

Family Physicians' Knowledge, Attitudes, and Practices Toward Colorectal Cancer Screening

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Abstract The purpose of this study was to assess family physicians' knowledge, attitudes, and practices toward colorectal cancer (CRC) screening. The population in this cross-sectional study consisted of 290 family physicians working in Samsun, Turkey, contacted between 15 June and 15 July 2015 and agreeing to participate. A questionnaire prepared by the authors on the basis of the relevant literature was applied at face-to-face interviews. The first part of the questionnaire inquired into sociodemographic information, while the second contained questions evaluating family physicians' knowledge, attitudes, and practices toward CRC screening. Physicians completed the questionnaire in approximately 10 min. 65.9 % of the family physicians in the study were men. Mean age of the participants was 43.40 ± 6.54 years, and mean number of years in service was 18.43 ± 6.42 . The average number of patients seen by physicians on a daily basis was 51–99. CRC screening was performed by 83.1 % of physicians. The fecal occult blood test (FOBT) was recommended at the correct frequency by 30.7 % of physicians and colonoscopy by 11.7 %. A further 68.6 % of physicians followed no CRC guideline. Only 3.8 % of those reporting using a guideline were able to name it. The great majority of physicians in this study apply CRC screening. However, family physicians lack sufficient information concerning the ages at which screening tests should be started and concluded and how frequently they should be performed. They also do not attach sufficient importance to CRC guidelines. This results in excessive demand for screening tests.

Keywords Colorectal neoplasms · Colonoscopy · Fecal occult blood test · General practitioners · Primary health care · Practice guideline · Screening

Introduction

Colorectal cancer (CRC) is the third most commonly diagnosed cancer in both men and women in Turkey and worldwide [1, 2]. It is also a preventable cancer. The possibility of cure is high if diagnosed in the early stage. Several studies have shown that CRC screening reduces both incidence and mortality [3–7].

Several countries have screening programs consisting of different tests at various intervals and in varying age ranges [4, 8]. In Turkey, the fecal occult blood test (FOBT) is recommended once every 2 years for all adults in the 50–70 age group for the early diagnosis of CRC, and colonoscopy is recommended once every 10 years. Screening should be started at the age of 40 in individuals with a history of CRC or adenomatous polyp in first-degree relatives, and screening of subjects with a history of early CRC in first-degree relatives is advised 5 years before the age at onset of cancer in such relatives independently from the age of 40 [2].

Primary care and family physicians are increasingly regarded as a vital component of oncological services. Family physicians occupy an important place in the prevention of cancer, screening, treatment, the post-treatment period, and palliative care. Family physicians serve as “gate-openers” in the health system [9–11]. They play a key role in cancer screening, because recommendations by family physicians increase the success rates of screening programs. Thanks to their long-term relations with patients, diagnostic errors decrease, individuals with a low risk of cancer can avoid excessive examination, and costs and damage that may occur in the

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process are reduced to a minimum. One powerful primary factor in the health system is cost effectiveness. In addition, family physician recommendations are the most important source of motivation in cancer screening [12–18]. However, sufficient levels of CRC screening have not yet been achieved, including in Turkey. There are a number of reasons for this, which may be associated with the patient, the physician, the screening test, or the health system [19–28]. It is therefore of the greatest importance for these reasons to be identified and for the appropriate measures to be taken if CRC screening levels are to be increased. The purpose of this study was to assess family physicians’ knowledge, attitudes, and practices toward CRC screening.

Methods

The Questionnaire

The questionnaire was prepared by scanning the relevant literature and was tested by being applied to 15 physicians working in the community health center. It can be completed on a self-report basis in approximately 10 min. It consists of 20 questions. The first part of the questionnaire elicits sociodemographic information, and the second part inquires into physicians’ knowledge, attitudes, and practices toward CRC screening.

Sample Size and Survey Conduction

Samsun is a province in the north of Turkey with a population of 1.25 million. The study population consisted of family physicians working in the province of Samsun, which contains 360 family physicians working in 139 family health centers in 17 districts. Assuming a 50 % level of sufficient knowledge concerning CRC screening, with deviation of 20 %, type 1 error (alpha) 0.05 and type 2 error (beta) 0.20 (power = 0.80), at least 186 physicians were required for the study. We intended to contact all actively employed family physicians. Questionnaires were completed at face-to-face interviews with physicians. We attempted to contact all family physicians between 15 June and 15 July 2015. The level of participation was 80 %. The study was performed following receipt of Ondokuz Mayıs University Clinical Research Ethical Committee approval and all administrative permissions.

Analysis

Daily patient numbers were grouped as <20, 20–50, 51–100, and >100. The levels at which screening was advised were grouped as proper recommendation (FOBT once every 2 years, colonoscopy once every 10 years beginning at 50

and ending at 70, and in case of a family history, screening beginning at the age of 40 or 5 years before independently of age), over-recommendation (FOBT < once every 2 years, colonoscopy in < once every 10 years, beginning at <50 years and ending at >70 years, and in case of family history beginning screening at <40 years or at <5 years previously independently of age), and under-recommendation (FOBT > once every 2 years, colonoscopy at >10 years, beginning at >50 years and ending at <70 years, and in case of a family history screening beginning at >40 years or at >5 years previously independently of age). The questionnaire data were transferred onto SPSS 22.0 software. These data were analyzed as number and percentage. Statistical significance was analyzed using the *t* test and chi-square test. Significance was set at *p* < 0.05.

Results

Sociodemographic data for the 290 physicians who participated in the study are summarized in Table 1. Males comprised 65.9 % of the participants, and mean daily number of patients seen was 51–99. In addition, 84.1 % of physicians worked in urban or district centers, 78.6 % had cancer patients they were monitoring, and 40.0 % had patients with CRC whom they were monitoring.

In this study, 15.8 % of family physicians reported asking more than 50 % of eligible patients about family history of CRC, and 31.4 % of physicians were monitoring cases with a family history of CRC. In terms of

Table 1 Family physicians’ socio-demographic characteristics

Variables		<i>n</i>	(%)
Age (years)	Median	43.40	± 6.54
Work experience (years)	Median	18.43	± 6.42
Place of work	Province	123	42.4
	County	121	41.7
	Rural	46	15.9
Sex	Male	191	65.9
	Female	99	34.1
Average number of patients seen per day	≤20	16	5.5
	21–50	93	32.1
	51–99	168	57.9
	≥100	13	4.5
Ever follow-up cancer patients?	Yes	228	78.6
	No	62	21.4
Average number of cancer patients	Median	7.46	± 7.72
Ever follow-up colorectal cancer patients?	Yes	116	40.0
	No	174	60.0
Average number of colorectal cancer patients	Median	2.00	± 1.13

FOBT, 16.9 % of physicians reporting not performing the test on patients they were monitoring, but 30.7 % of physicians performed FOBT once every 2 years. Only 2.7 % of physicians recommended colonoscopy to more than 50 % of eligible patients (Table 2). Finally, 11.7 % of physicians recommended that colonoscopy be performed once every 10 years (Table 3).

In this study, 83.1 % of physicians reported performing CRC screening. However, only 47.3 % of physicians reporting performing CRC screening knew that this should start at 50 and end at 70. Additionally, 27.2 % knew that screening should begin at the age of 40 in cases with a history of CRC in first-degree relatives or with a history of adenomatous polyp, while 31.4 % of family physicians knew that screening in individuals with early CRC in first-degree relatives should begin 5 years before the age of onset of the disease in such relatives. Although the FOBT used generally in the province is immunochemical-based, only 1.4 % of physicians were aware of this feature.

In this study, 31.4 % of family physicians reported following the CRC guidelines. However, only 3.8 % provided the name of a guideline in response to the open-ended question, ‘Can you give the name of a guideline you observe?’ No statistically significant difference was determined between those reporting following a guideline and those not following one in terms of starting and ending screening, commencing screening in the event of adenomatous polyp of a family history, frequency of requesting FOBT, and frequency of recommending colonoscopy ($p > 0.05$).

No statistically significant was determined among physicians in terms of age, sex, number of years spent working, patient number and request for FOBT, recommendation of colonoscopy, and use of guidelines ($p > 0.05$).

Discussion

Family physicians play a key role in cancer screening in terms of communicating with all of society [29]. Eighty-three percent of the physicians in this study reported performing CRC screening. Klabunde et al. reported that 90–95 % advised CRC screening [30], Federici et al. reported a figure of 78 % [13], Deobald et al. a figure of 77 % [31], and Demyati a figure of 56 % [14]. However, the level of CRC screening in Turkey for 2014 was 22.4 % [2]. Studies have reported different levels of CRC screening in the USA (58 %) [3], UK (52 %), France (42 %), Italy (44.6 %), and Finland (70.8 %) [32]. Considering our study and those performed in various other countries, the levels at which physicians recommend CRC screening to patients and CRC screening rates are not sufficiently high. Methods set out in screening guidelines must be described by establishing good communication with the patient. Monitoring and observation of the patient can thus be achieved.

Family history is regarded as a very important part of physical examination. Several guidelines strongly recommend evaluation of family history for risk stratification [33]. However, systematic data collection and detailed evaluation of family history are rarely possible at the primary stage due to time limitations, risk assessment complexity, and pace of work [34]. Approximately 15 % of the physicians in this study never asked patients about a family history of CRC. In Norwati et al.’s study, 20 % never asked about family history [15]. Evaluation of family history in order to obtain the greatest benefit from screening is very important for primary care physicians. Studies recommend that patients’ personal or family histories be taken and updated [35–38]. Felsen et al. determined that evaluation of personal or family history

Table 2 Colorectal cancer screening procedures among family physicians

Procedure		<i>n</i>	(%)
I ask about a family history of colorectal cancer in approximately _____ of my patients	None	44	15.2
	<25 %	160	55.2
	>25–50 %	40	13.8
	>50–75 %	32	11.0
	>75 %	14	4.8
I request FOBT in approximately _____ of my patients who are eligible	None	49	16.9
	<25 %	133	45.9
	>25–50 %	75	25.9
	>50–75 %	21	7.2
	>75 %	12	4.1
I recommend colonoscopy in approximately _____ of my patients who are eligible	None	103	35.5
	<25 %	163	56.2
	>25–50 %	16	5.5
	>50–75 %	7	2.4
	>75 %	1	0.3

Table 3 Family physicians CRC screening recommendations

	Over recommended		Under recommended		In line with guideline	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Age for beginning screening	94	32.4	13	4.5	134	46.2
Age for ending screening	8	2.8	53	18.3	180	62.1
History of adenomatous polyp or CRC in a first-degree relative	154	53.1	8	2.8	79	27.2
Early appearance of CRC in a first-degree relative	87	30.0	63	21.7	91	31.4
Frequency of requesting FOBT	103	35.5	49	16.9	89	30.7
Frequency of requesting colonoscopy	158	52.8	–	–	34	11.7

increased the level of CRC screenings [39]. Communication between patient and physician is the most important factor in facilitating screening [18, 40]. Physicians' family CRC evaluation and family risk determination skills can be improved through effective education strategies.

Only 47.3 % of the physicians who reported performing CRC screening did so within the correct age ranges. Only one in three participants knew that screening should begin at the age of 40 in subjects with a history of CRC or adenomatous polyp in first-degree relatives or 5 years before the age at which a relative contracted CRC in the case of subjects in which CRC appeared at an early age in first-degree relatives. Omran et al. reported that 24.1 % of physicians knew the correct age for commencing CRC screening and only 7.3 % knew the correct age at which to stop it. In their study, 15.1 and 3.4 %, respectively, of physicians knew the correct frequency at which to request FOBT and colonoscopy [20]. Federici et al. reported that only 24.9 % of participants performed CRC screening correctly according to the guidelines [13]. In Demyati's study, 78.5 % of subjects knew the correct age for starting screening, while only 14.6 % knew the right age at which to end it [14]. While only one in three physicians knew the correct frequency for FOBT, the number of physicians knowing that colonoscopy should be requested at 10-year intervals in suitable subjects was only one in 10. The majority of physicians recommended colonoscopy at more frequent intervals. In Klabunde et al.'s study, 85.0 % of family physicians requested FOBT on an annual basis, while only half requested sigmoidoscopy once every 5 years, and only 20 % requested colonoscopy at 5–10-year intervals. Additionally, 80 % requested colonoscopy more frequently than normal, at 1–5-year intervals [30]. In Demyati's study, FOBT was requested annually at a level of 53 %, sigmoidoscopy every 5 years at 45 % and colonoscopy every 10 years at 44 % [14]. In Yabroff et al.'s study, factors such as being a young physician, female gender, being a specialist, seeing fewer patients a week, and using electronic records were identified as factors associated with recommending in line with the guidelines [41]. No such association was determined in this

study. Earlier and more frequent than normal use of expensive screening methods such as colonoscopy in particularly results in unnecessary patient monitoring, complications, and costs [42, 43]. Evaluations not in accordance with guidelines result in issues such as over screening, over diagnosis, and overtreatment [44]. In this study, screening tests were requested earlier and more frequently than they should be. This derives from inadequate information.

Approximately 69 % of participants reported not following any guideline, while only 3.8 % of those reported using one was able to provide the name of a national or international guideline. No superiority was determined in terms of correct screening recommendations in those reporting using a guideline compared to those reporting not using one. Studies concerning CRC screening report that 60 % of physicians rarely use a guideline [15, 31]. This study performed no assessment of why guidelines were not followed, but there may of course be various reasons for this [45]. The presence and use of guidelines intended for primary care increases the following of such guidelines [46]. Various paths to a solution of more effective cancer screenings must be sought by increasing evidence-based medical procedures.

Only 1.4 % of participants were aware of the immunochemical nature of FOBT. Physicians were reported to possess insufficient information concerning immunochemical tests in one previous study [47]. Raising awareness of iFOBT, which is of proven superiority to gFOBT, will make it easier to find solutions to the problems that physicians experience with the tests.

Conclusions

Physicians have major responsibilities in terms of increasing the low levels of screening. At the same time, presentations supporting government screening programs are very important in terms of informing society. CRC training programs aimed at family physicians now need to be planned in the light of the findings of this study. Such training will help raise CRC

screening levels by increasing family physician awareness of the subject. Repetition of such training sessions in the light of any deficiencies observed will also be of very considerable value. In addition, guidelines prepared for the primary stage that can be easily followed by physicians are also required. Such guidelines can establish a more effective and accurate screening program. The reasons why physicians fail to use guidelines should be investigated. Additionally, it may be possible to achieve the desired levels through new studies assessing the barriers to CRC screening and proposing new solutions.

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Compliance with Ethical Standards The study was performed following receipt of Ondokuz Mayıs University Clinical Research Ethical Committee approval and all administrative permissions.

Conflict of Interest The authors declare that they have no conflicts of interest.

Authors' Contributions Mustafa Kürşat Şahin is responsible for data collection, study design, result interpretation, and drafting the manuscript.

Servet Aker is responsible for data collection, statistics, analysis of results, and reviewing the manuscript.

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