitudes toward colorectal cancer screening tests to increase the participation rates in these tests and to plan the interventions to be applied [12].

In the literature, some studies reported that perceptions concerning early screening tests concerning colorectal cancer have affected attitudes towards colorectal cancer screening tests [10, 13-15] in addition to individual personal characteristics such as age, gender, educational background, and insufficient knowledge [16-18]. Accordingly, it is significant to determine the attitudes and perceived benefits and barriers of individuals between the ages of 50-70, particularly who are within the risk group, towards the colorectal cancer screening tests. The findings of this study will help determine the attitudes as well as perceived benefits and barriers of individuals aged between 50-70 years and who are in the risk group for colorectal cancer towards colorectal cancer screening tests, thereupon strategies will be developed to raise awareness of individuals on colorectal cancer early screening methods.

1.1. Purpose of the Study

This study aimed to determine the attitudes as well as perceived benefits and barriers of individuals aged between 50-70 years, for colorectal cancer screening. The study sought to answer the following questions:

- What are the sociodemographic characteristics of individuals?
- What are the factors affecting the attitudes as well as perceived benefits and barriers of individuals for colorectal cancer screening tests?

2. Materials and Methods

2.1. Participants

This descriptive study was carried out between 01.01.2022 and 01.06.2022 with the participation of 271 individuals aged between 50-70 years who applied to the emergency service of a university hospital and provided consent to participate in the study. The sample size of the study was determined by using the formula used to calculate the number of individuals to be included in cases where the universe is known. The population of the study comprised of 10.418 individuals between the ages of 50-70 who applied to the emergency service of a university hospital in the last 1 year. The sample size was calculated as 265 people with a known universe sampling method with a 5% error at

the 90% confidence limit. Considering the possibility of data loss, the data collection process was completed when the number of patients reached 271.

2.2. Data Collection Tools

Research data were collected using the “Descriptive Information Form” and the “Scale for Assessment of Attitudes and Perceived Benefits and Barriers concerning Colorectal Cancer Screening”. The descriptive Information Form features 14 questions that determine the sociodemographic characteristics of individuals along with their attitudes toward colorectal cancer screening. The questionnaire was pre-tested on a group of 10 people via a pilot scheme and the individuals participating in the pilot scheme were not included in the sample. Ethics Committee Approval was obtained from the KTÜ (Karadeniz Technical University) Scientific Research Ethics Committee before initiating the study. The research data began to be collected by the researchers after the participants were informed about the study and their informed consent was obtained.

Scale for Assessment of Attitudes and Perceived Benefits and Barriers concerning Colorectal Cancer Screening was developed by Rawla et al. [1] in 2001 to determine the attitudes as well as perceived benefits and barriers of individuals for colorectal cancer screening tests. The validity and reliability of the scale in Turkish were confirmed in 2020 by Dönmez and Nahçıvan [19]. The scale consists of 31 items that evaluate the perceived barriers and benefits of colonoscopy and the Fecal Occult Blood Test (FOBT). The responses provided to each item in the scale, structured as a 4-point Likert scale, were scored as “Strongly Disagree” (1 point), “Disagree” (2 points), “Agree” (3 points), “Strongly Agree” (4 points), “Neutral” (0 points) or “non-responsive” (0 points). Before being asked to respond to the items in the scale, individuals were briefly informed about the Fecal Occult Blood Test (FOBT) and Colonoscopy procedure related to the scale items.

The benefits of the FOBT, the barriers of the FOBT, the benefits of the Colonoscopy, and the barriers of the Colonoscopy were the sub-dimensions of the scale. Scores obtained from each dimension are summed up within itself. There is no Overall Score for the Scale. The individuals who have scored high on the benefit dimensions are interpreted to have a high perception of benefits whereas those who have scored high on the barrier dimensions are interpreted to have a high perception of barriers. There are no reverse-coded items in the scale [19].

Cronbach Alpha reliability coefficients for the four sub-dimensions in the study conducted by Dönmez and Nahçıvan [19] were determined as 0.80 for FOBT benefits, 0.66 for FOBT barriers, 0.78 for colonoscopy benefits and 0.80 for colonoscopy barriers. Cronbach Alpha reliability coefficients for the Scale for Assessment of Attitudes and Perceived Benefits and Barriers concerning Colorectal Cancer Screening herein were determined as 0.77 for FOBT benefits, 0.69 for FOBT barriers, 0.82 for colonoscopy benefits, and 0.87 for colonoscopy barriers. To use the Scale for the Assessment of Attitudes and Perceived Benefits and Barriers concerning Colorectal Cancer Screening in this research, necessary permission was obtained from Dönmez and Nahçıvan [19] who adapted the scale to Turkish.

2.3. Ethics and Data Collection

Participating individuals were explained that the decision about whether or not to participate in the research is entirely at their discretion and that the data to be collected from this study will only be used for research purposes. Before collecting the research data, ethics committee approval was obtained from the relevant institution and informed consent was obtained from the individuals included in the study. Data collection procedures took approximately 15-20 minutes.

2.4. Data Analysis

The data collected in this study were statistically analyzed using the IBM SPSS 21 software. Whether the quantitative data collected met the normality assumption was analyzed by Shapiro-Wilk and Kolmogorov Smirnov tests. Mann Whitney U and Kruskal Wallis tests were used for data analysis. The reliability of the scales used was analyzed with Cronbach Alpha. The significance level was evaluated at $p < 0.05$.

3. Results

44.6% of the individuals participating in the research were found to be between 50-55 years of age, 61.6% were female, 94.1% were married, 47.2% were primary school graduates, 77.1% had an income equivalent to their expenses, 67.2% did not smoke, 98.9% did not drink alcohol, 52% described their overall health status as good, 15.9% had a family member diagnosed with colorectal cancer, 55.4% did not have prior knowledge about colorectal cancer screening tests, 84.9% did not undergo a Fecal Occult Blood Test before, 81.2% did not have a colonoscopy before and 72.7% thought that screening tests would allow early diagnosis of the disease (Table I).

TABLE I
DISTRIBUTION OF INDIVIDUALS' SOCIO-DEMOGRAPHIC CHARACTERISTICS AND THEIR ATTITUDES TOWARD COLORECTAL CANCER SCREENING

Characteristics	n	%	
Age	50-55 years of age	121	44.6
	56-60 years of age	56	20.7
	61-65 years of age	39	14.4
	66 years of age and older	55	20.3
Gender	Female	167	61.6
	Male	104	38.4
Marital Status	Married	255	94.1
	Single	16	5.9
Educational Background	Non-literate	13	4.8
	Literate	35	12.9
	Primary school graduate	128	47.2
	Secondary school graduate	43	15.9
Income Level	High school graduate	30	11.1
	University	22	8.1
	Income Exceeds the Expenses	7	2.6
	Income Equivalent to the Expenses	209	77.1
Smoking Habit	Income Below the Expenses	55	20.3
	Yes	67	24.7
	No	182	67.2
	Quitted	22	8.1
Alcohol Consumption	Yes	3	1.1
	No	268	98.9
Overall Health Status	Excellent	6	2.2
	Good	141	52
	Moderate	104	38.4
	Poor	19	7

	Bad	1	0.4
Having a Family Member Diagnosed with Colorectal Cancer	Yes	43	15.9
	No	228	84.1
Perception with regard to Screening Tests	May Prevent Disease	33	12.2
	Helps in Early Diagnosis of the Disease	197	72.7
	Helps Early Treatment of the Disease	37	13.7
	Doesn't think that it will help	4	1.5
Prior Knowledge About Colorectal Cancer Screening Tests	Yes	121	44.6
	No	150	55.4
Had Fecal Occult Blood Test Before	Yes	41	15.1
	No	230	84.9
Had Colonoscopy Before	Yes	51	18.8
	No	220	81.2

For the purpose of this study, mean scores obtained from the Perceived FOBT Benefits sub-scale in the Scale for Assessment of Attitudes and Perceived Benefits and Barriers with regard to Colorectal Cancer Screening was determined as 8.74 ± 1.69 whereas mean scores obtained in Perceived FOBT Barriers sub-scale was 19.61 ± 2.72 , Perceived Colonoscopy Benefits sub-scale was 11.73 ± 1.82 and Perceived Colonoscopy Barriers sub-scale was 31.96 ± 4.88 . The median values with regard to Perceived FOBT Benefits, Perceived FOBT Barriers, Perceived Colonoscopy Benefits, and Perceived Colonoscopy Barriers sub-scales of the Scale for Assessment of Attitudes and Perceived Benefits and Barriers concerning Colorectal Cancer Screening were calculated respectively as 9, 20, 12, 32 (Table II).

TABLE II
THE MEAN AND MEDIAN VALUES WITH REGARD TO SUB-SCALES OF THE SCALE FOR ASSESSMENT OF ATTITUDES AND PERCEIVED BENEFITS AND BARRIERS

Scale for Assessment of Attitudes and Perceived Benefits and Barriers with regard to Colorectal Cancer Screening	Mean \pm S.D.	Median/Min-Max
Perceived FOBT Benefits	8.74 \pm 1.69	9 (0-12)
Perceived FOBT Barriers	19.61 \pm 2.72	20 (0-26)
Perceived Colonoscopy Benefits	11.73 \pm 1.82	12 (0-16)
Perceived Colonoscopy Barriers	31.96 \pm 4.88	32 (3-43)

Min.: Minimum. Max.: Maximum. S.D: Standard Deviation

It was determined herein that the scores obtained from the Perceived FOBT Benefits sub-scale of the Scale for Assessment of Attitudes and Perceived Benefits and Barriers with regard to Colorectal Cancer Screening were not affected by the age, gender, marital status, educational background, income level, smoking habits, alcohol consumption, overall health status, having a family member diagnosed with colorectal cancer, perception with regard to screening tests, prior knowledge about colorectal cancer screening tests, having had Fecal Occult Blood Test and Colonoscopy before ($p > 0.05$) (Table III).

It was determined herein that the scores obtained from the Perceived FOBT Barriers sub-scale of the Scale for Assessment of Attitudes and Perceived Benefits and Barriers with regard to Colorectal Cancer Screening were affected by educational background ($p = 0.019$) as well as having had Fecal Occult Blood Test ($p = 0.001$) and Colonoscopy ($p = 0.014$) before (Table III). Accordingly, the scores

obtained from the Perceived FOBT Barriers sub-scale of the Scale for Assessment of Attitudes and Perceived Benefits and Barriers with regard to Colorectal Cancer Screening of primary school graduates were determined to be higher compared to the university graduates; similarly, the Perceived FOBT Barriers sub-scale scores of individuals who did not have a Fecal Occult Blood Test before were determined to be higher compared to the individuals who had an FOBT before. Although no significant difference was determined between the scores obtained from the Perceived FOBT Barriers sub-scale of the Scale for Assessment of Attitudes and Perceived Benefits and Barriers with regard to Colorectal Cancer Screening by the individuals who had and who did not have a Colonoscopy before, rank scores thereof revealed that mean rank of individuals who had not undergone colonoscopy before was 121.5 whereas the mean rank of those who had a colonoscopy before was 112.2. This indicates that individuals who did not have a colonoscopy before had higher scores from the Perceived FOBT Barriers sub-scale (Table III).

It was determined herein that the scores obtained from the Perceived FOBT Barriers sub-scale of the Scale for Assessment of Attitudes and Perceived Benefits and Barriers with regard to Colorectal Cancer Screening were not affected by the age, gender, marital status, smoking habits, alcohol consumption, overall health status, having a family member diagnosed with colorectal cancer, perception with regard to screening tests and prior knowledge about colorectal cancer screening tests ($p>0.05$) (Table III).

It was determined herein that the scores obtained from the Perceived Colonoscopy Benefits sub-scale of the Scale for Assessment of Attitudes and Perceived Benefits and Barriers with regard to Colorectal Cancer Screening were not affected by the age, gender, marital status, educational background, income level, smoking habits, alcohol consumption, overall health status, having a family member diagnosed with colorectal cancer, perception with regard to screening tests, prior knowledge about colorectal cancer screening tests, having had Fecal Occult Blood Test and Colonoscopy before ($p>0.05$) (Table III).

It was determined herein that the scores obtained from the Perceived Colonoscopy Barriers sub-scale of the Scale for Assessment of Attitudes and Perceived Benefits and Barriers with regard to Colorectal Cancer Screening were affected by the perception of the individual with regard to the overall health status ($p=0.011$), perception with regard to screening tests ($p=0.007$) as well as having had Colonoscopy ($p=0.036$) before (Table 3). The scores obtained from the Perceived Colonoscopy Barriers sub-scale of the Scale for Assessment of Attitudes and Perceived Benefits and Barriers with regard to Colorectal Cancer Screening by the individuals who thought that colorectal cancer screening tests are not helpful were determined to be higher than the individuals who thought that the screening tests would help early diagnosis and treatment of the disease. In addition, the scores obtained from the Perceived Colonoscopy Barriers sub-scale of the Scale for Assessment of Attitudes and Perceived Benefits and Barriers with regard to Colorectal Cancer Screening by the individuals who defined their overall health status as good were determined to be higher than the individuals who defined their overall health status as excellent. Furthermore, although no significant difference was determined between the scores obtained from the Perceived Colonoscopy Barriers sub-scale of the Scale for Assessment of Attitudes and Perceived Benefits and Barriers with regard to Colorectal Cancer Screening by the individuals who had and who did not have a Colonoscopy before, rank scores thereof revealed that mean rank of individuals who had not undergone colonoscopy before was 140.73 whereas the mean rank of those who had a colonoscopy before was 115.58. This indicates that individuals who did not have a colonoscopy before had higher scores from the Perceived Colonoscopy Barriers sub-scale.

It was determined herein that the scores obtained from the Perceived Colonoscopy Barriers sub-scale of the Scale for Assessment of Attitudes and Perceived Benefits and Barriers with regard to Colorectal Cancer Screening were not affected by the age, gender, marital status, educational background, income level, smoking habits, alcohol consumption, having a family member diagnosed

with colorectal cancer, prior knowledge about colorectal cancer screening tests and having had a Fecal Occult Blood Test before ($p>0.05$) (Table III).

TABLE III
COMPARISON OF SOCIO-DEMOGRAPHIC CHARACTERISTICS AND ATTITUDES OF INDIVIDUALS TOWARD
COLORECTAL CANCER SCREENING

		Perceived FOBT Benefits	Perceived FOBT Barriers	Perceived Colonoscopy Benefits	Perceived Colonoscopy Barriers
Age Groups	50-55 years of age	9 (0-12)	20 (0-26)	12 (0-16)	32 (3-43)
	56-60 years of age	9 (2-12)	20 (9-25)	12 (0-16)	32 (15-43)
	61-65 years of age	9 (0-12)	20 (10-25)	12 (7-16)	32 (20-38)
	66 years of age and older	9 (3-11)	20 (11-23)	12 (9-15)	32 (19-38)
Test Statistics		$\chi^2=1.647$	$\chi^2=0.615$	$\chi^2=1.189$	$\chi^2=6.391$
p-value		p=0.649	p=0.893	p=0.756	p=0.095
Gender	Female	9 (0-12)	20 (10-25)	12 (0-16)	32 (3-43)
	Male	9 (0-12)	20 (0-24)	12 (0-16)	32 (3-43)
Test Statistics		U=8141	U=7552	U=7949.500	U=7612.500
p-value		p=0.248	p=0.071	p=0.116	p=0.082
Marital Status	Married	9 (0-12)	20 (0-26)	12 (0-16)	32 (3-43)
	Single	9 (0-12)	20 (10-23)	12 (0-16)	32 (3-43)
Test Statistics		U=1966.5	U=1958.500	U=1649	U=1981
p-value		p=0.747	p=0.785	p=0.084	p=0.843
Educational Background	Non-literate	9 (8-10)	19 (13-22) AB	12 (11-12)	31 (26-36)
	Literate	9 (0-9)	20 (11-24) AB	12 (9-14)	32 (26-43)
	Primary school graduate	9 (0-12)	20 (10-26) A	12 (0-16)	32 (3-43)
	Secondary school graduate	9 (0-12)	20 (0-23) AB	12 (0-16)	32 (19-43)
	High school graduate	9 (0-11)	20 (16-24) AB	12 (0-16)	32 (3-42)
	University	9 (4-12)	19 (9-21) B	12 (6-16)	32 (15-42)
Test Statistics		$\chi^2=6.767$	$\chi^2=13.464$	$\chi^2=5.976$	$\chi^2=4.906$
p-value		p=0.239	p=0.019	p=0.309	p=0.427
Income Level	Income Exceeds the Expenses	9 (0-10)	20 (0-23)	12 (10-12)	32 (24-42)
	Equivalent to the Expenses	9 (0-12)	20 (9-26)	12 (0-16)	32 (3-43)
	Income Below the Expenses	9 (6-12)	20 (10-25)	12 (0-16)	32 (3-43)
Test Statistics		$\chi^2=1.148$	$\chi^2=0.981$	$\chi^2=3.090$	$\chi^2=4.345$
p-value		p=0.563	p=0.612	p=0.213	p=0.114
Smoking Habit	Yes	9 (6-12)	20 (11-24)	12 (8-16)	32 (3-43)

	No	9 (0-12)	20 (9-26)	12 (0-16)	32 (3-43)
	Quitted	9 (0-10)	19.5 (024)	12 (9-13)	32 (28-43)
Test Statistics		$\chi^2=1.295$	$\chi^2=5.281$	$\chi^2=0.289$	$\chi^2=5.064$
p-value		p=0.523	p=0.071	p=0.865	p=0.080
Alcohol Consumption	Yes	9 (9-19)	19 (18-20)	12 (12-12)	31 (30-31)
	No	9 (0-12)	20 (0-26)	12 (0-16)	32 (3-43)
Test Statistics		U=388,500	U=251	U=369	U=163,500
p-value		p=0.894	p=0.254	p=0.752	p=0.072
Overall, Health Status	Excellent	8.5 (3-9)	18.5 (12-20)	12 (10-12)	30.5 (18-31) A
	Good	9 (0-12)	20 (0-25)	12 (0-16)	32 (6-43) B
	Moderate	9 (2-12)	20 (9-26)	12 (6-16)	32 (3-43) AB
	Poor	9 (6-11)	19 (10-23)	12 (11-16)	31 (20-37) AB
	Bad	9 (9-9)	21 (21-21)	12 (12-12)	32 (32-32) AB
Test Statistics		$\chi^2=8.211$	$\chi^2=8.759$	$\chi^2=5.318$	$\chi^2=12.975$
p-value		p=0.084	p=0.067	p=0.256	p=0.011
Having a Family Member Diagnosed with Colorectal Cancer	Yes	9 (0-12)	20 (0-24)	12 (0-16)	32 (3-43)
	No	9 (0-12)	20 (9-26)	12 (0-16)	32 (3-43)
Test Statistics		U=4268	U=4346	U=4487	U=4725.500
p-value		p=0.072	p=0.230	p=0.237	p=0.703
	May Prevent Disease Helps in Early Diagnosis of the Disease	9 (6-11)	20 (14-24)	14 (10-16)	32 (26-39) AB
Perception with regard to Screening Tests	Helps Early Treatment of the Disease	9 (0-12)	19 (14-25)	12 (7-16)	32 (3-38) A
	Doesn't think that it will help	7.5 (6-12)	19.5 (11-26)	11 (8-16)	38.5 (33-43) B
Test Statistics		$\chi^2=3.132$	$\chi^2=3.335$	$\chi^2=0.856$	$\chi^2=12.016$
p-value		p=0.372	p=0.343	p=0.836	p=0.007
Prior Knowledge About Colorectal Cancer Screening Tests	Yes	9 (0-12)	20 (0-26)	12 (0-16)	32 (3-43)
	No	9 (0-12)	20 (10-25)	12 (0-16)	32 (3-43)
Test Statistics		U=8654	U=8788	U=8888.500	U=8961.500
p-value		p=0.381	p=0.648	p=0.696	p=0.857
Having Had Fecal Occult Blood Test Before	Yes	9 (0-12)	19 (0-25)	12 (0-16)	32 (3-43)
	No	9 (0-12)	20 (10-26)	12 (0-16)	32 (3-43)
Test Statistics		U=4238.500	U=3258	U=4412	U=3918.500
p-value		p=0.264	p=0.001	p=0.379	p=0.080
Having Had Colonoscopy Before	Yes	9 (0-12)	20 (0-25)	12 (0-16)	32 (3-43)
	No	9 (0-12)	20 (10-26)	12 (0-16)	32 (3-43)
Test Statistics		U=5587.500	U=4397.500	U=5567	U=4568.500
p-value		p=0.952	p=0.014	p=0.909	p=0.036

χ^2 = Kruskal Wallis Test Statistics U= Mann Whitney U Test Statistics, A-B-C= There is no difference between groups denoted with the same letters

4. Discussion

Mean scores obtained from the Perceived FOBT Benefits sub-scale in the Scale for Assessment of Attitudes and Perceived Benefits and Barriers with regard to Colorectal Cancer Screening was determined in this study as 8.7 ± 1.6 whereas mean scores obtained in Perceived FOBT Barriers sub-scale was 19.6 ± 2.7 , Perceived Colonoscopy Benefits sub-scale was 11.7 ± 1.8 and Perceived Colonoscopy Barriers sub-scale was 31.9 ± 4.8 . Although there is no overall score to be obtained from the scale, higher scores obtained from the perceived benefit sub-dimensions of the scale indicate that individuals have a high perception of benefit whereas higher scores obtained from the perceived barriers sub-dimensions of the scale indicate that individuals have a high perception of the barriers. Assessment of the scores that individuals received from the sub-dimensions of the scale within the scope of this research revealed that patients' Perceived FOBT and Colonoscopy Benefits are slightly above the average while their Perceived FOBT and Colonoscopy Barriers are high. In a study conducted by Bulduk et al. [18], it was reported that Perceived FOBT Benefits were slightly above the average while Perceived FOBT Barriers were below the average level. Accordingly, it is possible to argue that the higher Perceived Barrier of the individuals concerning protection from colorectal cancer indicates that their belief and motivation towards the behaviors for protection from colorectal cancer is low.

Perceived Benefit indicates that individuals believe in the benefits of certain protective behavior towards protection from the disease and is a sign of their willingness and competence to adopt that behavior. It was determined herein that the scores obtained from the Perceived FOBT and Colonoscopy Benefits sub-scales of the Scale for Assessment of Attitudes and Perceived Benefits and Barriers with regard to Colorectal Cancer Screening were not affected by the age, gender, marital status, educational background, income level, smoking habits, alcohol consumption, overall health status, having a family member diagnosed with colorectal cancer, perception with regard to screening tests, prior knowledge about colorectal cancer screening tests as well as having had Fecal Occult Blood Test and Colonoscopy before. Contrary to the findings of this study, it was found by Genç and Baysal [20] that gender and having a family member with bowel cancer were associated with having had Fecal Occult Blood Test before and that female patients and patients having a family member with a history of cancer increases the rate of having had Fecal Occult Blood Test before.

Barriers perceived by the individual towards protective behavior are the most significant factors in creating and maintaining protective behavior. Accordingly, the scores obtained from the Perceived FOBT Barriers sub-scale of the Scale for Assessment of Attitudes and Perceived Benefits and Barriers with regard to Colorectal Cancer Screening of primary school graduates were determined to be higher compared to the university graduates; similarly, the Perceived FOBT Barriers sub-scale scores of individuals who did not have a Fecal Occult Blood Test and colonoscopy before were determined to be higher compared to the individuals who had an FOBT and colonoscopy before. In a study conducted by Bulduk et al. [18] examining the attitudes of individuals over the age of fifty toward colorectal cancer risks and having a Fecal Occult Blood Test, it was found that the attitudes of individuals over the age of fifty toward protection from colorectal cancer are insufficient and the rate of having a Fecal Occult Blood Test increased by the recommendations of any doctor and any health care professional as well as have been diagnosed with colon polyps before.

It was determined herein that the scores obtained from the Perceived Colonoscopy Barriers sub-scales of the Scale for Assessment of Attitudes and Perceived Benefits and Barriers with regard to Colorectal Cancer Screening by the individuals who think that colorectal cancer screening tests are not helpful were higher than those who thought that screening tests helped early diagnosis and treatment of the disease. Similarly, the scores of the individuals who did not have a colonoscopy before were higher than the individuals who had a colonoscopy before. The literature review indicated that perceived barriers and negative attitudes towards colorectal cancer screening were affected by insufficient prior knowledge, not being aware of cancer symptoms, low-risk perception, fear of getting positive test results, being ashamed of undergoing the procedure, time constraints, the painful nature of the intervention, financial inadequacies, problems in accessing the service, having no complaints,

not trusting in the screening results, not having a family member with a history of cancer and health care professionals not recommending screening tests [10].

In a systematic review of the attitudes towards colorectal cancer screening in Turkey, affecting factors and the reasons for not participating in screening tests it was found that the most frequently used methods for colorectal cancer screening purposes are Fecal Occult Blood Tests and Colonoscopy. It was further reported that the rate of having a fecal occult blood test varies between 1.6% and 93.8% and the rate of having a colonoscopy varies between 1.8% and 55.3% [10]. This difference between the rates of preference concerning screening methods for the prevention of colorectal cancer may be explained by the fact that Fecal Occult Blood Test (FOBT) is a faster, easier, and painless procedure compared to a colonoscopy.

5. Conclusion

Finally, Fecal Occult Blood Test (FOBT) and Colonoscopy assume significant roles in the early diagnosis and treatment of colorectal cancer. Providing the necessary information concerning the significance of the Fecal Occult Blood Test (FOBT) and Colonoscopy in the prevention of colorectal cancer is thought to raise the awareness of individuals and increase their participation in screening tests. In line with the scores obtained by individuals between 50-70 years of age from the sub-dimensions of the Scale for Assessment of Attitudes and Perceived Benefits and Barriers with regard to Colorectal Cancer Screening, the findings of this study revealed that Perceived FOBT Barriers, Perceived FOBT Benefits, Perceived Colonoscopy Barriers and Perceived Colonoscopy Benefits of individuals were high.

Given that colorectal cancer is one of the most common types of cancer among men and women, we suggest that training needs should be determined and training programs supported by models should be scheduled with the aim to raise awareness concerning colorectal cancer-related risk factors, early diagnosis, treatment and screening methods, to increase the perceived benefits and to eliminate the perceived barriers, particularly among individuals aged between 50-70 who are in the risk group.

Conflict of interest

We have no conflicts of interest to disclose.

References

- [1] P. Rawla, T. Sunkara, and A. Barsouk, "Epidemiology of Colorectal Cancer: Incidence, Mortality, Survival, And Risk Factors," *Prz Gastroenterol*, vol. 14, no. 2, pp. 89–103, 2018.
- [2] Türkiye Halk Sağlığı Kurumu Sağlık İstatistikleri Yıllığı. (2018) <https://dosyasb.saglik.gov.tr/Eklenti/36134,Siy2018trpdf.Pdf?0>
- [3] I. Teo, Y.P. Tan, E.A. Finkelstein, G.M. Yang, F.T. Pan, H.Y.F. Lew, E.K.W. Tan, S.Y.K. Ong, and Y.B. Cheung, The feasibility and acceptability of a cognitive behavioral therapy-based intervention for patients with advanced colorectal cancer. *Journal of pain and symptom management*, vol. 60, no. 6, pp.1200-12072020. <https://doi.org/10.1016/j.jpainsymman.2020.06.016>
- [4] A. B. Gizaw, H. T. Gutema, and G. N. "Germossa, Cancer warning symptoms awareness and associated factors among individuals living in Assella Town, Ethiopia," *SAGE Open Nursing*, vol. 7, pp. 23779608211053493., 2021. <https://doi.org/10.1177/23779608211053493>
- [5] A. Açıkgöz, R. Çehreli, and H. Ellidokuz, "Kadınların Kanser Konusunda Bilgi ve Tutumları ile Erken Tanı Yöntemlerine Yönelik Davranışları," *Dokuz Eylül Üniversitesi Tıp Fakültesi Dergisi*, vol. 25, no. 3, pp. 145-154, 2011. https://jag.journalagent.com/z4/download_fulltext.asp?pdire=deutip&plng=tur&un=DEUTFD-87597
- [6] M. Alsarairah, M. Albashtawy, A. Abdalrahim, A. Alkhaldeh, M. Khatatbeh, J. Qaddumi, S.D. Albashtawy, Z. Albashtawy, A. Ibnian, A. Ayed, and M. Suliman, Cancer pain management program: Patients' experiences—A qualitative study. In *Nursing Forum*, Vol. 57, No. 5, pp. 773-784, Sep 2022, <https://doi.org/10.1111/nuf.12761>

- Turhal, E. & Koç, Z. (2022). A study of colorectal cancer screening behaviors, benefits, and barriers among people aged 50 to 70. *New Trends and Issues Proceedings on Advances in Pure and Applied Sciences*. 2022(1), 14-24. <https://doi.org/10.18844/gipaas.v2022i1.8770>
- [7] A. Bjerrum, J. Lindebjerg, O. Andersen, A. Fischer, and E. Lynge, "Long-term risk of colorectal cancer after screen-detected adenoma: Experiences from a Danish gFOBT-positive screening cohort," *International Journal of Cancer*, vol. 147, no. 4, pp.940-947, 2020. <https://doi.org/10.1002/ijc.32850>
- [8] L. Al Abdouli, H. Dalmook, M. A. Abdo, F. R. Carrick, and M. A. Rahman, "Colorectal Cancer Risk Awareness and Screening Uptake Among Adults in The United Arab Emirates," *Asian Pacific Journal of Cancer Prevention: Apjcp*, vol. 19, no.8, pp. 2343, 2018. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6171396/>
- [9] C. Taşkın, Ş. Dağhan, and A. Kalkım, "Yaşlı Bireylerin Kolorektal Kanserin Riskleri ve Erken Tanısına Yönelik Bilgi Düzeylerinin Ve Bu Kansere İlişkili Risklerinin İncelenmesi," *Süleyman Demirel Üniversitesi Sağlık Bilimleri Dergisi*, vol. 5, no. 3, pp. 88-93, 2014. <https://dergipark.org.tr/en/pub/sdusbed/issue/20922/224837>
- [10] U. E. Aytepe, & E. Donmez, "Türkiye’de Kolorektal Kansere Davranışları, Etkileyen Faktörler ve Taramaya Katılmama Nedenleri: Sistemik Derleme," *Halk Sağlığı Hemşireliği Dergisi*, vol. 4, no. 1, pp. 56-76, 2022. <https://dergipark.org.tr/en/pub/jphn/issue/69463/980767>
- [11] I. P. Lin, D. T. Chung, L. Y. Lee, H. J. Hsu, & S. C. Chen, "Health Belief, Behavior Intention, And Health Behaviors Related to Colorectal Cancer Screening in Taiwan," *International Journal of Environmental Research and Public Health*, vol. 17, no. 12, pp. 4246, 2020. <https://www.mdpi.com/742568>
- [12] S.F. Sheikh-Wu, D. Anglade, K. Gattamorta, and C.A. Downs, "Relationships Between Colorectal Cancer Survivors’ Positive Psychology, Symptoms, and Quality of Life," *Clinical nursing research*, vol. 32, no. 1, pp.171-184, 2023. <https://doi.org/10.1177/10547738221113385>
- [13] N. Ş. Şahin, and B. A. Üner, "Aydın Merkez İlçede Kolorektal Kansere İlişkin Bilgi, Tutum ve Engeller," *Türkiye Aile Hekimliği Dergisi*, vol. 19, no. 1, pp. 37-48, 2015. https://jag.journalagent.com/z4/download_fulltext.asp?pdire=tahd&plng=eng&un=TAHD-58235
- [14] R. Sammut, S. Camilleri, and J. Trapani, "The knowledge and attitudes of persons who participate and do not participate in colorectal cancer screening: A comparative survey," *Applied Nursing Research: ANR*, vol. 49, pp.29-34, 2019. <https://doi.org/10.1016/j.apnr.2019.07.004>
- [15] A. Biçer, "Kolorektal Kansere Tarama Testlerinin Farkındalık Araştırması," Tıpta Uzmanlık Tezi, Sağlık Bilimleri Üniversitesi, İstanbul, 2018.
- [16] A. Ata, "Elli Yaş ve Üzeri Bireylerde Kolorektal Kansere Davranışları Ve Sağlık Okuryazarlık Düzeyi Arasındaki İlişki," Sivas Cumhuriyet Üniversitesi, Sivas, Yüksek Lisans Tezi, 2020. <https://acikbilim.yok.gov.tr/handle/20.500.12812/235895>
- [17] G. Bayçelebi, F. Aydın, F. Gökosmanoğlu, T. S. Tat, and C. Varım, Trabzon’da Kansere Tarama Testleri Farkındalığı. *Journal Of Human Rhythm*, vol. 1, no. 3, pp. 90-94, 2015. <https://dergipark.org.tr/en/pub/johr/issue/10027/123738>
- [18] S. Bulduk, Y. Dincer, and E. Usta, "Identification of Colorectal Cancer Risks Of Individuals Aged Over Fifty and Their Beliefs Towards Having Fecal Occult Blood Test," *Konuralp Medical Journal*, vol. 9, no. 3, pp. 264-273, 2017. <https://dergipark.org.tr/en/doi/10.18521/ktd.306651>
- [19] E. Dönmez, N. O. Nahcivan, and S. M. Rawl, "Validity and Reliability of the Instruments to Measure Colorectal Cancer Screening Benefits and Barriers—Turkish Version," *Cancer Nursing*, vol. 45, no. 2, pp. E364-E373, 2022. https://journals.lww.com/cancernursingonline/Fulltext/2022/03000/Validity_and_Reliability_of_the_Instruments_to.17.aspx
- [20] Z. Genç, and H.Y. Baysal "Birinci Basamağa Başvuran Bireylerin Kolorektal Kansere Yönelik Sağlık İnançlarının Gaitada Gizli Kan Testi Yaptırma Durumlarına Etkisi," *Sağlık Ve Toplum*, vol. 30, no. 2, pp. 90-97, 2020. <https://acikbilim.yok.gov.tr/handle/20.500.12812/54375>