

Colorectal Cancer (CRC) Awareness among Primary Healthcare Providers

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ABSTRACT

Background: According to the Ministry of Health data, cancer prevalence is growing internationally and in Saudi Arabia, particularly colorectal cancer (CRC). We also noticed several individuals with a spectrum of different clinical presentations of gastro intestinal symptoms among adults in our routine primary health care (PHC) practice.

Methodology: A 379 person cross-sectional research was undertaken among PHC participants from June 2021 to December 2022. SPSS was used to enter and evaluate data. Statistical tests such as basic proportions, chi square test for categorical data, risk variables relationship with CRC, and logistic regression analysis were used. The current study found that nearly half of the individuals (50.9%) had strong CRC knowledge of common symptoms. Dietary variables, fast meals, and greasy foods were cited by nearly two-thirds of the study group (69.5%) as potential causes of CRC. Furthermore, two-thirds (68.6%) were aware of the CRC screening test. Regression analysis was used, and a significant correlation was found between risk variables of fast-food intake, daily red meat consumption, and physical inactivity with CRC knowledge (P - 0.026, 0.012, and 0.004, respectively).

Conclusions: According to the findings, primary health care attendants have a low level of CRC awareness. Almost one-third (35.6%) of persons will have a FOBE test for CRC. There is a need to raise knowledge of risk factors and CRC screening, as well as to strengthen current awareness programs. More research is needed to back up the current study findings in our population

KEYWORDS: Awareness CRC, common symptoms, risk factors, screening, Primary health care centers.

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1. INTRODUCTION

Over the previous two decades, the global prevalence of noncommunicable illnesses, including all forms of cancer, has increased. One of the most frequent malignancies is colorectal cancer (CRC), and its incidence and prevalence are growing all over the world, including in Saudi Arabia. According to the Ministry of Health's 2020 Chronic Disease Registry, > 90 percent of CRC cases are over the age of 50, and CRC incidence is the top-ranked disease in the country. This progressive growth might be attributed to a combination of hereditary and environmental causes. Colorectal cancer (CRC), commonly known as colon cancer, bowel cancer, or rectal cancer, is a kind of cancer that begins in the colon and extends into the rectum (Bakry et al., 2021). The incidence of colorectal cancer is increasing in Saudi Arabia, and many studies have identified low fiber diet

intake, high fat, spicy and oily foods, more red meat consumption in their regular diets, non-adherence to screening programs, other lifestyle factors, and ignorance as risk factors for CRC. Some studies have found that frequent symptoms of CRC include changes in bowel habits, blood in the stool, weight loss, a mass in the abdomen, and exhaustion (Sewitch et al., 2006; Di-Maso et al., 2013).

To minimize colorectal cancer (CRC) in the community, various screening programs have been used to be a good strategy for avoiding CRC by early detection and removal of premalignant adenomas, hence lowering disease-related mortality and morbidity. Based on data from the United States, several studies have suggested that screening can lower the incidence of mortality due to CRC by 53%. Screening strategies recommended by the United States Preventive Services Task Force (USPSTF) include high-

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sensitivity fecal occult blood testing (FOBT) annually, sigmoidoscopy every 5 years, full colonoscopy every 10 years, and barium enema for adults aged 50 to 75 (USPSTF, 2014).

A cross-sectional rural-based study was done among 2379 people in the multi-ethnic population of Perak state in Peninsular Malaysia, using a multi-stage sampling procedure. This study found that only 38% of study participants knew about warning signals and 32% knew about risk factors (Su et al., 2013).

Almadi and Alghamdi (2019) performed a countrywide research in Saudi Arabia to emphasize public acceptability of CRC screening and to identify potential impediments to CRC screening. According to the findings of this study, male gender was substantially connected with a greater chance of screening acceptance on multivariate analysis (Almadi and Alghamdi, 2019).

Nasaif and Al-Qallaf (2018) did a study on CRC risk factors and stated in their study as frequent symptoms of Colorectal Cancer such as changes in bowel habits in 46% and lower abdominal discomfort in 44%. Females had higher mean knowledge and standard deviation of CRCs, and a significant connection was found when compared to males (Nasaif and Al-Qallaf, 2018).

The study's primary goal was to assess risk factors, knowledge, and attitudes regarding colorectal cancer among individuals attending primary health care centers. Also, to raise awareness about colorectal cancer and its impact in the community among the study population.

Objectives

To identify the risk factors and their relationships with Colorectal Cancer knowledge in the study population, to assess the knowledge and attitude about Colorectal Cancers in the study population, and to identify the demographic characteristics in the study population and their correlations with Colorectal Cancer knowledge

2. METHODOLOGY

Target Population

The research included all individuals visiting primary health care facilities who were 18 years or older.

Study design

A cross-sectional investigation was carried out in primary health care centers.

Study Duration

One year from June 2021 to December 2022.

Sample size

The sample size was obtained using the sample size calculator from the WHO statistics program. According to the knowledge on Colorectal Cancer provided in a survey performed by Nasaif and Al-Qallaf, (2018) in Bahrain, 56% were aware of CRC. The same prevalence of 56% was used to calculate sample size, with a 95% confidence range and precision of 0.05. The sample size was estimated to be 379

based on the aforementioned factors.

Sampling Method

There are 155 primary health care clinics operating in Qassim. The investigation was conducted in 8% of the primary health care centers (13/155). As a result, the current study covered 13 primary health care centers. The main health care centers will be chosen using a basic random technique. Patients accompanying folks chosen from the waiting area based on the available sample frame in primary health care facilities visits. Interested patient attendants were chosen at the primary health care centers using a simple random procedure until our sample size was fulfilled.

Inclusion Criteria

Primary health care patient attendants must be at least 18 years old.

Exclusion Criteria

Pregnant and breastfeeding mothers, as well as patients' attendants with documented psychological illnesses, were excluded.

Tool development

Based on prior research done in various sections of the country, as well as overseas studies. Variables were organized and checked with topic specialists, as well as research experienced faculty comments were obtained. Following validation, a pilot study was undertaken on 30 samples that were not included in our main investigation.

Data collection procedure

The data was gathered by an interview approach, and the questionnaire included two components. The first section addressed demographic characteristics such as age, gender, education, and employment. The second section of the questionnaire had additional knowledge and attitude questions on colorectal cancer. A portion of the questions focused on what participants had learned about colorectal cancer and their perceptions of the disease.

Knowledge on several aspects such as lifestyle factors, psychological issues, and awareness of colorectal cancer screening, interest in screening, and knowledge about treatment availability questions were included. In our questionnaire, we included yes or no questions concerning frequent CRC symptoms such as blood in the stool, weight loss and change in bowel habits, exhaustion, and an abdominal mass. Anyone who answered three or more of the five typical symptoms was judged to have high knowledge, while three was considered to have low knowledge.

Feminine data collectors were hired to collect data on the feminine side. A one-day sensitization training for female data collectors was held. The method of data collection was described and piloted with a small sample under the supervision of the lead investigator before beginning data collection from participants via interview.

Statistical analysis

SPSS was used to enter, clean, and analyze the data collected. For continuous variables, simple proportions,

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means, and standard deviations were computed. The Chi-squared test was used for categorical analysis. For risk prediction, logistic regression analysis was used between CRC knowledge and CRC risk variables. The level of significance was set at P or less than 0.05.

Ethical considerations

2. The study was launched after receiving approval from the Institutional Ethical Committee. The regional ethics committee, Qassim, received clearance for the study with number 1443-305484, dated 20.09.2021, in compliance with Saudi Arabia's national bioethics committee. Permission was also acquired from the directors of primary health care centers prior to data collection. Each questionnaire was accompanied with informed consent. The participant's privacy and confidentiality were fully respected.

3. RESULTS

The current study included 344 primary health care participants. The study questionnaire was issued to 379 research participants, 344 of them answered to our questionnaire, and the response rate observed in our study was 91% (344/379). The mean age and standard deviation in the current research were 44.45 12.63. Almost 92% of the participants in the research were Saudi nationals? In the

study population, over half (50.9%) of the individuals had good Colorectal Cancer awareness regarding frequent CRC symptoms. In the current research, approximately 77.9% (268/344) of the population was married. The average household income and standard deviation in the study population were Saudi riyal 7944 4151.53, with a monthly income range of 17500 SR.

In the study group, about 72% had heard of colorectal cancer. In the study population, about 68.6% (236/344) were aware of the existence of a CRC screening test. Nearly 62.2% (214/344) were interested in having a CRC screening test. When asked if there is any therapy for CRC, about 75.9% said yes. In terms of pharmaceutical system preference, about 58.4% chose an allopathic system of medicine and 37.5% preferred a complementary and alternative medicine (CAM) system of medicine. In terms of attitude concerning CRC, more than one-third (37.2%) said they were unsure, while only 28.8% said they had a favorable attitude toward the condition.

The research population's mean body mass index (BMI) was 27.6, with a range of 18 to 46 kg/metre². The independent t test was used to compare the mean BMI to the Colorectal Cancer knowledge categories, and no significant difference was found (Mean BMI and standard deviation among >60 score 27.87 4.99 (n-175) and mean BMI and standard deviation in the 60 score group 27.31 4.84 (n-169).

Table 1. Demographic characteristics among the study population (Al-Hassan et al., 2023)

Nationality	Number of participants	Percentage
Saudi	316	91.9
Non-Saudi	28	8.1
Age ± SD	44.45 ± 12.63	
Age Category: 18-30 years	59	17.2
31-45 years	124	36
46-60 years	124	36
> 60 years	37	10.8
Male	233	67.7
Female	111	32.3
Education -Illiterate	26	7.6
School	101	29.4
Diploma	80	23.3
Bachelor	130	37.8
PG and above	7	2
Unemployed	96	27.9
Housewives	69	20.1
Govt employee	112	32.6
Private employee	67	19.5
Total	344	100

According to Table 1, about 67.7% of the study population was male. Nearly half of all persons (46.8%) are above the

age of 45. Almost two-fifths of the survey participants (39.8%) had a bachelor's degree or above. Housewives made

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up around one-fifth (20.1%) of the study population.

Table 2. Perceptions of participants about the causes of Colorectal Cancer (CRC) (Al-Hassan et al., 2023)

Causes of CRC	Yes	No
Dietary factors	239 (69.5)	75 (21.8)
Fast foods & oily foods	239 (69.5)	105 (30.5)
Low fruits	123 (35.8)	205 (59.6)
Low vegetables	139 (40.4)	205 (59.6)
Low fibre foods	114 (33.1)	230 (33.1)
Spicy foods	204 (59.3)	140 (40.7)
Daily red meat consumption	112 (32.6)	232 (67.4)

According to Table 2, about 69.5% of individuals in the research group identified dietary variables, fast meals, and greasy foods as causes of colorectal cancer. Nearly one-third

of those polled (33.1%) blamed low-fiber meals for promoting colorectal cancer.

Table 3. Opinions about lifestyle factors and other factors frequency in relation to CRC among the study population (Al-Hassan et al., 2023)

Lifestyle factors	Yes	No
Smoking	249 (72.4%)	95 (27.4%)
weight gain	187 (54.4%)	157 (45.6%)
Physical inactivity	188 (54.7%)	156 (45.3%)
Poor hygiene	140 (40.7%)	204 (59.3)
Psychological factors	212 (61.6%)	132 (38.4%)
Stress	184 (53.5%)	160 (46.5%)
Depression	152 (44.2%)	192 (55.8%)
Psychosocial factors	336 (97.7%)	8 (2.3%)
Poverty	96 (27.9%)	248 (72.1%)
Unemployment	61 (17.7%)	283 (82.3%)
Drugs	209 (60.8%)	135 (39.2%)
Chance	192 (55.8%)	152 (44.2%)
Health problems	220 (64%)	124 (36%)
Family history	222 (64.5%)	122 (35.5%)
Environmental factors	166 (48.3%)	178 (51.7%)
Pollution	161 (46.8%)	183 (53.2%)
Preservatives	197 (57.3%)	147 (42.7%)

Table 3 shows that 72.4% of the study population thought smoking was a risk factor for colorectal cancer. Weight increase and physical inactivity were cited as risk factors for colorectal cancer by 54.4% and 54.7% of individuals,

respectively. In the research group, over two-thirds (64.5%) of the participants answered yes to family history and 64% to health concerns as a risk factor for CRC.

Table 4 . Socio demographic factors association with Colorectal Cancer knowledge among the study population (Al-Hassan et al., 2023)

Socio-demographic factors	CRC knowledge good (>60 score)	CRC knowledge poor (<60 score)	χ^2 & P value
Male	110 (52.8%)	123 (47.2%)	$\chi^2 - 3.874$, P - 0.049, CI: 1.0 to 2.49
Female	65 (41.4%)	46 (58.6%)	
Saudi	156 (50.6%)	160 (49.4%)	

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Non-Saudi	19 (32.1%)	9 (67.9%)	$\chi^2 - 3.51, P - 0.061,$ CI: 0.95 to 4.93
Married	138 (48.5%)	130 (51.5%)	$\chi^2 - 0.187, P - 0.666,$ CI: 0.53 to 1.48
Single	37 (51.3%)	39 (48.7%)	

χ^2 : Chi square test, P: Probability value, CI: Confidence interval.

Table 4 shows that 52.8% of males had CRC knowledge > 60 score, however only 41.4% of females had more than 60 CRC knowledge score. There was a statistically significant relationship between male gender and CRC knowledge score

(P0.05).

Figure 1 shows that nearly two-thirds of the study group (67.4%) chose the correct answer for lump in abdomen symptom and 64% chose the correct response for blood in stool symptom.

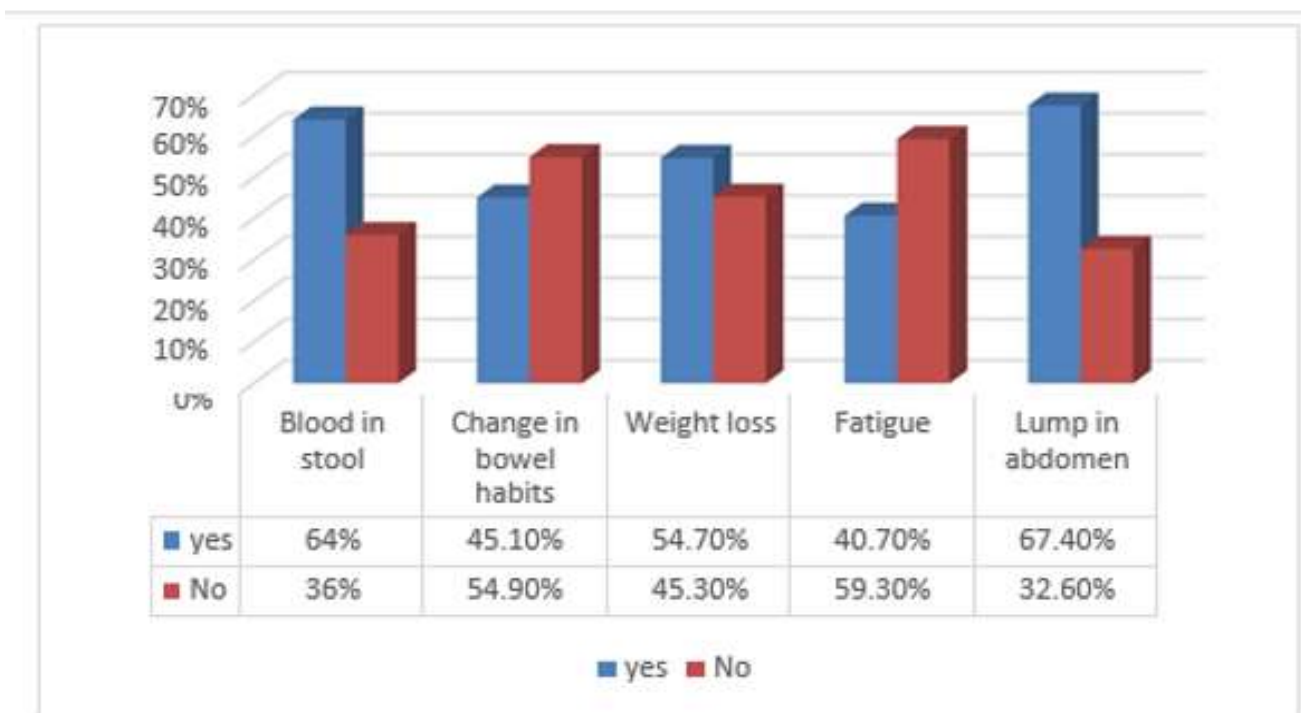


Figure 1 Perceptions of participants about common symptoms of CRC in the study (Al-Hassan et al., 2023)

Table 5. Participant's perceptions about the screening of CRC in the study population (Al-Hassan et al., 2023)

Screening for CRC status	Yes	No
Know screening test for CRC (n-344)	236 (68.6%)	108 (31.2%)
Among yes, knowledge for screening test FOBE–stool sample (n-236)	84 (35.6%)	152 (64.4%)
Reasons for interest towards screening CRC (n-214)	Number	Percentage
Peace of mind	69	32.2
Physical fitness	64	30
Early identification	81	37.8
Reasons for not interested for screening CRC (n-130)	Number	Percentage
Shyness	1	0.7
Not accessible	6	4.6
Not aware	31	23.8
Acceptability	39	30
Fear About Procedure	25	19.2
Lack of time	4	3
Values/Culture/Religion	7	5.4
Other factors like age	11	8.5
Other factors like no symptoms of CRC	6	4.6

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FOBE: Fecal occult blood examination

According to Table 5, approximately 236 (68.6%) of the study population were aware of colorectal cancer screening tests. Approximately 84 (35.6%) of them were interested in taking the FOBE exam. Early detection of the CRC was

mentioned by about 37.8% of those polled. In terms of non-acceptance of the CRC screening test, nearly one-third (30%) cited acceptability as a cause, 23.8% were unaware, and 19.2% were afraid of the procedure answer offered.

Table 6. Attitude of participants' agreement about CRC disease prevention and treatment status in the study population (Al-Hassan et al., 2023)

Variables	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
CRC Prevention	5 (1.5%)	45 (13.1%)	80 (23.3%)	156 (45.3%)	58 (16.9%)
CRC curable	8 (2.3%)	72 (20.9%)	83 (24.1%)	147 (42.7%)	34 (9.9%)

According to Table 6, over two-thirds (62.2%) of the study participants strongly agreed on CRC prevention as agreed and above. Regarding CRC curable, approximately 52.6% were

described as agreed and above statement

Table 7. Logistic regression analysis of risk factors of CRC in relation to knowledge about the CRC in study population (Al-Hassan et al., 2023)

Variables	Categories	AOR	P value	Confidence interval
Fast foods	Ref. Cat: 1 (yes)	0.532	0.026	0.306 to 0.926
Low fruits	Ref. Cat: 1 (yes)	0.476	0.149	0.174 to 1.305
Low vegetables	Ref. Cat: 1 (yes)	1.015	0.976	0.388 to 2.654
Low fibre diet	Ref. Cat: 1 (yes)	0.686	0.159	0.406 to 1.159
Spicy Foods	Ref. Cat: 1 (yes)	0.840	0.494	0.511 to 1.383
Red meat	Ref. Cat: 1 (yes)	0.486	0.012	0.276 to 0.856
Smoking	Ref. Cat: 1 (yes)	1.084	0.771	0.630 to 1.866
Weight gain	Ref. Cat: 1 (yes)	0.707	0.161	0.436 to 1.148
Physical inactivity	Ref. Cat: 1 (yes)	0.491	0.004	0.301 to 0.800

Ref.cat: Reference category.

Table 7 regression analysis revealed a statistically significant relationship between CRC awareness and the risk variables of fast-food intake, daily red meat consumption, and physical inactivity (P-0.026, 0.012, and 0.004, respectively).

4. DISCUSSION

The current cross-sectional study was carried out at selected primary health care centers in Qassim province from June 2021 to December 2022. As primary health care centers address the majority of health problems and serve as frontline health care services to resolve basic health problems of the population and meet community needs, the ministry of health cancer registry 2020 shows a significant increase in cancers globally, including in Saudi Arabia. Colorectal cancer (CRC) has been detected and linked to considerable mortality and morbidity in the community, with the prevalence of CRC comprising both genders at 14.4% (Males 19.3% and females 9.2%).

The mean age and standard deviation in the current research were 44.45 12.63. Another cross-sectional research done in Ethiopia in 2021 reported a mean age and standard deviation of 47.30 17.81, which is similar to our study result (Hamza et al., 2021). A local research done at King Saud University in Riyadh found the mean age and standard deviation to be 50.7

9.8. Overall, the mean age distribution is determined by the age requirements and the number of individuals enrolled (Alshammari et al., 2020). A research done in Saudi Arabia among participants from all areas and published in 2016 said that the age group chosen in their study was 18 years and above, with the majority of participants being younger (Alzahrani et al., 2016).

In our study, the gender distribution was 67.7% men and 32.3% females. An Aseer region study revealed an almost equal prevalence of males and females as 64.7% and 35.3% (Al-Sharif et al., 2018), and another international study conducted in Malaysia among the Klang valley urban population mentioned a contrast finding of males and females in their study as males 38.5% and females 61.5% (Sindhu et al., 2019).

In our survey, roughly 72% of the participants had heard of colorectal cancer. In a survey done in Kuwait, we discovered that 75.1% of the general community was aware of the CRC (Saeed et al., 2018). Another research published in the United Arab Emirates in 2018 found that 60% of people were aware about CRC (Al-Abdouli et al., 2018). In a survey of the general community in Poland, little knowledge of CRC (36%) was identified (Lewandowski et al., 2020).

In the current study population, about 68.6% (236/344) were aware of the availability of CRC screening tests. A research

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done in a Makkah population concerning screening test for CRC mentioned 16.3% (Barasheed et al., 2020), 47.2% (Alshammari et al., 2020), and 33% (Al-Abdouli et al., 2018), which appears to be low. A research done in Australia found a very high level of knowledge (81.5%) of CRC screening tests (Christou and Thomson, 2012). A slightly higher percentage of 96% knowledge of CRC was seen in a 2012 survey published in the United States (Brandt et al., 2012).

In our study, approximately 62.2% of those who accepted the screening test were interested in going for a screening test for CRC. A research performed in Riyadh found that 75% of the study population was interested in going for CRC screening. Because Riyadh is a capital and a large city, the people is definitely more aware of CRC screening (Alshammari et al., 2020).

In our study, roughly 35.6% of participants expressed an interest in undergoing a faecal occult blood examination (FOBE). In their study, 37% of individuals in the UAE population were interested in the FOBE screening test (Al-Abdouli et al., 2018), while 43% of people in China were interested in FOBE for CRC (Huang et al., 2021). In all areas of Saudi Arabia, a very low percentage of the population (16.6%) expressed interest in undergoing the FOBE screening test for CRC.

In the current study, approximately 70% of those asked why they wanted to get screened for CRC cited early diagnosis and peace of mind as reasons for going. According to a 2019 study done in Lebanon, the rationale for getting FOBE for CRC for early detection of the illnesses was 55% (Tfaily et al., 2019). In a study done in the United Kingdom across diverse nationalities, a very high proportion (94%) was seen as a cause of peace of mind in an open-ended questionnaire to undergo the screening test for the CRC (Robb et al., 2008).

In our study, 19.2% of those who refused the CRC screening test said they were afraid of the procedure. A study done in Riyadh found that a relatively low percentage (7%) of people were afraid to have a CRC screening test (Alshammari et al., 2020). Also cited as an acceptability reason for screening in our study was 30% (39/130), and a nearly identical percentage (29%) of acceptability reason of screening test for CRC was seen in Ethiopian study (Mc-Alearney et al., 2008). According to a research done in Riyadh, a high fat and low fiber diet combined implies a 55.4% risk of CRC (Alshammari et al., 2020).

In our study, over one-third of the respondents (32.6%) reported daily red meat consumption in their diets as a cause of colorectal cancer. Another research done in Kuwait found that daily red meat intake causes CRC in 37.2% of the population (Saeed et al., 2018), while a Qatar study among the general population found that daily red meat consumption causes CRC in 53.3% of the population (Al-Dahshan et al., 2020).

In the current study, 72.4% of the study population thought smoking was a risk factor for colorectal cancer. The proportion of smoking as a risk factor for CRC in the

Ethiopian population was indicated as 78.2% (Hamza et al., 2021). In our study, just over half of the participants (54.7%) thought physical inactivity was a risk factor for CRC. Christou and Thomson (2012) reported in an Australian research that about three-quarters of the study group (75%) indicated as a risk factor for CRC for the same risk factor. In addition, a research done in China found that as a risk factor for CRC for the same physical inactivity was around 56.1%, which is similar to our study finding (Huang et al., 2021).

In the current study, over two-thirds (64%) of participants reported blood in their stool as a common symptom of CRC. A somewhat lower percentage (46.9%) of blood in a stool as a frequent symptom was identified in a Qatar study (Al-Abdouli et al., 2018), whereas a Lebanon study (65.3%) showed blood in a stool as a common symptom for CRC. A 76% proportion of blood in the stool was reported as a prevalent sign of CRC in a Chinese research (Huang et al., 2021).

Change in bowel habit was shown to be a prevalent symptom in 45.1% of CRC patients in our research. A research done in the UAE found that changed bowel habits were a prevalent symptom in 55% of the study participants (Al-Abdouli et al., 2018). In the Qatar research, the symptom frequency was 38.6% (Al-Dahshan et al., 2020), whereas in Australia, the rate was 76.1% (Christou and Thomson, 2012). The varying frequencies of common CRC symptoms might be attributed to participants' knowledge, illness incidence, and geographical dispersion of the diseases and their symptoms. The current study found that around 50.9% of participants had good Colorectal Cancer knowledge based on five frequent symptoms. A research done in Bahrain found that 59% of CRC patients knew about the same frequent symptoms of CRC (Nasaif and Al-Qallaf, 2018). In Jordan, 26.6% of the population had no understanding about colorectal cancer (Omran et al., 2015), while certain European nations, including Spain, had low awareness of CRC symptoms (Gimeno-Garcia, 2012). Other studies published in 2009 and 2011 in the Spanish population found that awareness of at least one or more CRC symptoms ranged from 21% to 56% (Gimeno-Garcia et al., 2009; Gimeno-Garcia et al., 2011). Low CRC awareness might be attributed to research performed a decade ago, which could explain why there is less CRC understanding.

Some of the limitations noticed in the study were that because our study was done among the primary health care visiting population, generalizability to the entire community is not recommended because those people who did not visit the PHCC will have different knowledge levels for CRC. However, the findings of our study will serve as a wake-up call to enhance CRC awareness among the people through our PHC services.

More similar research in similar situations are needed to back up our current study findings. We had minimal trouble retrieving the sample from the waiting area during data collection. Almost ten people declined to participate in the

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research. Some people did not engage in our study owing to time constraints or a lack of interest in the research.

5. CONCLUSIONS

According to the study findings, about two-thirds (72%) of the study population heard about Colorectal Cancer awareness, and nearly fifty percent (50.9%) of the study population had strong knowledge about the typical symptoms of CRC. Only one-third (35.6%) of the community was aware of the fecal occult blood test (FOBE) used as a screening method for CRC. Nearly two-thirds of the study population was aware of dietary and smoking risk factors for CRC, and one-third was aware of daily red meat consumption as a risk factor for CRC.

Recommendations

According to the study findings, there is a need to establish primary preventative methods for risk factor awareness and to reinforce existing awareness initiatives. Also, raise awareness among high-risk populations in our area, Saudi Arabia, to undergo screening tests as a secondary preventative measure for early detection of CRC.

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