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Original Article

Evaluation of public awareness, knowledge, and attitudes about colorectal cancer screening among the general population in Al-qunfudah

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Abstract: Colorectal cancer (CRC) is a malignant tumor of the colon and rectum. It can be cured if detected in the early stage through established screening programs. CRC screening is the best way to improve cancer morbidity and mortality. Various approaches such as stool tests, virtual colonoscopy, and sigmoidoscopy are available for early detection. On average, a person after reaching the age of 45 should begin the screening process for CRC periodically for 5 years. Our study aims to measure the population's awareness and knowledge of the effect of CRC screening on CRC outcomes. A cross-sectional study questionnaire was designed and distributed among Saudi residents of the Al-Qunfudah region. A total of 385 participants replied: 55.8% of the participants were males, 78.8% of the study participants mentioned that they had heard about CRC, and 27.3% reported that CRC is common in Al-Qunfudah. In addition, 62.1% knew that CRC is more common in men but only 32.2% had a good awareness level. Moreover, 16.4% of the participants reported that they had received a colonoscopy/sigmoidoscopy; 69.9% did not think of the colonoscopy/sigmoidoscopy procedure as the main barrier to undergoing early screening for CRC. Good awareness regarding CRC was demonstrated in 34.4% of highly educated participants, which was directly associated with levels of education. In conclusion, much more awareness regarding CRC screening is needed in the Al-Qunfudah region. Educational seminars and programs should be made mandatory, and the healthcare system should focus on high-risk individuals.

Keywords: Colorectal cancer, screening, awareness, attitude, knowledge, saudi arabia, colposcopy, sigmoidoscopy, alqunfudah, barrier

Introduction

Presently, cancer is considered one of the leading causes of mortality around the globe. Of all types of cancer, colorectal cancer (CRC) is the third most common cancer globally and the second most common in the Kingdom of Saudi Arabia. In 2015, the cancer registry of Saudi Arabia indicated the incidence was 55.3% in males and 44.7% in females [1].

CRC is a spreadable form of tumor that forms in the region of the rectum and colon, which is anatomically known as the large intestine. According to a World Health Organization report in 2016, nearly half of the affected patients do not survive due to inevitable risk factors associated with the disease (eg, smoking, unhygienic food, drinking alcohol, obesity, and insufficient physical activity) [2].

According to Sabiston, the most common symptoms of CRC are a pain in the abdomen, diarrhea, bright red blood per rectum, and tenesmus [3]. One of the most important curative strategies is to perform an early screening test. Early screening tests help healthcare providers to detect and make an accurate decision about colorectal cancer in its very early stages. However, people request screening tests when one or more symptoms appear. At this stage, the screening test is considered very late and the

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response to the treatment becomes challenging. The treatment in the late stages is only symptomatic but not curative.

The American Cancer Society recommends that individuals who are at risk of CRC receive periodic screenings after reaching the age of 45. Furthermore, the test should be repeated every 10 years if the patient does not have any of the following: 1. Past history of developing CRC polyps; 2. Ulcerative colitis or Crohn's disease at any stage of life; 3. Family members who have suffered from CRC, Lynch syndrome (a hereditary non polyp cancer of the colon), or familial adenomatous polyposis; 4. Radiation treatment in the region of the pelvis or abdomen to eradicate previous cancers.

If an individual has 1 of the previous factors, then the screening frequency decreases from 5 years to annually based on the diagnosis and the physician's judgment, and they should begin screening before age 45.

The screening can be done with 1 of the following methods and each has its sensitivity, advantages, and possible complications:

• Tests for stool:

1. Multitargeted stool DNA test to be repeated periodically every 3 years.

2. Fecal immunochemical test, which is highly sensitive and should be done every year.

3. Guaiac-based fecal occult blood test to be repeated every year; also considered highly sensitive.

• Visual examinations:

1. CT colonography (virtual colonoscopy).

2. Flexible sigmoidoscopy.

3. Colonoscopy.

It is important to note that tests other than colonoscopy should be performed if the individual is not in favor of it, but in case of an anomaly in the results of an alternative test, colonoscopy should be performed without any considerable delay for timely detection of CRC.

However, the percentage of at-risk individuals who are screened is low among both males and females, and this is related to many factors.

The American Cancer Society surveyed 2000 unscreened adults and found the following reasons people do not do colorectal screening despite nearly all of them knowing that they should do the screening: 1. The test is perceived as complicated or painful, although a home stool test kit is available. 2. They do not believe they are at risk of CRC because they have no family history, so they do not see a need to be screened. 3. Individuals believe only those who show symptoms should be screened. 4. The cost of the test is a major reason for concern. 5. Lastly, the preprocedural steps of drinking the prep and anesthesia especially made them hesitant about receiving a colonoscopy.

Research methodology

This cross-sectional study was conducted among Saudi citizens by sending out validated Arabic questionnaires in the Al-Qunfudah region. Questionnaires were designed on the Google platform and were sent through various forms of social media to the target population to measure public awareness and knowledge about CRC and its screening for Al-Qunfudah residents.

The target population in this study was all adults, male and female, residing in the Al-Qunfudah region of Saudi Arabia.

A representative sample size was calculated using the Rao soft calculator based on the size of the adult population in Al-Qunfudah (approximately 272 000 individuals) [4].

The questionnaire was partially adapted from a study in China by Huang et al, and it included parameters to assess awareness and attitude toward CRC and its screening. It consists of three sections.

The first section focused on socioeconomic and background information such as gender, age, education, etc. The second focused on people's knowledge of the signs and symptoms of CRC and risk factors, whereas the third section included questions about CRC screening.

Data analysis

Following a collection of data, revision, and coding were done, and then the data were analyzed using SPSS version 22. Complete statistical analysis was performed by applying a

Table 1. Sociodemographic data of individuals who participated the in research, Al-Qunfudah, Saudi Arabia

Socio-demographic data	No	%
Age (years)		
18-29	183	47.5%
30-39	90	23.4%
40-49	77	20.0%
50-59	28	7.3%
60+	7	1.8%
Gender		
Male	215	55.8%
Female	170	44.2%
Educational level		
Below secondary	10	2.6%
Secondary	67	17.4%
University/above	308	80.0%
Income		
< 3000 SR	154	40.0%
3000-5000 SR	33	8.6%
> 5000 SR	198	51.4%
Had a history of colorectal diseases		
Yes	40	10.4%
No	345	89.6%
Had a relative diagnosed with CRC		
Yes	47	12.2%
No	338	87.8%
If yes, what were the main symptoms		
Rectal bleeding	8	17.0%
Unexplained weight loss	8	17.0%
Diarrhea/constipation	3	6.4%
Abdominal pain	10	21.3%
Generalized weakness/tiredness	15	31.9%
Unexplained severe anemia	3	6.4%

2-tailed test. Results with a *P* value less than 0.05 were considered statistically significant. To analyze awareness and knowledge-associated parameters, 1 point was scored if the answer was given positively; afterward, separate scores for each distinct domain were summed and calculated (i.e., each domain of awareness included general awareness, risk factors, and screening).

Individuals scoring 60% or more in the awareness domain were considered to have good awareness, whereas those who scored less than 60% had poor awareness. Age, sex, medical history, familial history of CRC, and education levels were considered descriptive variables. The variables were analyzed and represented in the form of frequency and percentage distributions. Correspondingly, participants' awareness items including general awareness, risk factor awareness, and screening awareness, as well as the source of their information, were tabulated and graphed. Participants practice was displayed. The associations between awareness of CRC, its screening, and the factors among the public were assessed by the cross-tabulation method. An exact probability test and Pearson χ^2 analysis were performed for the minor frequency distributions to find the associations.

Results

Overall, all 385 individuals who participated finished the questionnaire. The mean age of the participants was 32.9 ± 12.9 years (range = 18 to 69 years old). Out of all participants, 215 (55.8%) were males. Sixty-seven (17.4%) participants had secondary education, and 308 (80%) had a university education.

For income, 154 (40%) had a monthly income of less than 3000 SAR, whereas 198 (51.4%) had an income of more than 5000 SAR. Forty (10.4%) participants reported a history of colorectal diseases, and 47 (12.2%) had a relative diagnosed with CRC. The most reported symptoms were generalized weakness/tiredness (31.9%), abdominal pain (21.3%), rectal bleeding (17%), and unexplained weight loss (17%) (**Table 1**).

Regarding the public's awareness of CRC and the methods of CRC screening (**Table 2**), in general, 78.8% of the study participants had heard about CRC and 27.3% reported that it was common in Al-Qunfudah. In addition, 62.1% knew that CRC is more common among men, 73.8% reported it is more common in old age, and 93.5% thought it is a preventable disease. Regarding risk factors of CRC, the most known were GIT inflammations (52.7%), genetic factors (49.1%), lack of physical activity (48.8%), smoking (48.1%), obesity (46.5%), old age (45.7%), and dietary habits (23.4%).

As for CRC screening, 34.5% of the study participants knew that there is an early screening for CRC, but 33.5% incorrectly thought that CRC screening is only for those who show

Table 2. Public awareness of colorectal cancer and its screening methods, Al-Qunfudah, Saudi Arabia

Domain	Awareness items	No	%
General Awareness	Heard about CRC		
	Yes	303	78.7%
	No	82	21.3%
	Think CRC is common in AL-Qunfudah		
	Yes	105	27.3%
	No	280	72.7%
	CRC is more common among		
	Men	239	62.1%
	Women	146	37.9%
	The common age of CRC		
	Old age	284	73.8%
	Middle age	98	25.5%
	Young age	3	.8%
	CRC is a preventable disease		
	Yes	360	93.5%
	No	25	6.5%
Risk factors awareness	Risk factors of CRC		
	Gut inflammation	203	52.7%
	Genetic factors	189	49.1%
	Lack of physical activity	188	48.8%
	Smoking	185	48.1%
	Obesity	179	46.5%
	Old age	176	45.7%
	Dietary habits	90	23.4%
	Psychological factors	4	1.0%
CRC Screening Awareness	Did you know there is an early screening for colorectal cancer?		
	Yes	133	34.5%
	No	252	65.5%
	Do you think colorectal cancer screening is only for those who show symptoms?		
	Yes	129	33.5%
	No	256	66.5%
	Have you ever heard of colon and rectal cancer screening methods?		
	Yes	127	33.0%
	No	258	67.0%
	CRC screening methods		
	Colonoscopy	99	25.7%
	Fecal occult blood test	18	4.7%
	Sigmoidoscopy	10	2.6%
	Don’t know	258	67.0%
	Colonoscopy can help to detect colorectal cancer early.		
	Yes	353	91.7%
	No	32	8.3%
	A colonoscopy helps prevent colorectal cancer.		
	Yes	332	86.2%
	No	53	13.8%
	Do you think you need a colonoscopy even if you don’t feel any symptoms?		
	Yes	205	53.2%
	No	180	46.8%

symptoms. Additionally, 33% had heard about colon and rectal cancer screening methods. For the participants, the most known method was colonoscopy (25.7%), whereas only 4.7%

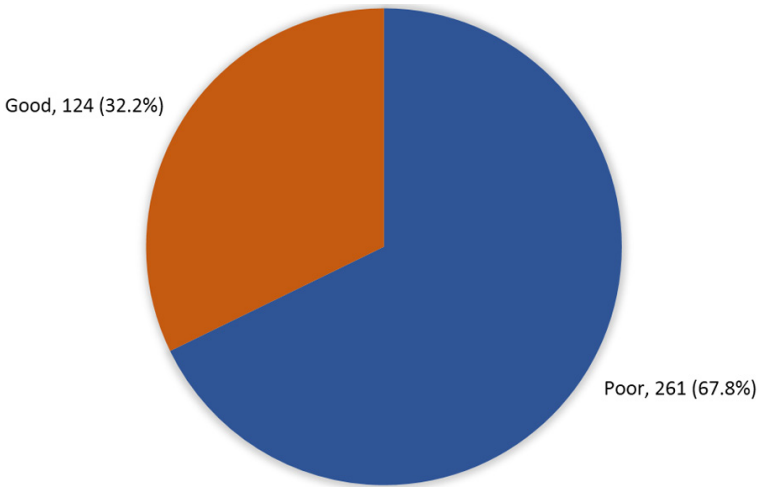

Figure 1. Overall public awareness regarding colorectal cancer and screening methods, Al-Qunfudah, Saudi Arabia.

knew about the fecal occult blood test, and 2.6% knew about sigmoidoscopy.

A total of 91.7% knew a colonoscopy can help to detect CRC early, and 86.2% thought a colonoscopy can help prevent CRC. Only 53.2% thought they needed a colonoscopy even if they did not feel any symptoms.

Figure 1 shows overall community awareness concerning CRC and its screening methods in Al-Qunfudah, which is estimated to be around 32.2% for people who had a good awareness level regarding CRC.

Figure 2 indicates the resources that provided knowledge about CRC and methods for its screening among the study population. Media (52.5%) provided the most information about CRC, and family/friends (15.6%) were the second most common source of information, followed by medical staff (10.9%), published research (8.8%), mass media (6.2%), and pamphlets in clinics (6%).

Sixty-three (16.4%) participants had undergone colonoscopy/sigmoidoscopy. For the rest, the main barrier to undergoing early screening for colorectal cancer is that they had not thought about it: 69.9% had no symptoms, 37.3% lacked medical advice, 17.7% had no screening centers nearby, 15.8% feared colorectal cancer detection, and 10.9% thought they were not at risk (7.1%). However, 59 (18.3%) participants were ready to receive CRC screening (**Table 3**).

Results showed 34.4% of the most educated individuals showed good awareness of CRC compared to the 10% of participants with low education levels, which was statistically significant (P = 0.049). Furthermore, individuals who had relatives diagnosed with CRC (44.7%) showed better awareness when compared to individuals with no family history of CRC (30.5%), with a significant difference of P = 0.046. Overall, 38.6% of individuals who had previous knowledge of CRC had good awareness in comparison to 8.5% of others (P = 0.001) (**Table 4**). Additionally, individuals (71.4%) who had acquired knowledge about CRC from medical staff showed better awareness compared to those who had received information from published research (55.9%), whereas 18.3% of individuals who had acquired information from family/friends showed lesser awareness as well (P = 0.001).

Discussion

In this research, we tried to assess awareness, knowledge, and attitudes toward CRC screening. This assessment included an evaluation of knowledge, perceptions, and awareness of methods, barriers, and benefits related to CRC screening in the Al-Qunfudah population. As per our best knowledge, no previous research conducted in this governorate has reviewed a similar issue.

The goal of this study is to determine whether more public awareness efforts are needed in the Al-Qunfudah region. The results from 385 participants indicate a low awareness level regarding CRC and its screening. In a Saudi report from Makkah, a deficiency in the awareness of CRC and its screening was discovered, whereby only about 16.3% of participants knew about CRC screening, which is consistent with our finding of the present study [5].

Our study has indicated an association exists between the presence of a relative diagnosed with CRC and awareness about screening, and this result is in agreement with a study that

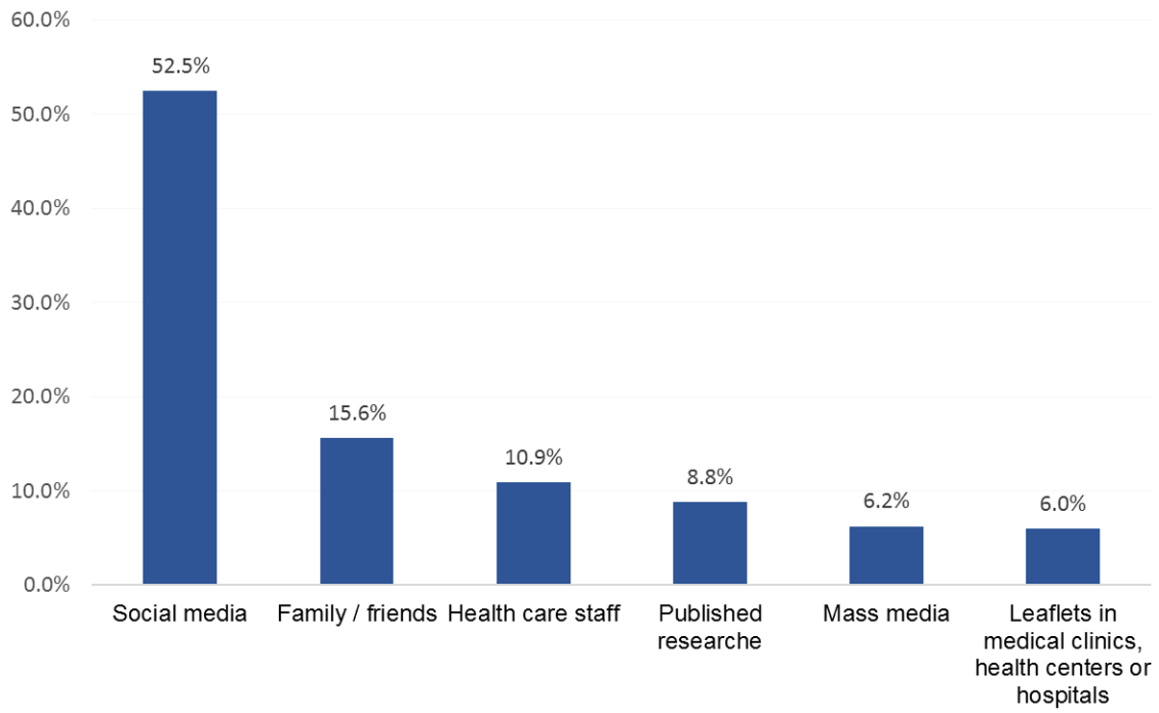

Figure 2. Information sources for CRC and methods for its screening among the study populace.

Table 3. Practice/perception of the public concerning CRC screening, Al-Qunfudah, Saudi Arabia

Practice/perception	No	%
Undergone colonoscopy/sigmoidoscopy		
Yes	63	16.4%
No	322	83.6%
Barriers to undergoing early screening for colorectal cancer?		
I didn't think about that	225	69.9%
Had no symptoms	120	37.3%
I am ready to do	59	18.3%
The doctor did not advise me	57	17.7%
No screening centers near me	51	15.8%
Fear of colorectal cancer detection	35	10.9%
I have no risk of colorectal cancer	23	7.1%
Lack of time	20	6.2%
Lack of money	18	5.6%
No benefit to do	7	2.2%

indicated the rate was higher in individuals who had a prior history of colorectal disease in their families [6].

A study conducted in Riyadh indicated people are ready to take a screening test for CRC without hesitation, which is again in agreement with our findings; that is, 70.7% of the participants were ready and prepared to undertake a screening test, and this compliance is further increased in case of individuals with a family history related to CRC [7].

Furthermore, our study indicated that the individuals had a good level of awareness about the screening method for CRC but this is directly associated with the level of education [8]. However, as stated in another study; consistent patient teaching and awareness plans will positively impact the Responses of the population about CRC in Saudi Arabia [9].

During our study, we noticed that awareness of CRC screening and actual acceptance of the procedure were not the same. In our study, 34.5% of individuals had heard of early screening for CRC, but only 16.4% had undergone CRC screening, which is in agreement with a study conducted in Spain that indicated 78.8% of people older than 50 were ready to undergo

Table 4. Public awareness of the factors associated with CRC and its screening in Al-Qunfudah, Saudi Arabia

Factors	Awareness level				*P*-value
	Poor		Good		
	No	%	No	%	
Age in years					.109$
18-29	116	63.4%	67	36.6%	
30-39	66	73.3%	24	26.7%	
40-49	53	68.8%	24	31.2%	
50-59	23	82.1%	5	17.9%	
60+	3	42.9%	4	57.1%	
Gender					.249
Male	151	70.2%	64	29.8%	
Female	110	64.7%	60	35.3%	
Educational level					.049*
Below secondary	9	90.0%	1	10.0%	
Secondary	50	74.6%	17	25.4%	
University/above	202	65.6%	106	34.4%	
Income					.348
< 3000 SR	98	63.6%	56	36.4%	
3000-5000 SR	24	72.7%	9	27.3%	
> 5000 SR	139	70.2%	59	29.8%	
Had a history of colorectal diseases					.165
Yes	31	77.5%	9	22.5%	
No	230	66.7%	115	33.3%	
Had a relative been diagnosed with CRC?					.046*
Yes	26	55.3%	21	44.7%	
No	235	69.5%	103	30.5%	
Heard about CRC					.001*
Yes	186	61.4%	117	38.6%	
No	75	91.5%	7	8.5%	
Source of information					.001*
Social media	154	76.2%	48	23.8%	
Family/friends	49	81.7%	11	18.3%	
Mass media	19	79.2%	5	20.8%	
Health care staff	12	28.6%	30	71.4%	
Published research	15	44.1%	19	55.9%	
Leaflets in medical clinics, health centers, or hospitals	12	52.2%	11	47.8%	
Undergone colonoscopy/sigmoidoscopy					.424
Yes	40	63.5%	23	36.5%	
No	221	68.6%	101	31.4%	

P: Pearson X^2 test. $: Exact probability test. *$P < 0.05$ (significant).

CRC screening, but only 12% had at any point gone through a screening test [10].

The above-discussed factor indicates barriers exist to screening for CRC. Our study indicated that 69.9% of respondents did not think about CRC screening, whereas 38.3% further stated they did not need it because they had no symptoms.

The present findings show 10.9% of participants were afraid of CRC detection. This result

is in agreement with a study conducted in Riyadh, Saudi Arabia, which mentioned more than half of its population fears the detection of CRC. However, by increasing public awareness and providing adequate patient education, fears can be reduced [11].

The study indicated another barrier to CRC screening, which is the lack of medical advice (17.7%) to conduct a CRC screening. This outcome indicates a dire need exists to increase the communication between physician and patient to encourage patient awareness and education regarding CRC screening [10].

According to the Ministry of Health, 4 screening centers are currently available for CRC. However, 15.8% of the participants indicated that there is no CRC screening center nearby. This does not correspond to the population of the Governorate of Al-Qunfudhah [12].

Nearly half of the individuals (53.2%) showed a positive attitude towards CRC screening even if there were no symptoms of CRC and they knew about the benefits of the screening and diagnosis of CRC at early stages.

The majority of respondents (91.7%) stated that colonoscopy can help to detect CRC early, and 86.2% believed colonoscopy aids in the prevention of CRC. Similar findings from a prior survey revealed that 91.8% of people thought CRC is avoidable, and 97.4% thought that CRC could be cured if detected early [10].

In terms of screening procedures, more than half of the participants had never heard of CRC screening (67.0%). Furthermore, colonoscopy was the most popular response among our respondents (25.7%) as the method of CRC screening. Previously, comparable findings were recorded where colonoscopy was chosen as an effective cancer screening procedure by the majority of participants (60.76%) [9].

The sources of information about CRC reported by the study participants indicated that 52.5% received their information from social media applications, whereas healthcare staff, who are considered the most reliable source of information, only represented 10.9%. In a study conducted in Asir, more than half of the participants had obtained their knowledge about CRC from the Internet and social platforms, whereas only 12% had their primary source of information from the healthcare staff [13].

Finally, 18.3% of the population was ready to undergo CRC screening. Therefore, the health profession needs to intensify awareness of the importance of early screening for the detection of CRC through campaigns, health conferences, and posting on social media to reach as many people as possible and achieve a high screening rate.

Our study revealed low awareness of CRC in the Al-Qunfudah governorate of the Kingdom of Saudi Arabia, but there is good knowledge and attitude toward screening and early diagnosis. Our results show few are ready to undergo a screening and that barriers to screening exist. The main barriers to screening were that they had not to think about it and the absence of symptoms.

Therefore, we must put more effort into increasing awareness of CRC screening to facilitate the detection of CRC in the early stages. We recommend that medical staff should play their role with more enthusiasm to improve the public's awareness of the importance of screening.

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Disclosure of conflict of interest

None.

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