Awareness of Colorectal Cancer and Attitude Toward Screening Among the Public in the Aseer region, Saudi Arabia

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ABSTRACT

Purpose: This study assessed population awareness of colorectal cancer and the attitude toward screening and its determinants in the Aseer region of Saudi Arabia.

Patients and methods: A descriptive cross-sectional approach was used to identify all accessible populations in the Aseer region of southern Saudi Arabia. Data were collected from participants using an online pre-structured questionnaire. The tool assessed participants' biodemographic data, medical and family history, awareness regarding colorectal cancer and attitude toward screening.

Results: A total of 1,296 respondents completed the survey. Participants' ages ranged from 18 to 65 years, with a mean age of 29.6 ± 13.8 years. The majority of participants were female (66.7%; 864). A total of 1,018 (78.5%) of the participants had heard about colorectal cancer, and 648 (50%) correctly defined it as large intestine cancer. Regarding symptoms, participants mostly reported abdominal pain (80.3 %), blood in the stool (77.2%), and a change in bowel habits (76.7%). A good awareness level was established in nearly one-fifth of the participants.

A total of 1,236 participants (95.4%) reported that they would undergo screening if they had any risk factor for colorectal cancer. The main barrier to undergo screening was that participants did not have any symptoms (31.7%).

Conclusion: This survey revealed that the public awareness of colorectal cancer in the Aseer region was overall poor. Participants had some knowledge regarding individual aspects but lacked knowledge of others. We recommend that healthcare staff should pay more attention to improving public awareness of the recommended screening for colorectal cancer.

Key words: Awareness; Cancer of the colon; Colonoscopy; Intestine large; Occult blood; Population health; Preventive health care; Risk factors

Introduction

Colorectal cancer (CRC) is the third most common cancer worldwide and the second leading cause of cancer deaths in the United States(1,2). There is considerable variation in CRC incidence internationally, with the rates registered in Asia, Africa, and South America being lower than those in North America, Oceania, and Europe, where the CRC risk factors obesity, diabetes, poor diet, physical inactivity, and smoking are more common (3,4).

In Saudi Arabia, the cancer mortality statistics show a significant upward trend in recent years (5). According to the Saudi Cancer Registry (SCR), colorectal cancer was the most common cancer among the male population and the third most common cancer among the female population (6).

CRC has numerous risk factors, of which the most important are obesity, a sedentary lifestyle, smoking, excessive consumption of alcohol and red meat, a low-fiber and high-fat diet, a positive family history, and age > 50 years(7–10). CRC can be asymptomatic for long or present with different symptoms, such as changes in bowel habits, chronic abdominal pain, gastrointestinal tract bleeding, fever, unexplained weight loss, malaise, and fatigue. Furthermore, some chronic conditions, such as inflammatory bowel disease, irritable bowel syndrome, infection, or hemorrhoids, may predispose patients to colorectal cancer (11–13).

Public awareness and knowledge are determinants of health behavior change, along with changes in the environment that give rise to them(14). Increasing the public awareness of CRC will help to improve peoples' health behaviors, including their willingness to undergo screening for cancer and related disorders, enabling early diagnosis and the lowering of the cancer-related burden in the population. Heightened awareness will help to reduce preventable risk factors through lifestyle modification, which will reflect good community health.

The current survey aimed to assess public awareness of CRC and the attitude toward screening and its determinants in the Aseer region of southern Saudi Arabia.

Material and Methods

A descriptive cross-sectional approach was used to identify all accessible populations in the Aseer region of southern Saudi Arabia.

We constructed a survey tool after an intensive literature review and expert consultation. The tool was reviewed by a panel of three experts for content validity. Tool reliability was assessed using a pilot study of 25 participants with a reliability coefficient (α -Cronbach's) of 0.76. The tool covered the following data: participants' biodemographic data, such as age, gender, place of residence, education, profession, and participants' family history of CRC and practice regarding screening for CRC. Awareness was assessed using ten questions covering the definition, signs, and symptoms of CRC, and the diagnostic methods and importance of screening for CRC. The tool was presented as an electronic pre-structured online questionnaire. We obtained approval from the Research Ethics Commit-

tee, Deanship of Scientific Research, King Khalid University (HAPO-06-B-001) on 05 June 2020, approval no. ECM#2020-0705. Consent was obtained from the study participants prior to study commencement. Persons aged 18 years or older in the Aseer region were invited to participate in the survey. All social media platforms were used to distribute the electronic questionnaire during the period from 1st April until 30th June 2020.

Data analysis

Each correct answer to an awareness question counted as one point, and the total sum of the discrete scores of the different items was calculated. We defined a score of less than 60% (14 points) of the maximum score, as poor awareness. Good awareness was defined as a score of more than 60% (15 points) of the maximum score. Descriptive analysis based on frequency and percent distribution was performed for all variables, including biodemographic data, awareness items, and participants' attitude toward screening. Cross tabulation was used to assess the level of awareness compared to participants' personal and medical data. Relations were tested using Pearson's chi-square test.

After data were extracted from the survey, they were reviewed, coded, and analyzed using SPSS Statistics for Windows, version 22 (IBM Corp., Armonk, NY, US). All statistical analyses were performed using two-tailed tests. A P-value < 0.05 was considered to be statistically significant.

Results

The online survey was distributed to 1,500 individuals, of whom 1,296 responded and completed the questionnaire, corresponding to a response rate of 86.4%. Participants' age ranged from 18 to 65 years with a mean age of 29.6 (standard deviation 13.8 years). The majority of participants were female (66.7%). A total of 992 (76.5%) were university graduates. A monthly income of less than 5000 SR was recorded among 854 (65.9%) respondents, while 87% were free of any chronic health problems. A total of 418 (32.3%) participants had genetic disorders, but only 6 (0.5%) had a family history of CRC (Table 1).

Table 2 shows participants' awareness of CRC. A total of 78.5% had heard about CRC, and 648 (50%) correctly defined it as large intestine cancer. Many participants knew the frequently described symptoms such as abdominal pain (80.3%), blood in the stool (77.2%), and change in bowel habits (76.7 %). Regarding the risk factors for CRC, 79.2 % of participants were familiar with inflammatory bowel disorder, 62.2 % had a positive family history, and about half of them associated with smoking and a high-fat diet. More than half (55.4%) of participants agreed that CRC is treatable when diagnosed. As for screening methods, participants were most familiar with colonoscopy (92%), followed by computed tomography colonography (77.2%), and stool analysis (55.4%). The vast majority (94.1%) of participants indicated that screening is important for the early diagnosis of CRC. Overall, 20.4% of participants had a good awareness of CRC.

Table 3 illustrates the participants' attitude toward CRC screening. A majority (95.4%) reported that they would undergo screening if they had any risk factors for CRC. The main barriers to screening reported by the participants were that they did not have any symptoms (31.7%) and had not been thinking

about undergoing screening (18.7%). About 44% of the participants had no specific reason not to participate in screening.

Regarding the sources of information on CRC, Figure 1 shows that these were mostly the internet and books (34%), followed by social media (27.3%) and study (26.7%).

Table 4 shows the level of awareness of CRC compared to participants' biodemographic data and source of information. Good awareness was more common among those aged under 30 years (24.3%) than in those above 50 (10.7%), and this difference was statistically significant ($P = .001$). Also, 27.3% of males had good awareness compared to 16.9% of females (P

$= .001$). Good awareness was more frequent among those who lived in urban areas (23.4%) compared to 15.2% of rural residents ($P = .001$). With regard to occupation, 45.5% of healthcare workers had good awareness levels compared to 11.1% of non-healthcare workers ($P = .001$). Among those with a family history of genetic disorders, 25.8% had good awareness compared to 17.8% of others ($P = .001$), and good awareness was significantly more frequent among those ready to undergo screening for CRC than in those who were not ($P = .041$). Good awareness was highest (45.7%) in those who had their information from study, compared to 32.1% of those who had it from doctors, and 4% of those who had no source of information ($P = .001$).

Table 1: Biodemographic data of participants (n = 1296) in survey on colorectal cancer awareness in the Aseer region, Saudi Arabia

Biodemographic data		Participants (n)	%
Age (years)	<30	898	69.3 %
	30–39	186	14.4 %
	40–49	156	12.0 %
	>50	56	4.3 %
Gender	Male	432	33.3 %
	Female	864	66.7 %
Area of residence	Urban	822	63.4 %
	Rural	474	36.6 %
Marital status	Not married	862	66.5 %
	Married	434	33.5 %
Educational level	Primary school	14	1.1 %
	Secondary school	28	2.2 %
	High school	262	20.2 %
	University/ more	992	76.5 %
Occupation	Healthcare worker	154	11.9 %
	Non-healthcare worker	306	23.6 %
	Unemployed	836	64.5 %
Monthly income	<5000 SR	854	65.9 %
	5000–15000 SR	340	26.2 %
	>15000 SR	102	7.9 %
Do you have any chronic diseases?	No	1128	87.0 %
	Diabetes mellitus	30	2.3 %
	Hypertension	26	2.0 %
	Asthma	58	4.5 %
	Hypothyroidism	8	0.6 %
	Irritable bowel syndrome	10	0.8 %
	Colon cancer	13	1.0 %
	Crohn's disease/UC	4	0.3 %
	Others	19	1.5 %
Family history of any genetic disease	Yes	418	32.3 %
	No	878	67.7 %
Family history of colon cancer	Yes	6	0.5 %
	No	1290	99.5 %

(Abbreviations: SR, Saudi Riyal; UC, Ulcerative colitis)

Table 2: Awareness of colorectal cancer among survey participants (n = 1296) in the Aseer region, Saudi Arabia

Awareness		Participants (n)	%
Heard about colorectal cancer before	Yes	1018	78.5 %
	No	278	21.5 %
What is colorectal cancer	Stomach cancer	166	12.8 %
	Small intestine cancer	150	11.6 %
	Large intestine cancer	648	50.0 %
	Don't know	332	25.6 %
Colorectal cancer is common	Yes	520	40.1 %
	No	306	23.6 %
	Don't know	470	36.3 %
Symptoms of colorectal cancer	Abdominal pain	668	80.3 %
	Change in bowel habits	638	76.7 %
	Nausea and vomiting	384	46.2 %
	Yellowish skin or eyes	180	21.6 %
	Blood in stool	642	77.2 %
	Maybe asymptomatic	266	32.0 %
	Don't know	50	6.0 %
Risk factors of colorectal cancer	Old age	422	54.9 %
	Smoking	372	48.4 %
	Inflammatory bowel disease	608	79.2 %
	Positive family history	478	62.2 %
	High-fat diet	372	48.4 %
	Bowel polyps	334	43.5 %
	Don't know	44	5.7 %
Colorectal cancer is treatable when diagnosed	Yes	718	55.4 %
	No	20	1.5 %
	Don't know	558	43.1 %
Time to screen for colorectal cancer	When symptoms appear	562	43.4 %
	At age of 20 years	110	8.5 %
	At age of 50 years	212	16.4 %
	At age of 70 years	12	0.9 %
	Don't know	400	30.9 %
Screening methods for colorectal cancer	Stool analysis	320	55.4 %
	X-ray	98	17.0 %
	Colonoscopy	532	92.0 %
	CT colonography	446	77.2 %
	Ultrasound	78	13.5 %
	Don't know	40	6.9 %
Early screening is important	Yes	1184	91.4 %
	No	12	0.9 %
	Don't know	100	7.7 %
Screening for colorectal cancer helps in early diagnosis and treatment	Yes	1220	94.1 %
	No	10	0.8 %
	Don't know	66	5.1 %
Overall awareness	Poor	1032	79.6 %
	Good	264	20.4 %

Table 3: Survey participants' (n = 1296) attitude toward colorectal screening, Aseer region, Saudi Arabia

Practice items	Participants (n)	%
Will you do the screening if you have any risk factor of colorectal cancer		
Yes	1236	95.4 %
No	60	4.6 %
Which of the following reasons prevent you from undergoing early screening for colorectal cancer		
None	575	44.4 %
Don't have symptoms	411	31.7 %
Screening cost	172	13.3 %
Delay the screening	130	10.0 %
Colorectal cancer is not dangerous	12	0.9 %
Screening is not important	14	1.1 %
Didn't think about screening before	242	18.7 %
Not advised by doctor to do	80	6.2 %
Fear of the diagnosis colorectal cancer	180	13.9 %
Feel embarrassed and stressed	148	11.4 %
No doctor response	13	1.0 %
Family barriers	123	9.5 %

Table 4: Survey participants' (n = 1296) level of awareness on colorectal cancer in relation to their biodemographic data and source of information

Factors		Awareness level				P-value
		Poor		Good		
		No	%	No	%	
Age (years)	< 30	680	75.7%	218	24.3%	.001*
	30-39	162	87.1%	24	12.9%	
	40-49	140	89.7%	16	10.3%	
	> 50	50	89.3%	6	10.7%	
Gender	Male	314	72.7%	118	27.3%	.001*
	Female	718	83.1%	146	16.9%	
Residence	Urban area	630	76.6%	192	23.4%	.001*
	Rural area	402	84.8%	72	15.2%	
Educational level	Primary school	12	85.7%	2	14.3%	.023*
	Secondary school	26	92.9%	2	7.1%	
	High school	222	84.7%	40	15.3%	
	University/ more	772	77.8%	220	22.2%	
Job	Health care worker	84	54.5%	70	45.5%	.001*
	Non-Health careworker	272	88.9%	34	11.1%	
	Unemployed	676	80.9%	160	19.1%	
Chronic diseases	Yes	890	78.9%	238	21.1%	.091
	No	142	84.5%	26	15.5%	
Family history of any genetic disease	Yes	310	74.2%	108	25.8%	.001*
	No	722	82.2%	156	17.8%	
Will you undergo screening if you have risk factors of colorectal cancer?	Yes	978	79.1%	258	20.9%	.041*
	No	54	90.0%	6	10.0%	
Source of information on colorectal cancer	Family and friends	228	84.4%	42	15.6%	.001*
	Social media	272	76.8%	82	23.2%	
	Television	66	71.7%	26	28.3%	
	Doctors	106	67.9%	50	32.1%	
	Internet or books	320	72.7%	120	27.3%	
	Study	188	54.3%	158	45.7%	
	None	340	96.0%	14	4.0%	

P: Pearson's chi-square test

* P < 0.05 (significant)

Figure 1: Source of information on colorectal cancer among participants (n = 1296) in survey on awareness and knowledge on colorectal cancer, Aseer region, Saudi Arabia

Discussion

This survey aimed to assess the awareness of CRC in the general population of the Aseer region in Saudi Arabia. Furthermore, the survey established participants' attitudes regarding CRC screening and the factors influencing this attitude. The results show that only one-fifth of the participants (20.4%) were knowledgeable of CRC, but more than three-quarters had heard about CRC. Awareness was high for symptoms, particularly abdominal pain and change in bowel habits were well known, and the importance of screening and its role in successful treatment. Participants were also familiar with CRC risk factors, especially inflammatory bowel disease and a family history of CRC. About half of the participants knew that CRC is a treatable disease. Only 16 % of participants knew the recommended age for starting screening, of 50 years.

One of the most interesting findings was that, while participants might be aware of individual items, their cumulative awareness was still poor. Participants were aware of some aspects of CRC but unaware of others. These results correspond to previous findings. In two other cross-sectional studies, screening awareness of CRC was more favorable (47.9% and 83.0%, respectively)(15,16). Besides, 22% of the participants reported the frequency of CRC correctly, 59% had acceptable information about the protocol, and 56.2% were informed about the development of CRC. In addition, 69.6% of the respondents reported the significance of early detection. Another report(17) showed a higher rate (78.5%) of participants who were informed about the frequency and protocol of CRC screening, which was likely

linked to a relatively high level of education. Gede et al(18) conducted a survey assessing the awareness of CRC, its screening, and the sources of information in the Hungarian population. They reported that 32.7% of the participants were correctly informed about the recommended age for the beginning of CRC screening and 22.4% about its frequency. In our study participants, young age, male gender, high education levels, being a healthcare worker, and a family history of CRC were the most significant predictors for good awareness.

Moreover, physicians and studies as a source of information were significantly related to higher awareness than other sources. However, the internet and social media were used by more than half of the participants, whereas physicians were the primary source of information only in 12% of participants. This indicates that the physician's role as a health educator is not well established in Saudi Arabia. These findings were concordant with an Italian report, where participants' sources of information were primarily friends, followed by television and newspapers, and only thereafter general practitioners and specialists (19).

In Kuwait, Saeed et al (20) investigated the level of knowledge and awareness of CRC with regard to risk factors, symptoms, and screening/imaging procedures among the general public. Overall, 75% of the participants had heard about CRC, and the most reported risk factors were genetics and a family history of CRC (73.5%). The most described symptoms were bloody stool, lower abdominal pain, obstructed intestine, and change in the nature of the exit, and the least common was anemia. Magnetic resonance imaging was identified as the most

frequent diagnostic procedure (36%), followed by computed tomography (31%). On the other hand, 27.7% of participants had only limited knowledge about the different diagnostic procedures. In Saudi Arabia, a survey-based study(21) in Makkah revealed that most of the participants (85.7%) had heard of CRC. However, nearly half of them had obtained their information as part of their school curriculum. More than half of the students knew that CRC might develop without any obvious symptoms. More than one-third (37.9%) of participants believed that men were more likely than women to suffer from CRC, while almost one-third (29.4%) said they knew nothing about the symptoms, and 21.8% thought that men and women have an equal chance of contracting CRC. The vast majority of participants (92.2%) had never undergone screening for tumors of the colon and rectum. Only 3.6% answered that they had undergone such screening. Another study(22) was conducted in Riyadh and revealed that most respondents believed that screening for CRC should begin with symptom onset (42.9%). Less than 20% of respondents believed that polyps were a risk factor for CRC, but the percentage varied significantly according to the level of education. However, even the most educated participants answered correctly less than 50% of the time. Similarly, only 34.8% of all respondents knew that a family history of CRC imparted a personal risk.

Among our participants, almost all (95%) had intended to undergo screening if they had any risk factor. The main reasons for eventually not doing that were that they did not have any symptoms, they feared and delayed the screening, and, finally, the cost of screening, as nearly 65% of the respondents were not employed and had a monthly income of less than 5000 SR (\$1,333).

Conclusions

In conclusion, our survey revealed that public awareness of CRC in the Aseer region was poor overall, but each participant had some knowledge of individual aspects while lacking knowledge of others. Our results also show that nearly all participants were ready to undergo screening for CRC, but lacked knowledge regarding the recommended age for screening. The main barriers to screening were the absence of symptoms and risk factors, and the costs. We recommend that healthcare staff should pay more attention to improving public awareness of the recommended screening for chronic health problems, including CRC. This may happen in the form of short sessions of health education but should make use of posters, mass media, and social media, which were reported as the main source of information.

Competing interest

The author reports no conflicts of interest in this work.

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