Assessing Public Awareness of Colorectal Cancer in the Saudi Population

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ABSTRACT

This study aimed to assess and identify the level of knowledge and awareness of colon cancer, including risk factors, symptoms and the time needed to seek medical care among the Saudi population. A cross-sectional study was conducted to assess public awareness and knowledge about colon cancer. The study recruited both adult males and females and was a part of the Saudi community. Non-Saudis, residents of other countries, and participants below 18 years were excluded. A questionnaire composed of socio-demographic characteristics, questions about the knowledge toward the risk factors and symptoms of colon cancer as well as awareness toward colon cancer screening was distributed. Of the 580 respondents, 394 were females and 186 were males. The most common risk factors for colon cancer were diseases of the colon (55.7%) and family history (54.8%), while the most common symptom was blood in the stool (62.9%) and weight loss (50.2%). The overall mean knowledge score was 6.35 (SD 3.96), with the majority (61%) having poor knowledge, 31% having moderate, and only 7.1% having good knowledge. Some of the factors associated with increased knowledge were being younger, being single, being a student, having heard of colon cancer, family history of colon cancer, and undergoing early screening for colon cancer. General public knowledge about colon cancer was deficient. Better knowledge can be seen among students who were aware of colon cancer or with a family history of the disease.

Keywords: Colon Cancer, Awareness, Knowledge, Saudi Population, Screening

INTRODUCTION

Colorectal cancer, i.e., CRC, is a significant threat to global health as cancer death is one of the most significant contributions to global death rates[1]. World Cancer Research Fund International states that, comparatively, colorectal cancer is the third most common cancer globally, with millions more diagnosed each year. Colon cancer is now a more frequent disease in Saudi Arabia. Colon cancer affects a greater fraction of the population and places a significant burden on health services[2].

In most cases, colorectal cancers originate from polyps, benign, abnormal growths on the inner lining of the colon or rectum. If left undetected and untreated at an early stage, these polyps can gradually transform into malignant tumors. Colon cancer is preventable to a large degree due to slow, steady progression, which makes colon cancer highly preventable if routine screening is in place[3]. Using procedures such as colonoscopy, fecal occult blood test, and sigmoidoscopy, precancerous polyps may be identified and removed, hence reducing the chances of developing invasive cancers[3].

Although colorectal cancer is largely preventable, public awareness remains alarmingly low in many regions, including Saudi Arabia. In response, the Saudi Ministry of Health has initiated extensive campaigns and educational workshops nationwide to enhance public understanding and promote colon cancer screening[4]. Despite the implementation of these measures, they have yet to achieve widespread reach or foster significant public engagement. Cultural, psychological and informational barriers such as anxiety of diagnosing, biases against cancer and reluctance about screening have made it hard to implement awareness[5].

Studies conducted in Saudi Arabia have continuously shown poor understanding of symptoms and risk factors associated with colon cancer among citizens. Only a few respondents, based on findings from Aldakhil et al. (2024), were able to correctly identify risk factors and symptoms of colon cancer. In random non-commercial research[6], Le Bonniec et al. (2023) mentioned that even with its acknowledgement by respondents, colon cancer comprehension was superficial, and they struggled with identifying the principal symptoms of the disease[7].

The accessibility of accurate health information has a great effect on such people's knowledge about colon cancer. Social media broadcasts have become the most crucial conduit for the public receiving health information in Saudi Arabia, with TV, newspaper, and healthcare professionals taking a significant role in the information disseminated. The social media platforms carry mixed quality information, and there is often increasing concern about the spread of false details[8]. Cultural beliefs and the stigma attached to the disease in the Saudi society further abound as barriers to enhancing awareness of the disease. Fear or assumption that cancer is a "taboo" topic tends to make many avoid talking about it[9]. Cultural reluctance may prevent people from getting reliable information about diseases or even participating in important cancer screenings[10].

The purpose of this research is to assess what the Saudi population knows about colon cancer. It intends to establish where people predominantly learn about colon cancer, how people's demographics, like age, gender, education, and hereditary link, relate to awareness. In addition, this study seeks to identify the primary barriers to colon cancer screening among individuals, such as cost concerns, fear, inadequate knowledge,

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etc. To provide science-based recommendations for increasing public awareness and promoting the early screening of colon cancer in Saudi Arabia, this study focuses on the connection between demographic factors with knowledge of colon cancer. However, with these findings, policymakers and healthcare professionals can plan specific awareness campaigns and educational products that could help reduce new colon cancer diagnoses and deaths from this disease.

LITERATURE REVIEW

Colon cancer or Colorectal cancer (CRC) is still one of the major malignancies in the world, which is a serious public health problem. In 2020, more than 1.9 million new cases of CRC were reported, resulting in 935,000 deaths[11]. This alarming trend will continue due to the increasing acceptance of westernised ways of living, ageing populations among nations and lack of national screenings in many countries[11]. Knowledge of mechanisms, risk factors and emerging practices of early diagnosis and management is crucial in the efforts towards lessening the burden of morbidity and mortality that is associated with CRC[12].

This insight into the global burden of CRC is further intensified with the realisation that the disease is multifactorial aetiology. Some of the factors that contribute towards CRC include genetic predisposition, environmental exposures, diet and chronic inflammatory conditions. A sufficient recorded pathway is the adenoma-carcinoma sequence, where benign adenomatous polyps undergo mutations of DNA characteristics, i.e., in APC, KRAS and TP53 genes become transformed into the malignant state[13]. Also, hereditary syndromes, such as Lynch syndrome and familial adenomatous polyposis (FAP), are closely associated with the elevated levels of risk for CRC[14]. In addition, lifestyle factors such as diets rich in red and processed meats, lack of physical activity, obesity, smoking, and heavy drinking are also known contributors (World Cancer Research Fund, 2018). Conditions such as inflammatory bowel disease (IBD) also increase the risk of CRC through continuous inflammation and cell alteration[15].

Given that both lifestyle and genetic factors significantly influence the risk of developing colorectal cancer (CRC), raising public awareness is essential. Disparities in knowledge may hinder early diagnosis and undermine the effectiveness of prevention efforts[16]. Despite CRC being a still relevant global public health issue, awareness of its symptoms, risk factors and screening possibilities on a public level is still spotty and continues to become even more uneven[17]. Specifically, countries in the Middle East exhibit significant knowledge gaps, as highlighted by[18]. Contributing factors include cultural norms, varying levels of education, and limited access to healthcare services. The limited effectiveness of public health campaigns has further exacerbated the situation, particularly in developing regions. Consequently, participation in screening programs remains low, and diagnoses are often made at more advanced and life-threatening stages of the disease. In Saudi Arabia, there has been a large discrepancy in public awareness of CRC. Through a survey conducted by Imran et al. (2023) of more than 1000 Riyadh residents, it was found that there was an absence of CRC symptoms and screening instructions[19]. In the same way, Madkhali et al. (2023) revealed that Makkah had less than anticipated screening rates[20]. Even as respondents knew of such signs as rectal bleeding, Alsdhadhan et al. (2025) reported that many Saudis were unaware of the wider symptoms associated[21]. This calls for improved awareness and availability of information in the country.

Early detection is crucial to the improvement of CRC prognosis; therefore, it is also necessary to know the various screening procedures which have been developed and validated over the years. For instance, the colonoscopy is still the gold standard for CRC screening because of its diagnostic and therapeutic potential. However, its invasiveness, cost, and difficulties in reaching resource-starved areas are major impediments[22]. Non-invasive methods such as faecal immunochemical tests (FIT), guaiac-based faecal occult blood tests (gfobt), and stool DNA tests (e.g., Cologuard) have shown promising results. Further, the novelty in the use of molecular markers like circulating tumour DNA (cdna), microRNAs, and gene methylation assays for early-stage CRC detection is being explored, but its sensitivity remains as an ongoing work[23].

This disparity between CRC awareness and screening in Saudi Arabia is not restricted to this country only, for other Middle Eastern countries also demonstrate such deficiencies of public awareness[19]. Research conducted by Shamseddine et al. (2023) in Kuwait found that over half of the respondents were not aware of the critical symptoms, such as blood in stool and unexplained weight loss[24]. In the same way, studies in Lebanon[25] reported that fear and ignorance were the primary barriers to CRC screening, which are similar to the ones witnessed in the region. Demographic influences also define awareness and comprehension about CRC. Educational status, age, and occupation are some of the most significant factors that determine the level of CRC knowledge. Among the younger populations, especially the students, the level of awareness could be higher, probably because of the availability of more health-related learning resources. Aga et al. (2021) established that students in King Abdulaziz University had a better understanding of the symptoms and screening of CRC compared to the general population[26]. However, older adults, according to the observation by Shamsikhani et al. (2021) in Iran, might have more practical knowledge, which is typically based on their personal or family experience with the disease[27].

Colorectal cancer (CRC) outcomes are also shaped by socioeconomic conditions, access to healthcare, and racial disparities. Notably, African American populations in the United States experience higher incidence and mortality rates, with diagnoses often occurring at more advanced stages compared to non-Hispanic white populations[28]. These disparities highlight the need for specific screening programs and equal treatment delivery, as it helps to eliminate outcome disparities. In low- and middle-income countries (LMICS) in which infrastructure for screening is limited, initiatives are ongoing to formulate low-cost, scalable screening methods and public health initiatives that will help to curb such inequities[29].

Information sources also play a crucial role in the formation of CRC public awareness. Social media, scientific publications, and public health campaigns have become key vehicles for informing people about CRC. Almakaty (2024) proposes that the addition of CRC education to the school curriculum may enhance early awareness[30]. The increasing use of digital forms, especially social media, has become a strong tool for the expansion of outreach and spreading knowledge about prevention and early detection among the general public[31].

Despite the efforts to advance awareness in the screening of CRC, the barriers to CRC screening still exist, hindering early diagnosis and successful prevention. A study that was carried out by Alsadhan et al. (2025) and Travis (2024) diagnosed major hindrances, including fear of announcing the results, lack of funds, and lack of information on screening exercises[21,32]. These factors have far-reaching effects on the intention as well as actual participation in CRC screening. Whereas previous studies have roughly outlined these barriers, there is limited quantitative research of the way these factors differ in different demographic and cultural trends. The current study fills this gap by measuring these barriers within a range of diverse communities, therefore improving the comprehension of obstacles to screening adoption and direct personalised health measures.

METHODOLOGY

Study Design: This study employed a descriptive cross-sectional design to assess the level of colorectal cancer awareness among Saudi citizens. The cross-sectional approach is particularly suitable, as it captures population data at a specific point in time, making it effective for evaluating knowledge and awareness levels.

Data Collection: Data collection was done electronically and was transferred through social media platforms. This was the method chosen to maximise outreach and engagement, and this allows access to a diverse demographic population of Saudi Arabia. The convenience sampling was utilised because of the ease with which the participants could be reached online. Although this sampling procedure is limited in terms of generalisation, it succeeded in engaging a wide-ranging population of Saudi adults, from whom useful information could be gathered about their awareness of colorectal cancer (CRC).

Study Population and Sample Size

Inclusion Criteria: Study participants had to be Saudi nationals and living inside Saudi Arabia, aged 20 years and above. These criteria were defined to put observation of the adult Saudi population into the specific context, as well as to assess their awareness of colorectal cancer (CRC) topically and consistently.

Exclusion Criteria: Those people who did not fulfil the above conditions were not included in the study. This included other nationalities apart from Saudis, apart from those living outside Saudi Arabia and those less than the age of 18 years. Such exclusions ensured that the data reflected the targeted population, and variability was suppressed to the best possible state of reduced levels of non-research related variability.

In total, 580 participants, comprising 394 females and 186 males, met the inclusion criteria. The population sample size was determined by the study's goals, feasibility, and availability of the participants within the period of data collection. This enabled a thorough evaluation of CRC awareness by various demographic publics.

Data Collection Tool

For the current study, a specialised self-administered online questionnaire was used to gather data. The questionnaire was split into four main sections:

Socio-demographic Data: Age, gender, education, and employment of participating individuals were recorded in this section.

Knowledge of CRC Symptoms and Risk Factors: This portion of the survey assessed whether participants know the indicative markings of CRC and what heightens their risk.

Awareness of CRC Screening Methods: Respondents were asked about the screening techniques for CRC that they were aware of (colonoscopy and faecal occult blood testing).

Barriers to Screening: Generally, reported perceived barriers by the participating members to CRC screening included lack of knowledge, anxiety or money issues.

Multiple-choice type questions, totalling 16, were the knowledge section of the test, each with one right answer. Resultative answers were analysed, and participants' knowledge was divided into three segments. The knowledge of colon cancer risk factors and symptoms among participants was assessed, as shown in Table 1.

Data Analysis: The analysis of data was done with the help of IBM SPSS Statistics 26 programmes (Armonk, New York, IBM Corporation, USA). To make sure that the data was accurate, they were thoroughly processed and coded before analysis. The normalcy of the data was tested with the Shapiro-Wilk test, and it was found that the scores for knowledge were not following a normal distribution. Consequently, the non-parametric statistical tests were used.

Qualitative variables were given as frequencies and percentages, whereas quantitative variables were summarised as means and standard deviations. The Mann-Whitney U test was applied when comparing the knowledge levels of two groups of people, for example, males and females. For comparisons of more than two demographic categories, for example of education level, the Kruskal-Wallis H test was utilised. In all the analysis, the p-value of less than 0.05 was statistically significant.

Ethical Considerations: The research was conducted by the ethical standards concerning autonomy, confidentiality, and transparency of the participants. Informed consent was gained, and the participants were at liberty to terminate at any time. Data was de-identified, and ethical approval was given by the relevant committee.

Table 1. Assessment of Knowledge about the Risk Factors and Symptoms of Colon Cancer among the Saudi Community (n=580)

Knowledge Level	**Score Range**
Poor	0-5 points
Moderate	6-10 points
Good	11-16 points

Table 2. Socio-demographic characteristics of the sample population (n=580)

Study variables	N (%)
Age group	
20 – 30 years	334 (57.6%)
31 – 40 years	92 (15.9%)
41 – 50 years	81 (14.0%)
>50 years	73 (12.6%)
Gender	
Male	186 (32.1%)
Female	394 (67.9%)
Marital status	
Single	309 (53.3%)
Married	256 (44.1%)
Widowed	15 (02.6%)
Occupational status	
Employed	169 (29.1%)
Unemployed	134 (23.1%)
Student	227 (39.1%)
Retired	50 (08.6%)
Educational level	
Less than high school	18 (03.1%)
High school	201 (34.7%)
Bachelor	348 (60.0%)
Postgraduate	13 (02.2%)
Heard of colon cancer	
Yes	482 (83.1%)
No	98 (16.9%)
Family history of colon cancer	
Yes	71 (12.2%)
No	509 (87.8%)
Previous diagnosis of tumours	
Yes	16 (02.8%)
No	564 (97.2%)

RESULTS

The findings from the study start with the overview of participant demographics and proceed with the analysis of participant knowledge and awareness of colon cancer. Results are systematically presented through tables and figures, where central findings are emphasised. Descriptive statistics are applied to summarise the data, and inferential statistics to determine some important connections between variables. A total of 580 respondents were involved in the survey: 394 females (67.9%) and 186 males (32.1%). The highest percentage of the sample (57.6%) was of participants in the age group 20-30 years. Bachelors were the most dominant level of education (60%), followed by 83.1 % of heard respondents (Table 2).

The outcomes have been structured into three major subsections. (1) Socio-demographic characteristics, (2) Knowledge on colon cancer risk factors and symptoms, (3) Knowledge on colon cancer screening methods. Table 2 presents the socio-demographic characteristics of the study participants, providing insights into their age, gender, marital status, employment status, educational attainment, and awareness of colon cancer.

580 participants responded to our survey. Table 2 presents the socio-demographic characteristics of participants. The most common age group was 20 – 30 years, with the majority being females (67.9%), and more than half were single (53.3%). Participants who were students constituted 39.1%, whereas 60% earned bachelor's degrees. The proportion of participants who had heard about colon cancer was 83.1%, while the proportion of participants who had a family history of colon cancer was 12.2%, and those with the previous diagnosis of tumors was 2.8%. Table 3 summarises participants' knowledge regarding the risk factors and symptoms of colon cancer. This table helps in assessing the depth of public understanding about what contributes to colon cancer and how it manifests.

Table 3. Assessment of the Knowledge about the risk factor and symptoms of colon cancer (n=580)

Knowledge indicators	N (%)
Risk factors of colon cancer	
Diseases of the colon	323 (55.7%)
Family history	318 (54.8%)
Drinking alcohol	273 (47.1%)
A diet rich in red meat and lack of fruits and vegetables	271 (46.7%)
Smoking	238 (41.0%)
Lack of physical activity	192 (33.1%)
Age	190 (32.8%)
Gender	88 (15.2%)
Ethnicity	68 (11.7%)
I don't know	78 (13.4%)
Symptoms of colon cancer	
Blood stool	365 (62.9%)
Weight loss	291 (50.2%)
Abdominal pain	287 (49.5%)
Abnormal bowel movement	280 (48.3%)
Fatigue	251 (43.3%)
Anemia	139 (24.0%)
High body temperature	111 (19.1%)
I don't know	103 (17.8%)
Knowledge score (mean ± SD)	**6.35 ± 3.96**
Level of knowledge	
Poor	354 (61.0%)
Moderate	185 (31.9%)
Good	41 (07.1%)

Table 4. Awareness about colon cancer screening (n=580)

Statement	N (%)
Heard of colon cancer screening	
Yes	214 (36.9%)
No	366 (63.1%)
Did you undergo any early screening for colon cancer	
Yes	29 (05.0%)
No	551 (95.0%)
Willingness to undergo early screening for colon cancer	
Yes	290 (50.0%)
No	290 (50.0%)
Adherence to undergo colonoscopy as advised by the doctor	
Yes	531 (91.6%)
No	49 (08.4%)

The assessment of the knowledge toward the risk factors and symptoms of colon cancer was given in Table 3. It can be observed that the most common risk factor of colon cancer was diseases of the colon (55.7%), followed by family history (54.8%) and alcohol drinking (47.1%) while the least of them was ethnicity (11.7%). Regarding the symptoms of colon cancer, it was revealed that blood in the stool was the most common symptom associated with colon cancer (62.9%), followed by weight loss (50.2%) and abdominal pain (49.5%). Based on the given criteria, the overall mean knowledge score was 6.35 (SD 3.96) with 61%, 31.9%, and 7.1% compromising poor, moderate, and good knowledge levels. Table 4 illustrates the participants' awareness and behaviour regarding colon cancer screening. It includes information on familiarity with screening, participation in early screening, willingness to undergo screening, and adherence to medical advice.

In Table 4, 36.9% had heard about colon cancer screening with fewer than 5% underwent early screening for colon cancer. Half of the respondents indicated a willingness to undergo early screening for colon cancer while nearly all (91.6%) would adhere to colon cancer screening if advised by the doctor.

Figure 1 shows the barriers to doing early screening for colon cancer. It was observed that fear was the most mentioned barrier (40.5%), followed by "no need for an early examination" (39.1%) and material cost (29.3%) while concern about results was the least barrier (4.1%).

Figure 2 depicts the knowledge of respondents about the most common type of screening test for colon cancer. It can be shown that colonoscopy was the most common screening test for colon cancer (67.2%) and Fecal occult blood test (32.4%).

In Figure 3, the most frequently mentioned source of information regarding colon cancer was social media (46.9%), followed by scientific articles and books (31.2%) and awareness programs (26.2%). Table 5 compares the knowledge scores across different socio-demographic variables and screening awareness indicators, using non-parametric tests to identify statistically significant differences.

In Table 5, by using non-parametric tests, the mean knowledge score was significantly higher among age group ≤30 years ($Z=3.347$; $p=0.001$), never been married ($Z=2.908$; $p=0.004$), students ($H=23.096$; $p<0.001$), heard of colon cancer ($Z=5.993$; $p<0.001$), family history of colon cancer ($Z=2.525$; $p=0.012$), underwent early screening for colon cancer ($Z=2.392$; $p=0.017$), adherence to colonoscopy as advised by the doctor ($Z=02.420$; $p=0.016$), sources of information such; scientific articles and books ($Z=9.994$; $p<0.001$), family ($Z=2.289$; $p=0.022$), friends and co-workers ($Z=4.032$; $p<0.001$) hospital visit ($Z=3.345$; $p=0.001$) and awareness program ($Z=5.994$; $p<0.001$).

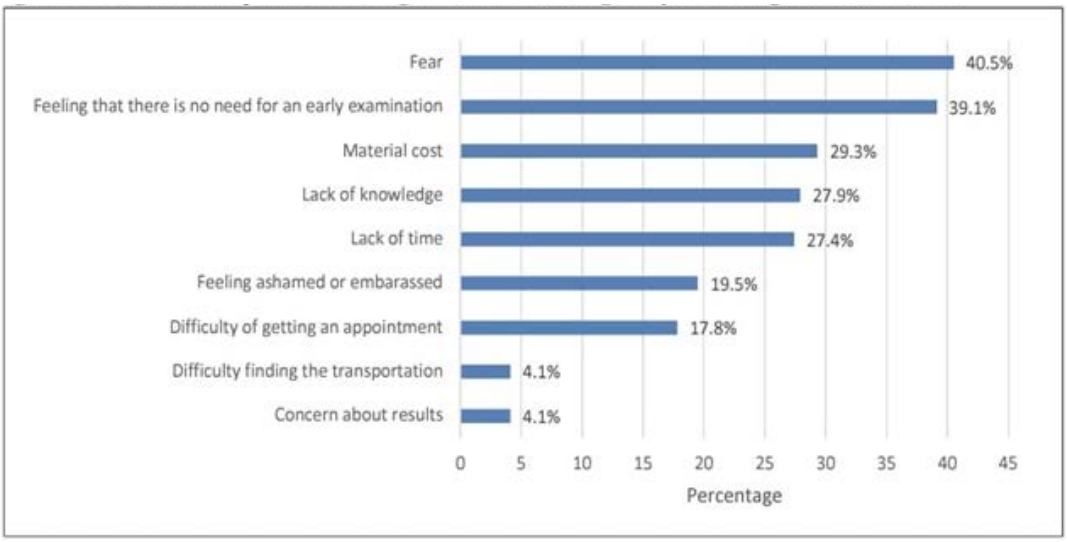

Figure 1. Barriers that prevent seeking medical and doing early screening for colon cancer

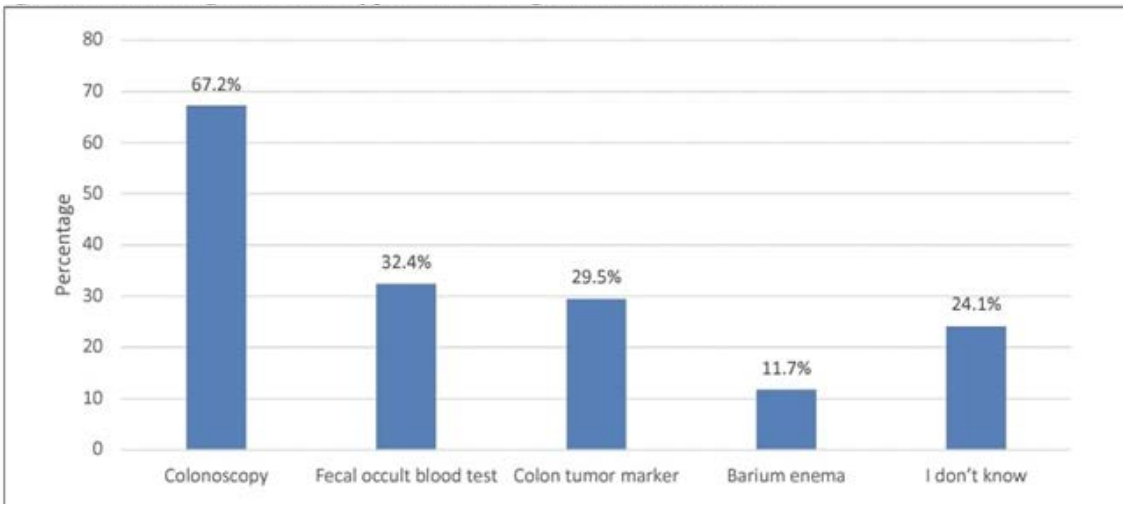

Figure 2. Knowledge about the type of screening test for colon cancer

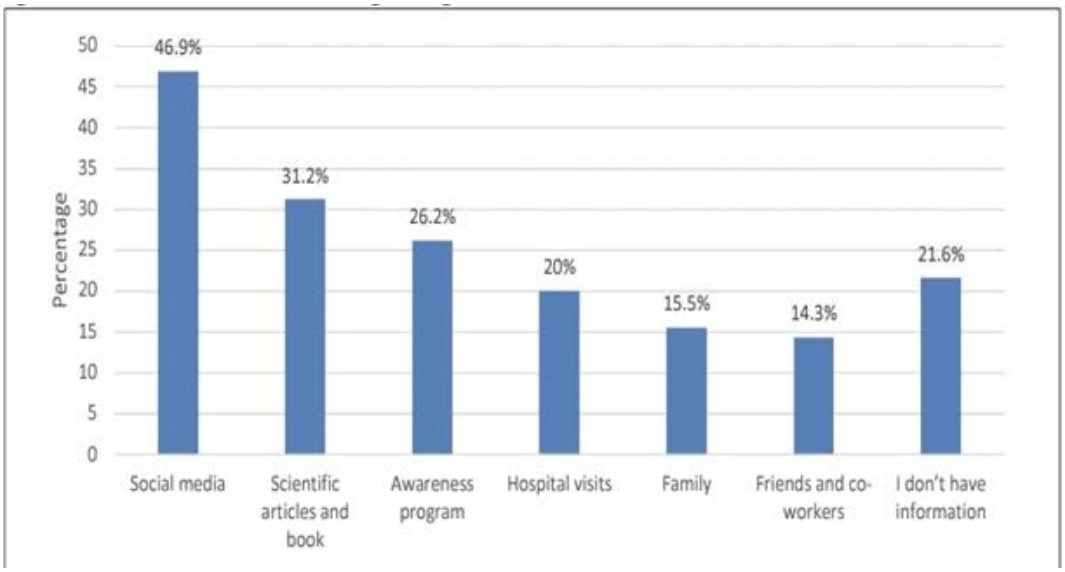

Figure 3. Sources of information regarding colon cancer

Table 5. Differences in the score of knowledge in regards to the socio-demographics and the awareness of participants regarding colon cancer screening (n=580)

Factor	Knowledge Score (16) Mean ± SD	Z/H-test	P-value
Age group [a]			
≤30 years	6.85 ± 4.09	Z=3.347	0.001 **
>30 years	5.67 ± 3.69		
Gender [a]			
Male	6.22 ± 4.26	Z=0.701	0.483
Female	6.42 ± 3.82		
Marital status [a]			
Never been married	6.84 ± 4.19	Z=2.908	**0.004** **
Been married	5.80 ± 3.62		
Occupational status [b]			
Employed	6.04 ± 3.94	H=23.096	**<0.001** **
Unemployed	5.41 ± 3.43		
Student	7.35 ± 4.17		
Educational level [a]			
High school or below	4.83 ± 4.30	Z=1.381	0.167
Bachelor or higher	6.36 ± 3.94		
Heard of colon cancer[?]			
Yes	6.79 ± 3.94	Z=5.993	**<0.001** **
No	4.16 ± 3.29		
Family history of colon cancer [a]			
Yes	7.49 ± 4.11	Z=2.525	**0.012** **
No	6.19 ± 3.92		
Heard of colon cancer screening [a]			
Yes	8.04 ± 3.83	Z=7.871	**<0.001** **
No	5.37 ± 3.70		
Underwent any early screening for colon cancer [a]			
Yes	8.00 ± 3.18	Z=2.392	**0.017** **
No	6.27 ± 3.98		
Willingness to undergo early screening for colon cancer			
Yes	6.43 ± 3.94	Z=0.399	0.690
No	6.28 ± 3.99		
Adherence to colonoscopy as advised by the doctor			
Yes	6.47 ± 3.96	Z=2.420	**0.016** **
No	5.06 ± 3.76		
Sources of information [a] *			
Social media	6.61 ± 3.77	Z=1.847	0.065
Scientific articles and books	8.80 ± 3.62	Z=9.994	**<0.001** **
Family	7.26 ± 3.95	Z=2.289	**0.022** **
Friends and co-workers	7.99 ± 3.82	Z=4.032	**<0.001** **
Hospital visit	7.39 ± 3.99	Z=3.345	**0.001** **
Awareness program	7.93 ± 3.62	Z=5.994	**<0.001** **

* Variable with multiple response answers.
[A] P-value has been calculated using Mann Mann-Whitney Z-test.
[b] P-value has been calculated using the Kruskal-Wallis H-test.
** Significant at p<0.05 level.

DISCUSSION

The findings of this study reveal a significant deficiency in public awareness and education regarding colorectal cancer (CRC) in Saudi Arabia, posing serious implications for the nation's public health. The result that 61% of respondents were only partially informed about CRC reveals the necessity for targeted and aggressive measures by healthcare officials. Given that, CRC is still a key contributor to cancer-deaths around the globe, early detection and public education should take precedence to improve survival rates[33]. Therefore, it is very important to study demographic, cultural, and system-related influence on public awareness with a view to developing corresponding measures.

A close examination of the study's demographic data found that age and educational background are major determinants of participants' CRC knowledge. Notably, younger participants who were taking

education programs posted far better knowledge scores than their older counterparts. This finding supports earlier work by Taba et al., (2022) who found that exposure to academic setting and digital resources positively influences health literacy[34]. Young adults usually access health-related information through educational, digital and online avenues thus ensuring their engagements better their chances to learn about prevention and early warning means. These outcomes emphasise the importance of including health education and specifically around CRC into curricula at both schools and universities. Through exposing young people to tangible medical evidence, they are likely to learn health consciousness permanently and develop a more proactive nature concerning health among them.

Interestingly, the difference in knowledge scores between male and female respondents was not statistically significant, the gender distribution within the sample remains a noteworthy aspect. The sample contained about 67.9% females, which in turn can reflect the representativeness of the sample. The findings of the study that reveal no gender-specific differences are congruent with a prior study by Prakash et al., (2024), however the existing gender skew may prevent subtle differences from being detected in a more representative population[35]. For further study, a more balanced gender composition among study subjects will support the results and provide more insight into how the context of society and culture influences man's and woman's awareness and health seeking practices associated with CRC.

Information channels based on participants' reported sources of information give additional understanding of how public awareness about CRC is disseminated. Social media was the most frequent source of CRC-related information consulted by 46.9% of the respondents. Although social media platforms provide a wide segmentation and impact, the reliability and factual content to what is being disseminated on such platforms can vary widely[36]. Unlike authoritative writings or a coherent effort of public health, the material on social media, often, is unregulated and therefore liable to spreading errors. By contrast, individuals who acquired the knowledge of CRC from academic papers, or from the regulated awareness programmes scored high overall. This finding means that content knowledge for learners is more important than the method of delivery. Therefore, public health strategies should focus on sharing scientifically validated content on key social networks and actively promote the use of reliable sources through partnership with health influencers, medical personnel and public health organisations.

The study points out a critical concern: only 5% of the respondents in the survey indicated they have had screening procedures (colonoscopy for CRC) resulting in disturbingly low rates for early detection response However, when asked regarding compliance with screening if recommended by king physician 91.6% of the respondents agreed. Such a drastic increase in willingness points to the primary role played by primary care providers and family physicians in facilitating patient health decisions. This is why physician-patient interactions represent very important opportunities of discouraging preventive measures. By compelling physicians to frequently discuss CRC risks with people and recommend apt screening, substantial increases in screening frequencies and at an early stage of screening can be achieved[37].

In addition, major barriers to under utilisation of screening were pointed out in the study. The main reasons provided by participants included fear and the perception that screening is not necessary. Such results are representative of the prevailing cultural and psychological matters that define healthcare practices in the Middle East. The fear of the exam itself, the possible consequences of a positive diagnosis and the discomfort associated with the intimacy of screening all take its toll on the willingness to participate[38]. The fact that people believe that only those who exhibit symptoms need to be screened reflects serious lack of knowledge about silent progression of early CRC. Such findings stress the need to educate as early detection should be promoted, the screening process should not seem scary to the client. A combination of stories from CRC survivors together with community education efforts could amount to reducing the fear and stigma associated with screening.

The results of the study suggested participants were more familiar with some CRC warning signals, such as bloody stool, unexplained weight loss, etc, than with others, such as fatigue, or anemia. Such a deficiency of recognition means that CRC symptoms are not understood fully. In spite of the broad focus on apparent symptoms in media and health education, the equally important manifestations of the disease may be scarcely reflected[39]. Successful campaigns on CRC need to have a compiled list of CRC symptoms and ensure that subtle and yet very crucial signs get equal coverage. Understanding these non-salient symptoms can go a long way to encourage patients to seek a doctor even before they present the classical, more severe alert signs of CRC.

The study surprisingly found a negligent relationship between educational background and awareness of the indicators of CRC. Studies have generally revealed that people achieving more education have better health literacy skills; Yet, as a large number of participants had a bachelor's degree (60%), the sample for the study was narrow in terms of level of exposure to education and had low educational levels variation. The small amount of educational diversity presents in the sample probably helped to explain the absence of a significant correlation because there was not enough educational difference for distinct distinctions to be made[40]. Another option is that general education is a platform, but that knowledge of CRC may not be adequately covered in case subjects that are relevant are not available in the standard course offerings. The findings suggest that formal health education that is not based on conventional academic courses is especially important.

When the data were examined, it revealed that those who learned about CRC in the past, or were screened, had significantly more knowledge. The findings of the study confirm the principle that awareness grows incrementally, and it is cultivated by repeated visits to educational content. Exposure as personal encounters, visits to the doctors, familiarity with family medical records, and attendances in health education activities have all helped to increase health literacy and sustain it. Health promotion efforts should focus on providing opportunities for engagement in several settings (a clinical, educational, community-based, or online) to enhance awareness and encourage preventive behavior[41].

One strength of this study was the high compliance of participants with their physicians' colonoscopy recommendations. Majority of the participants reported that they would agree to screen after being advised by a healthcare professional which implies that the main barrier is a lack of active advice instead of reluctance to follow medical guidance. This finding underscores the need to have trained and supported primary care providers to initiate discussion with patients about CRC-screening, particularly those at increased risk.

This finding supports previously conducted research in the area. Klein (2021) and Pathak et al., (2022) both noticed that despite a general measure of awareness, screening rates were still low[42,43]. Research also found physicians as primary motivators of screening and identified persistent cultural challenges and misinformation as important issues. Considered collectively, these findings convey a coherent narrative:

although individuals possess a degree of awareness, the adoption of preventive measures remains hindered by prevailing concerns, societal stigma, and the insufficient engagement of physicians.

Limitations of the study: Cross-sectional design does not allow establishing causality between knowledge and demographics. Skewness of the sample towards the young, female students limited generalizability. Reported online information may be biassed and subject to validity, particularly in sensitive areas such as screening.

CONCLUSION

A study found a significant knowledge gap in Saudi Arabia regarding colorectal cancer, with most respondents showing limited awareness. However, those with a family history and higher education levels showed greater awareness. Public awareness campaigns, particularly through social media, television, and print media, are crucial for addressing this gap. Early screening is essential for improved treatment outcomes. Primary care and family physicians should encourage screening by educating patients about its benefits. Barriers like fear, misinformation, and financial constraints should be addressed. Sharing survivor testimonies, engaging local communities, and developing culturally sensitive educational materials can reduce stigma. Promoting early medical consultation and healthier lifestyles is essential for combating colorectal cancer and improving public health outcomes.

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