

Health beliefs and practices of nurses about the prevention of colorectal cancer

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Abstract

This study was carried out as a descriptive study to find out the beliefs and practices of nurses for protection from colorectal cancer. The study was conducted between 01.01.2022 and 10.06.2022 with the participation of 238 nurses who were working in a university hospital and who agreed to participate in the study. The data were collected by using the data form which consisted of 12 questions prepared by the researcher in line with the literature to find out the sociodemographic characteristics of individuals and their beliefs and practices about colorectal cancer and the Health Belief Model Scale for Protection from Colorectal Cancer. Kruskal Wallis test, Mann Whitney U test and One-way ANOVA were used in data analysis. With the scores obtained from the Health Belief Model Scale for Protection from Colorectal Cancer factors of nurses, nurses' perceptions of susceptibility were lower than moderate, their perceptions of the barrier were moderate, and their perceptions of health motivation and confidence benefits were high.

Keywords: Belief; colorectal cancer; health; nurse.

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1. Introduction

Colorectal cancer is a disease that starts in the colon or rectum and which causes the cells in the mucous layer of the colon (lower intestine) to change and divide uncontrollably [1,2]. Therefore, colorectal cancer is an important public health problem taking into account the mortality and morbidity rates it causes in male and female patients in the world [3]. Colorectal cancer accounts for 10% of new cancer cases worldwide. This type of cancer is the third most common cancer encountered after prostate and lung cancers in men and breast and thyroid cancers in women [4]. Colorectal cancer constitutes 8% of all cancers developed by women patients and 9.9% of all cancers developed by men in our country and is the third most common cancer developed by both men and women [5].

Colorectal cancer is developed slowly by individuals and may be treated with surgical intervention when detected at an early stage. This situation reveals the significance of early diagnosis for colorectal cancer patients. Early diagnosis is extremely important in protecting and improving health status in colorectal cancer patients, reducing morbidity and mortality rates, and improving the quality of life [6,7]. However, the rate of participation in colorectal cancer screening programs is quite low in our country. This may be caused by factors such as insufficient prior knowledge about colorectal cancer, anxiety, embarrassment, apathy, fear of cancer or screening tests, time constraints, feeling healthy as well as inaccurate information and attitudes concerning screening tests [8-11]. Furthermore, individual factors affecting participation in colorectal cancer screening tests are reported to be closely related to health beliefs and health behaviors [12].

Nurses in the health care team, who are constantly in interaction with the individual and their families, assume the responsibility in the society they serve in addition to their health care responsibilities due to their training and supportive roles [13-15]. Nurses also have roles such as acquiring the necessary information concerning cancer screening programs, identifying individuals at risk of cancer, and providing information to the public about the significance of early diagnosis methods [16,17]. However, it is reported that prior studies in the literature on the nurses' current knowledge, attitudes, and behaviors about cancer [18], colorectal cancer, and early screening tests are not at the desired level [19, 20]. Accordingly, it is important to know the health beliefs and practices of nurses toward preventing colorectal cancer. No prior study was found in the literature examining nurses' health beliefs and practices toward colorectal cancer. The findings of this study will help determine the current knowledge, health beliefs, and practices of the nurses towards colorectal cancer, thereupon appropriate strategies will be developed.

1.1. Purpose of Study

This study, aiming to determine the nurses' health beliefs and practices towards colorectal cancer sought answers to the following questions:

- What are the sociodemographic characteristics of participating nurses?
- What are the factors affecting the nurses' health beliefs and practices toward colorectal cancer?

2. Materials and Methods

2.1. Participants

This descriptive study was carried out between 01.01.2022 and 10.06.2022 with the participation of 238 nurses who were assigned to a university hospital and who consented to participate in the research. The sample size of the study was determined by using Ozturk's [21] formula. The universe of the research consisted of 600 nurses who were assigned to a university hospital. The sample size was calculated as 234 people with a known universe sampling method with a 5% error at the 95% confidence limit. Considering the possibility of data loss, the data collection process was completed when the number of patients reached 238. Volunteer nurses who consented to participate in the research were included therein.

2.2. Data Collection instrument

Research data were collected using the “Descriptive Information Form” and the “A Health Belief Model (HBM) Scale for Colorectal Cancer”. The descriptive Information Form features 12 questions that determine the sociodemographic and professional characteristics of the nurses along with their health beliefs and practices towards colorectal cancer. 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 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 duly informed about the study and their informed consent was obtained.

2.2.1. The Health Belief Model (HBM) Scale with regard to the Protection from Colorectal Cancer

The Health Belief Model (HBM) Scale with regard to Protection from Colorectal Cancer was developed by Jacobs [22] based on Champion’s Health Belief Model Scale. Jacobs [22] adapted that scale to colorectal cancer by rearranging several items and rephrasing items containing “breast cancer” to “colorectal cancer”. The scale, which was adapted into Turkish by Özsoy et al. [23], is a five-point Likert-type scale consisting of 33 items. The items in the scale are scored as “1= Strongly disagree”, “2= Disagree”, “3=Neither agree nor disagree”, “4=Agree” and “5=Strongly agree” [23].

The Health Belief Model (HBM) Scale with regard to the Protection from Colorectal Cancer consists of five sub-dimensions, namely “Perceived Sensitivity, Perceived Severity, Perceived Health Motivation, Perceived Trust-Benefit and Perceived Barriers”. No overall score is calculated in the scale, each sub-dimension is evaluated individually. Higher scores received from the sub-dimensions of the scale indicate an increase in the perceived sensitivity, severity, health motivation, trust-benefit, and barriers [23].

The Cronbach Alpha reliability coefficient for the five sub-dimensions of the scale was determined in the study carried out by Özsoy et al. [23] as 0.76 for Perceived Sensitivity, 0.88 for Perceived Trust-Benefit, 0.58 for Perceived Severity, 0.54 for Perceived Health Motivation and 0.60 for Perceived Barriers [23]. The Cronbach Alpha reliability coefficient for the five sub-dimensions of the scale was determined herein as 0.80 for Perceived Sensitivity, 0.80 for Perceived Trust-Benefit, 0.59 for Perceived Severity, 0.22 for Perceived Health Motivation, and 0.59 for Perceived Barriers

2.3. Ethical consideration and Data Collection

Necessary permission was obtained from Özsoy et al. [23], who adapted the scale into Turkish, to use the Health Belief Model (HBM) Scale with regard to the Protection from Colorectal Cancer for this study. It was explained to the participating nurses 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 nurses 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

37.8% of the nurses participating in the study were found to be between 31-41 years of age, 93.3% were female, 66.0% were married, 56.7% had a bachelor's degree, 60.9% were assigned to

internal services, 48.3% had an income equivalent to their expenses, 67.6% did not smoke and 92.9% did not consume alcohol, 46.2% described their overall health status as good, 13.9% had a family member diagnosed with colorectal cancer, 37.8% did not have prior knowledge about colorectal cancer early screening tests, 76.9% did not undergo a Fecal Occult Blood Test before and 92.0% did not have a colonoscopy before (Table I).

TABLE I

DISTRIBUTION OF NURSES' SOCIODEMOGRAPHIC AND PROFESSIONAL CHARACTERISTICS ALONG WITH THEIR HEALTH BELIEFS AND PRACTICES REGARDING COLORECTAL CANCER

Characteristics	n	%	
Age	20-30 years of age	86	36.1
	31-41 years of age	90	37.8
	42-52 years of age	53	22.3
	53 years of age and older	9	3.8
Gender	Female	222	93.3
	Male	16	6.7
Marital Status	Married	157	66.0
	Single	81	34.0
Educational Background	Vocational High School of Health Services	12	5.0
	Associate's Degree	51	21.4
	Bachelor's Degree	135	56.7
	Post Graduate Degree	40	16.8
Unit/Service Assigned in	Internal Medicine	145	60.9
	Surgery	70	29.4
	Other	23	9.7
Income Level	Income Exceeds the Expenses	22	9.2
	Income Equivalent to the Expenses	115	48.3
	Income Below the Expenses	101	42.4
Smoking Habit	Yes	48	20.2
	No	161	67.6
	Quitted	29	12.2
Alcohol Consumption	Yes	17	7.1
	No	221	92.9
Overall Health Status	Excellent	16	6.7
	Good	110	46.2

	Moderate	105	44.1
	Poor	7	2.9
Having a Family Member Diagnosed with Colorectal Cancer	Yes	33	13.9
	No	205	86.1
Prior Knowledge About Colorectal Cancer Screening Tests	Yes	148	62.2
	No	90	37.8
Having Had Fecal Occult Blood Test Before	Yes	55	23.1
	No	183	76.9
Having Had Colonoscopy Before	Yes	19	8.0
	No	219	92.0

The mean score received by the nurses in the Perceived Sensitivity sub-dimension of The Health Belief Model (HBM) Scale with regard to the Protection from Colorectal Cancer was calculated at 13.84 ± 4.32 whereas it was 16.35 ± 3.70 for the Perceived Severity sub-dimension, 16.34 ± 3.42 for the Perceived Health Motivation sub-dimension, 45.44 ± 6.26 for the Perceived Trust-Benefit sub-dimension and was 15.57 ± 4.08 for the Perceived Barriers sub-dimension. Median values for the Perceived Sensitivity, Perceived Severity, Perceived Health Motivation, Perceived Trust-Benefit, and Perceived Barriers sub-dimensions of The Health Belief Model (HBM) Scale with regard to the Protection from Colorectal Cancer were found to be 14, 16, 16, 46 and 15 respectively (Table II).

TABLE II

MEAN AND MEDIAN VALUES CONCERNING SUB-DIMENSIONS OF THE HEALTH BELIEF MODEL (HBM) SCALE		
The Health Belief Model (HBM) Scale with regard to the Protection from Colorectal Cancer	$\bar{x} \pm S.D.$	Median (Min-Max)
Perceived Sensitivity	13.84 ± 4.32	14 (6-29)
Perceived Severity	16.35 ± 3.70	16 (8-25)
Perceived Health Motivation	16.34 ± 3.42	16 (9-25)
Perceived Trust-Benefit	45.44 ± 6.26	46 (22-55)
Perceived Barriers	15.57 ± 4.08	15 (6-30)

It was determined herein that the scores obtained from the Perceived Sensitivity sub-dimension of The Health Belief Model (HBM) Scale with regard to the Protection from Colorectal Cancer were affected by the educational background of the nurses ($p=0.015$), how they defined their overall health status ($p=0.002$), having a family member diagnosed with colorectal cancer ($p=0.005$), prior knowledge about colorectal cancer screening tests ($p=0.049$) and having had Fecal Occult Blood Test before ($p=0.041$) (Table III). Mean scores received from the Perceived Sensitivity sub-dimension of The Health Belief Model (HBM) Scale with regard to the Protection from Colorectal Cancer by the nurses who had a family member diagnosed with colorectal cancer, who did not have prior knowledge about colorectal cancer screening tests and who have had Fecal Occult Blood Test before were determined to be higher. In addition, scores received from the Perceived Sensitivity sub-dimension of The Health Belief Model (HBM) Scale with regard to the Protection from Colorectal Cancer by the

nurses who graduated from Vocational High School of Health Services were higher than nurses who had bachelor's degrees or post-graduate degree and the Perceived Sensitivity scores of nurses who defined their overall health status as "moderate" were found to be higher than nurses who defined their overall health status as "excellent".

Mean scores received by the nurses from the Perceived Severity sub-dimension of The Health Belief Model (HBM) Scale with regard to the Protection from Colorectal Cancer was determined to differ according to the gender of the nurses ($p=0.00$) and the unit/service they were assigned in ($p=0.040$) (Table 3). Mean scores received by the female nurses from the Perceived Severity sub-dimension of The Health Belief Model (HBM) Scale with regard to Protection from Colorectal Cancer were found to be higher than male nurses.

Mean scores received by the nurses from the Perceived Health Motivation sub-dimension of The Health Belief Model (HBM) Scale with regard to the Protection from Colorectal Cancer were determined to differ according to the unit/service the nurses were assigned in ($p=0.025$), their alcohol consumption ($p=0.008$), prior knowledge about colorectal cancer screening tests ($p=0.008$) and having had a Fecal Occult Blood Test before ($p=0.022$). Accordingly, mean scores received from the Perceived Health Motivation sub-dimension of The Health Belief Model (HBM) Scale with regard to the Protection from Colorectal Cancer by the nurses who consumed alcohol, who had prior knowledge about colorectal cancer screening tests, and who have had Fecal Occult Blood Test before were determined to be higher (Table III).

Mean scores received by the nurses from the Perceived Trust-Benefit sub-dimension of The Health Belief Model (HBM) Scale with regard to the Protection from Colorectal Cancer were determined to differ according to the gender of the nurses ($p=0.022$), their educational background ($p=0.004$), income level ($p=0.001$), their alcohol consumption ($p=0.005$), how they defined their overall health status ($p=0.049$) and having had a Fecal Occult Blood Test before ($p=0.040$). Accordingly, mean scores received from the Perceived Trust-Benefit sub-dimension of The Health Belief Model (HBM) Scale with regard to the Protection from Colorectal Cancer by the female nurses who had an income equivalent to their expenses, who consumed alcohol and who have had Fecal Occult Blood Test before were determined to be higher. In addition, mean scores received by nurses with a post-graduate degree from the Perceived Trust-Benefit sub-dimension of The Health Belief Model (HBM) Scale with regard to the Protection from Colorectal Cancer were found to be higher compared to nurses who graduated from Vocational High School of Health Services (Table III).

Mean scores received by the nurses from the Perceived Barriers sub-dimension of The Health Belief Model (HBM) Scale with regard to the Protection from Colorectal Cancer were determined to differ according to how they defined their overall health status ($p=0.042$) and their prior knowledge about colorectal cancer screening tests ($p=0.006$). Accordingly, mean scores received by nurses who had prior knowledge about colorectal cancer screening tests from the Perceived Barriers sub-dimension of The Health Belief Model (HBM) Scale with regard to the Protection from Colorectal Cancer were found to be higher compared to nurses who did not have prior knowledge about colorectal screening tests.

TABLE III
SCORES CONCERNING THE PROTECTION FROM COLORECTAL CANCER

Characteristics		Perceived Sensitivity Sub-dimension	Perceived Severity Sub-dimension	Perceived Health Motivation Sub-Dimension	Perceived Trust-Benefit Sub-dimension	Perceived Barriers Sub-dimension
Age Groups	20-30 years of age	14 (8-19)	16 (8-25)	16 (9-23)	47 (28-55)	15 (6-24)
	31-41 years of age	14 (6-21)	16 (8-25)	16 (10-45)	45 (26-55)	15 (7-30)

	42-52 years of age	17 (6-28)	17 (12-25)	16 (12-23)	46 (22-55)	16 (6-28)
	53 years of age and older	17 (12-19)	16 (13-18)	17 (12-30)	45 (41-49)	16 (14-18)
Test Statistics		$\chi^2=5.766$	$\chi^2=0.205$	$\chi^2=2.781$	$\chi^2=3.092$	$\chi^2=2.370$
p-value		p=0.124	p=0.977	p=0.427	p=0.378	p=0.435
Gender	Female	14.5 (6-28)	16 (8-25)	16 (10-45)	46 (22-55)	16 (6-30)
	Male	11.5 (9-20)	14 (9-15)	14.5 (9-22)	41 (26-51)	14 (9-23)
Test Statistics		U=1347.500	U=657,500	U=1340	U=1166	U=1677.500
p-value		p=0.106	p=0.00	p=0.099	p=0.022	p=0.710
Marital Status	Married	14 (6-28)	16 (8-25)	16 (10-25)	45 (22-55)	16 (6-30)
	Single	14 (7-21)	16 (8-25)	16 (9-45)	47 (28-55)	15 (6-24)
Test Statistics		U=5847	U=6284	U=6253	U=5779	U=5651
p-value		p=0.308	p=0.882	p=0.833	p=0.249	p=0.158
Educational Background	Vocational High School of Health Services	19 (8-20)B	15 (12-17)	15 (12-20)	39 (31-50)A	18 (13-22)
	Associate's Degree	14 (9-22) AB	16 (9-25)	16 (9-45)	47 (22-55) AB	16 (9-25)
	Bachelor's Degree	14 (6-28)A	16 (8-25)	16 (11-23)	45 (28-55) AB	16 (6-28)
	Post Graduate Degree	13.5 (6-18) A	17 (10-25)	17 (10-25)	50 (36-55) B	14 (6-30)
Test Statistics		$\chi^2=10.486$	$\chi^2=6.993$	$\chi^2=7.780$	$\chi^2=13.344$	$\chi^2=6.547$
p-value		p=0.015	p=0.072	p=0.051	p=0.004	p=0.088
Unit/Service Assigned in	Internal Medicine	14 (6-20)	17 (8-25)	16 (10-25) A	46 (26-55)	15 (6-30)
	Surgery	14 (6-22)	15.5 (9-23)	15 (9-45) B	44.5 (22-55)	16 (6-25)
	Other units/services	16.5 (7-28)	17 (8-25)	17 (11-23) AB	47 (32-55)	15 (9-23)
Test Statistics		$\chi^2=1.925$	$\chi^2=6.460$	$\chi^2=7.409$	$\chi^2=5.301$	$\chi^2=0.880$
p-value		p=0.382	p=0.040	p=0.025	p=0.071	p=0.644
Income Level	Income Exceeds the Expenses	14 (9-21)	16.5 (10-25)	17 (12-23)	50 (32-55) B	16.5 (12-22)
	Income Equivalent to the Expenses	14 (6-28)	16 (8-25)	16 (11-25)	47 (31-55) B	15 (6-30)
	Income Below the Expenses	14.5 (6-22)	16 (8-25)	16 (9-45)	44 (22-55) A	15 (6-30)
Test Statistics		$\chi^2=1.084$	$\chi^2=1.523$	$\chi^2=4.082$	$\chi^2=13.419$	$\chi^2=1.851$
p-value		p=0.581	p=0.467	p=0.130	p=0.001	p=0.396
Smoking Habit	Yes	14 (6-21)	17 (9-25)	16.5 (10-23)	47 (36-55)	15 (6-25)
	No	15 (6-28)	16 (8-25)	16 (9-45)	45 (26-55)	16 (6-30)
	Quitted	12 (6-22)	15 (9-25)	17 (12-22)	45 (22-55)	

						15 (9-23)
Test Statistics		$\chi^2=1.379$	$\chi^2=3.347$	$\chi^2=1.658$	$\chi^2=2.229$	$\chi^2=1.060$
p-value		p=0.502	p=0.188	p=0.436	p=0.328	p=0.589
Alcohol Consumption	Yes	10.5 (5-16)	16 (11-25)	18 (10-23)	50 (36-55)	15 (6-22)
	No	15 (6-28)	16 (8-25)	16 (9-45)	45 (22-55)	16 (6-30)
Test Statistics		U=1588	U=1721	U=1153.500	U=1117	U=1833.500
p-value		p=0.287	p=0.563	p=0.008	p=0.005	p=0.869
Overall, Health Status	Excellent	11.5 (9-14) A	15 (8-23)	18 (13-23)	49 (37-55) B	14 (7-17) A
	Good	13 (6-20) AB	17 (8-25)	17 (10-45)	47 (26-55) B	15 (6-30) AB
	Moderate	17 (6-28) B	16 (8-25)	16 (9-23)	45 (22-55) A	16 (6-28)B
	Poor	16 (8-21) AB	16 (16-21)	16 (10-18)	44 (32-53) AB	14 (14-22) AB
Test Statistics		$\chi^2=14.527$	$\chi^2=2.538$	$\chi^2=6.034$	$\chi^2=7.865$	$\chi^2=8.200$
p-value		p=0.002	p=0.469	p=0.110	p=0.049	p=0.042
Having a Family Member Diagnosed with Colorectal Cancer	Yes	17 (8-28)	16 (8-24)	17 (11-22)	47 (32-55)	16 (7-24)
	No	14 (6-22)	16 (8-25)	16 (9-45)	46 (22-55)	15 (6-30)
Test Statistics		U=2358.500	U=3364	U=3291.500	U=3295	U=3158
p-value		p=0.005	p=0.960	p=0.803	p=0.811	p=0.539
Prior Knowledge About Colorectal Cancer Screening Tests	Yes	14 (6-28)	16 (8-25)	17 (9-25)	46 (22-55)	15 (6-30)
	No	15 (8-21)	16 (8-25)	16 (10-45)	45 (26-55)	17 (9-25)
Test Statistics		U=5648	U=5874	U=5306	U=5836.500	U=5262
p-value		p=0.049	p=0.126	p=0.008	p=0.109	p=0.006
Having Had Fecal Occult Blood Test Before	Yes	15.5 (7-28)	16 (10-25)	17 (12-23)	47 (22-55)	15 (7-27)
	No	14 (6-21)	16 (8-25)	16 (9-45)	45 (26-55)	16 (6-30)
Test Statistics		U=4122	U=4655	U=4010.500	U=4116.500	U=5025.500
p-value		p=0.041	p=0.397	p=0.022	p=0.040	p=0.987
Having Had Colonoscopy Before	Yes	16 (8-28)	16 (11-21)	16 (12-22)	47 (39-53)	15 (11-23)
	No	14 (6-22)	16 (8-25)	16 (9-45)	46 (22-50)	16 (6-30)
Test Statistics		U=1760	U=1979.500	U=1915	U=1958	U=1887
p-value		p=0.264	p=0.725	p=0.563	p=0.670	p=0.500

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

The findings obtained in this study, which was conducted to determine the beliefs and practices of nurses assigned in a university hospital in the Black Sea Region to the north of Turkey, towards the prevention of colorectal cancer were discussed in line with the relevant literature. Mean scores received by the nurses participating in this study from the Perceived Sensitivity, Severity, Health Motivation, Trust-Benefit, and Barriers sub-dimensions of The Health Belief Model (HBM) Scale with regard to the Protection from Colorectal Cancer were determined as 13.84±4.32, 16.35±3.70, 16.34±3.42, 45.44±6.26, 15.57±4.08 respectively. Higher scores obtained from the sub-dimensions of

the scale indicated higher perceived sensitivity, severity, trust-benefit, and benefits. Analysis of the scores received by the nurses participating in this study from the sub-dimensions of The Health Belief Model (HBM) Scale with regard to the Protection from Colorectal Cancer revealed that their perceived sensitivity was below-average, perceived barriers were moderate and perceived severity, health benefit and trust-benefit were high. Similar to the findings of this research, studies conducted by Koçak and Tümer [24] and Öztaş et al. [25] on this subject indicated that the perceived sensitivity of the individuals was below-average, perceived barriers were moderate and perceived severity, health benefit and trust-benefit were high. These results indicate that higher nurses' perceived severity, health motivation, and trust-benefit about the early diagnosis of colorectal cancer will cause their beliefs and motivations for the protective behaviors towards colorectal cancer to protect and develop overall health to be high.

Perceived sensitivity is referred to as the ability of the individual to perceive any risk against his/her overall health status and take the necessary actions to reduce the risky behavior [26]. Mean scores received from the Perceived Sensitivity sub-dimension of The Health Belief Model (HBM) Scale with regard to the Protection from Colorectal Cancer by the nurses who had a family member diagnosed with colorectal cancer and who have had Fecal Occult Blood Test before in this study were determined to be higher. Similar to the findings of this research, a literature review on the relevant subject revealed individuals with a family member diagnosed with cancer [2] and who have had a Fecal Occult Blood Test before [27] scored higher in the Perceived Sensitivity sub-dimensions of The Health Belief Model (HBM) Scale for the Protection from Colorectal Cancer. Contrary to the research findings herein, another study on this subject reported that there was no statistically significant difference between having a family member diagnosed with colorectal cancer and perceived sensitivity [24].

Mean scores received by the female nurses from the Perceived Severity sub-dimension of The Health Belief Model (HBM) Scale with regard to the Protection from Colorectal Cancer herein were found to be higher than male nurses. In line with the research findings herein, the research conducted by Kaçan and Özcan [2] reported that the Perceived Severity sub-dimension scores of female nurses in The Health Belief Model (HBM) Scale with regard to the Protection from Colorectal Cancer were higher than male nurses. Contrary to the research findings herein, another study on this subject reported that there was no statistically significant difference between gender and Perceived Severity sub-dimension scores in The Health Belief Model (HBM) Scale concerning Protection from Colorectal Cancer [27]. Perceived Severity is affected by the level of prior knowledge of the individuals about the disease [26]. This difference concerning the research findings on Perceived Severity is thought to be caused by the differences between female and male individuals in terms of anxiety and prior knowledge about the consequent threatening situation.

Health motivation indicates the motivation of individuals to maintain and improve their health status and to adopt certain protective behavior [28, 26]. Accordingly, mean scores received from the Perceived Health Motivation sub-dimension of The Health Belief Model (HBM) Scale with regard to the Protection from Colorectal Cancer by the nurses who consumed alcohol, who had prior knowledge about colorectal cancer screening tests, and who have had Fecal Occult Blood Test before were determined to be higher. In a study conducted by Kaçan and Özcan [2] on this subject, it was reported that individuals who had consumed alcohol and quit had higher perceived health motivation concerning protection from colorectal cancer. Contrary to the research findings herein, another study on this subject reported that there was no statistically significant difference between having a family member diagnosed with colorectal cancer and mean Perceived Health Motivation sub-dimension scores in The Health Belief Model (HBM) Scale concerning the Protection from Colorectal Cancer [24].

Perceived Trust-Benefit indicates that the individuals believe in the protective behavior to prevent disease will be beneficial for themselves and their competence in adopting the said behavior [26,28]. Accordingly, mean scores received from the Perceived Trust-Benefit sub-dimension of The Health Belief Model (HBM) Scale with regard to the Protection from Colorectal Cancer by the female nurses who had a post-graduate degree and who had an income equivalent to or exceeding their

expenses, who consumed alcohol and who have had Fecal Occult Blood Test before were determined to be higher. In line with the research findings herein, another research conducted on the subject reported that Perceived Trust-Benefit sub-dimension scores of female nurses who had an income exceeding their expenses, who consumed alcohol, and who have had Fecal Occult Blood Test before were determined to be higher [27]. Contrary to the research findings herein, another study conducted by Kaçan and Özcan [2] reported that Perceived Trust-Benefit sub-dimension scores of male nurses who had an income equivalent to their expenses were determined to be higher, however, there was no statistically significant difference in terms of Perceived Trust-Benefit sub-dimension scores between individuals in terms of alcohol consumption.

Barriers perceived by the individual towards protective behavior are the most significant factors in creating and maintaining protective behavior [12,29]. Accordingly, mean scores received by nurses who had prior knowledge about colorectal cancer screening tests from the Perceived Barriers sub-dimension of The Health Belief Model Scale with regard to the Protection from Colorectal Cancer were found to be higher compared to nurses who did not have prior knowledge about colorectal screening tests.

5. Conclusion

Colorectal cancer screening programs are the most frequently referred approach to decreasing mortality and morbidity rates related to colorectal cancer. The literature review on this subject revealed that the rate of individuals participating in colorectal cancer screening programs is not at the desired level and insufficient prior knowledge is among the most important barriers affecting the attitudes towards colorectal cancer screening tests

Analysis of the scores received by the nurses participating in this study from the sub-dimensions of The Health Belief Model (HBM) Scale with regard to the Protection from Colorectal Cancer revealed that their perceived sensitivity was below-average, perceived barriers were moderate and perceived severity, health benefit and trust-benefit were high. Considering the roles of nurses in counseling on the prevention of colorectal cancer, cancer screening and diagnosis programs, providing care to individuals with cancer, and providing health training to the individual, family, and community, increase the perceived health beliefs and practices of nurses towards the prevention of the colorectal cancer is thought to be a significant issue.

Accordingly, the researchers suggest that training needs should be determined and supportive strategies should be developed to decrease the nurses' perceived barriers and to increase their perceived sensitivity, severity, trust-benefit, and health motivation.

Conflict of interest

We have no conflicts of interest to disclose.

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