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AWARENESS AND KNOWLEDGE OF COLORECTAL CANCER AMONG MEDICAL STAFF IN KSA: A CROSS-SECTIONAL STUDY

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ABSTRACT

Objective: This research aims to determine the Awareness and Knowledge of Colorectal Cancer among Medical Staff in KSA.

Methods: The study will be conducted in various healthcare settings across Saudi Arabia, including public and private hospitals, primary healthcare centers, and specialized clinics. This diverse setting will ensure a comprehensive understanding of the awareness and knowledge of CRC among medical staff working in different environments and regions within the country.

Results: The study included 350 participants. The most frequent weight among them was 86-95 kg (n= 114, 32.6%), followed by 96 kg and more kg (n= 83, 23.7%), then 76-85 kg (n=56, 16%). Figure 1 shows the weight distribution among study participants. The most frequent height among study participants was 161-170 cm (n= 132, 37.7%), followed by 151-160 cm (n= 124, 35.4%), then 150 cm and less (n=75, 21.4%). The most frequent gender among study participants was male (n= 206, 58.9%) and female (n= 144, 41.1%). The age among study participants with most of them had 36-40 years (n=96, 27.4%), followed by 31-35 years (n=88, 25.1%). The nationality among study participants with most of them had Saudi (n=302, 86.3%), and non-Saudi (n=48, 13.7%). The marital status among study participants with most of them had married (n=181, 51.7%), and

divorced (n=71, 20.3%), then single (n=53, 15.1%) and widow (n=45, 12.9%). The participants were asked, "Have you heard of colorectal cancer?" and their responses were as follows: Yes (n=314, 89.7%) and no (n=36,10.2%). The participants were asked, "Have you heard of colorectal cancer screening?" and their responses were as follows: Yes (n=296, 84.5%) and no (n=54,15.4%). Participants were asked about recommend CRC screening to family members and friends. The most frequent Yes (n=341, 97.4%) and No (n=9, 2.5%).

Conclusion: The study highlights a high level of awareness and knowledge about colorectal cancer among medical staff in Saudi Arabia. Most participants recommended CRC screening for their families and friends, emphasizing the importance of early detection and preventive measures in reducing cancer mortality rates. However, there are still barriers such as limited resources and misconceptions that need to be addressed to improve screening participation rates further.

INTRODUCTION

Worldwide, colorectal cancer (CRC) ranks second in terms of cancer-related deaths, and it is one of the three most common malignancies overall [1]. Although colorectal cancer ranks third among Saudi women, it is the most prevalent cancer among men in the country. Cancer rates have been on the rise in Saudi Arabia [2]. Cancer of the colon (CRC) is more prevalent in those over the age of 50, although it has climbed sharply in the younger age group over the last 20 years [3].

Cultural, socioeconomic, and lifestyle variables are among those that contribute to colorectal cancer progression [4]. Multiple variables increase the likelihood of colorectal cancer (CRC): a personal or family history of the disease, being overweight or obese, eating a diet rich in fat or poor in fiber, and eating red meat [5]. Another finding is that CRC risk is increased with inflammatory bowel disease [6]. The symptoms of colorectal cancer might vary from sudden weight loss to changes in bowel habits and the presence of blood in stool [6].

From adenoma to carcinoma, CRC takes a while to develop. Additionally, the survival rate is 90% for locally located cancer, compared to 10% for metastasized cancers [7]. Cancer may be prevented by early detection of malignancies through population screening, especially among at-risk individuals [7, 8]. The hefty price tag of colorectal cancer treatment, including chemotherapy for individuals in the advanced stages of the disease, may be mitigated by colorectal cancer screening (CRCS) programs [9].

Everyone over the age of 50 should have a colorectal cancer screening. Those who have a personal or family history of colorectal cancer should begin screening if they are 40 years old [10]. Colonoscopy and flexible sigmoidoscopy are the gold standards for colorectal cancer screening in Saudi Arabia, according to official recommendations. Additionally, if colonoscopy is not available for screening, a flexible sigmoidoscopy should be done every five years in conjunction with either an annual guaiac occult blood test or a fecal immunochemical test [11].

METHODS

Study design

This study will employ a cross-sectional design to assess the awareness and knowledge of colorectal cancer (CRC) among medical staff in Saudi Arabia. The cross-sectional approach is chosen for its efficiency in collecting data from a large population at a single point in time, allowing for the examination of current knowledge levels and associated factors across different medical professionals.

Study approach

The study will be conducted in various healthcare settings across Saudi Arabia, including public and private hospitals, primary healthcare centers, and specialized clinics. This diverse setting will

ensure a comprehensive understanding of the awareness and knowledge of CRC among medical staff working in different environments and regions within the country.

Study population

The target population for this study comprises medical staff working in Saudi Arabia, including physicians, nurses, and allied healthcare professionals. The inclusion criteria are medical professionals currently practicing in Saudi Arabia with direct or indirect involvement in the care or management of patients who may be at risk for or diagnosed with colorectal cancer.

Study sample

A stratified random sampling method will be used to select participants from the target population. The sample will be stratified by profession (e.g., physicians, nurses) and healthcare setting (e.g., public hospitals, private clinics) to ensure representation across different groups. A sample size calculation will be performed to determine the number of participants needed to achieve statistical power, with an anticipated response rate factored into the final sample size.

Study tool

For the current study, a questionnaire was adopted for data collection, which was also categorized as a study tool.

Data collection

Data will be collected using a structured, self-administered questionnaire distributed to participants either electronically or in paper form, depending on the convenience of the respondents. The questionnaire will include sections on demographic information, awareness of CRC risk factors and symptoms, knowledge of screening guidelines, and perceived barriers to CRC prevention and management.

Data analysis

Descriptive statistics will be used to summarize the demographic characteristics of the sample and the levels of awareness and knowledge of CRC. Inferential statistics, such as chi-square tests and logistic regression, will be conducted to examine associations between demographic variables and knowledge levels. Multivariate analysis will be used to identify independent predictors of high or low awareness and knowledge among medical staff.

Ethical considerations

The study will be conducted following the ethical guidelines set forth by the Institutional Review Board (IRB) of the participating institutions. Informed consent will be obtained from all participants before data collection, ensuring that they are fully aware of the study's purpose, procedures, and their right to withdraw at any time. Confidentiality and anonymity will be strictly maintained, and the data will be stored securely to prevent unauthorized access.

RESULTS

The study included 350 participants. The most frequent weight among them was 86-95 kg (n= 114, 32.6%) followed by 96 kg and more kg (n= 83, 23.7%), then 76-85 kg (n=56, 16%). Figure 1 shows the weight distribution among study participants. The most frequent height among study participants was 161-170 cm (n= 132, 37.7%) followed by 151-160 cm (n= 124, 35.4%), then 150 cm and less (n=75, 21.4%). Figure 2 shows height distribution among study participants. The most frequent gender among study participants was male (n= 206, 58.9%) and female (n= 144, 41.1%). Figure 3 shows the distribution of gender among study participants.

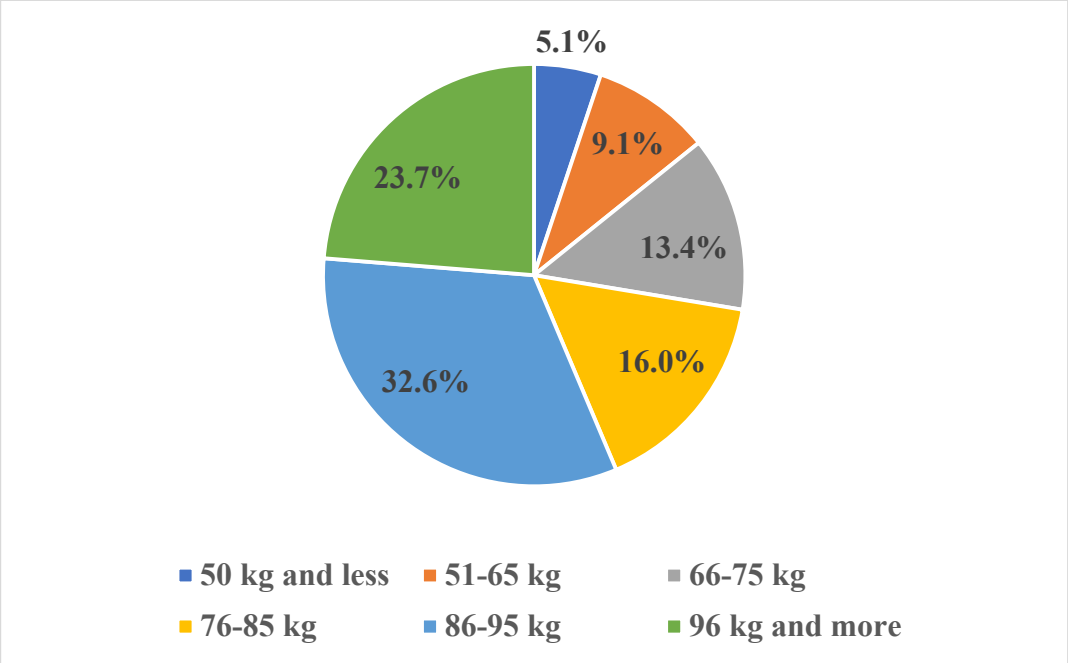

Figure 1: Weight distribution among study participants

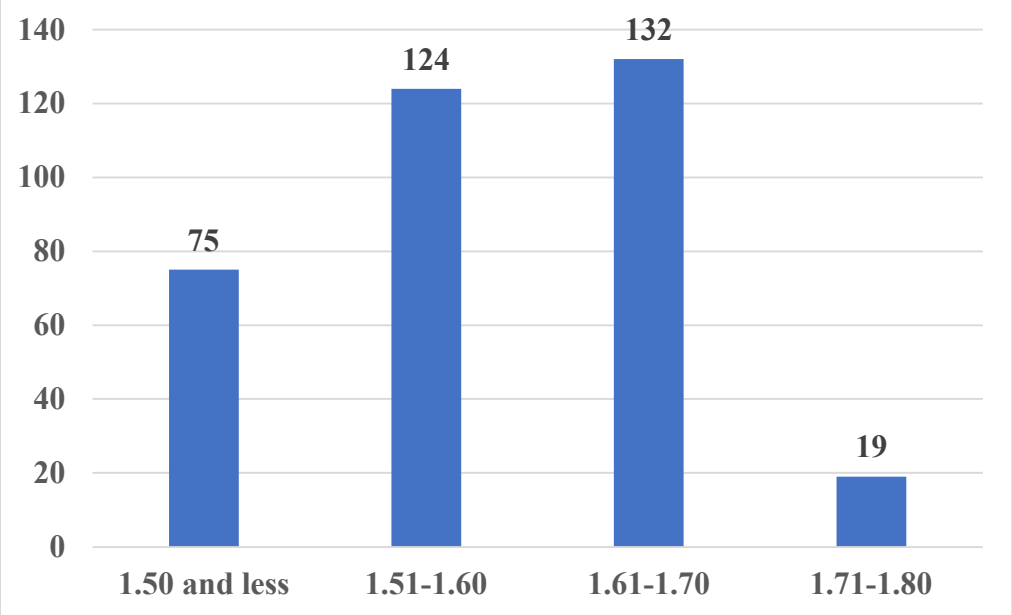

Figure 2: Height distribution among study participants

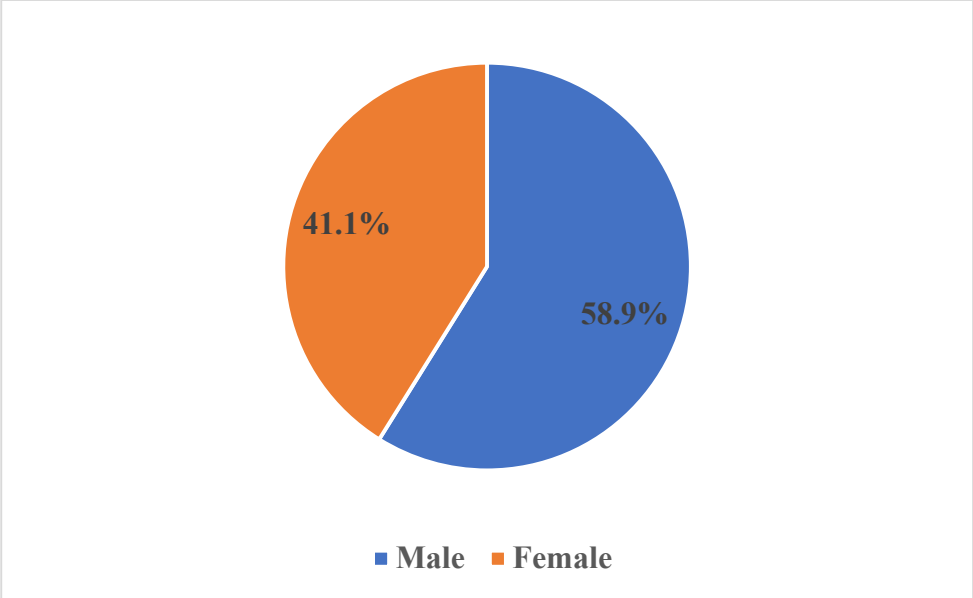

Figure 3: Gender distribution among study participants

The age among study participants with most of them had 36-40 years (n=96, 27.4%), followed by 31-35 years (n=88, 25.1%). Figure 4 shows the distribution of age among study participants.

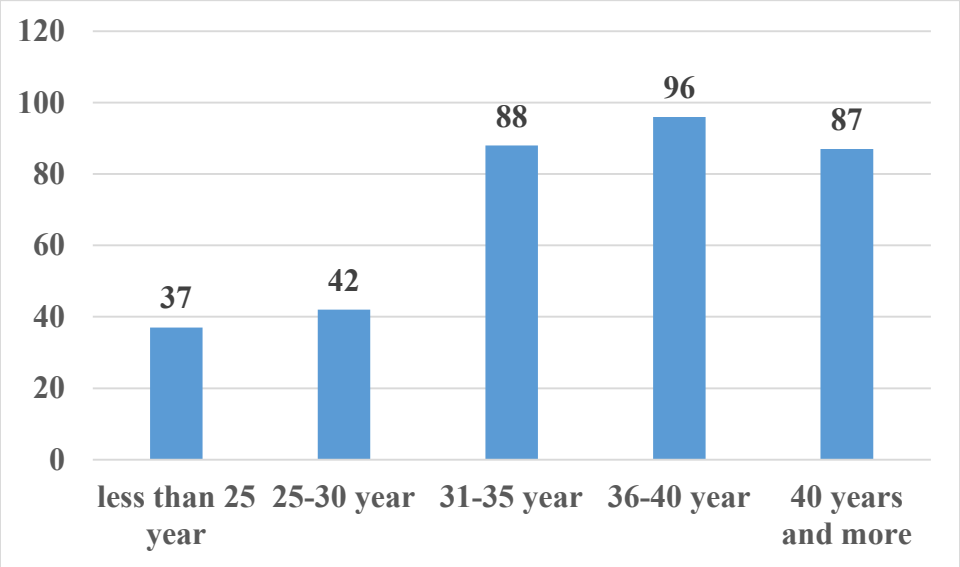

Figure 4: Age distribution among study participants

The nationality among study participants with most of them had Saudi (n=302, 86.3%), and non-Saudi (n=48, 13.7%). Figure 5 shows the distribution of nationality among study participants.

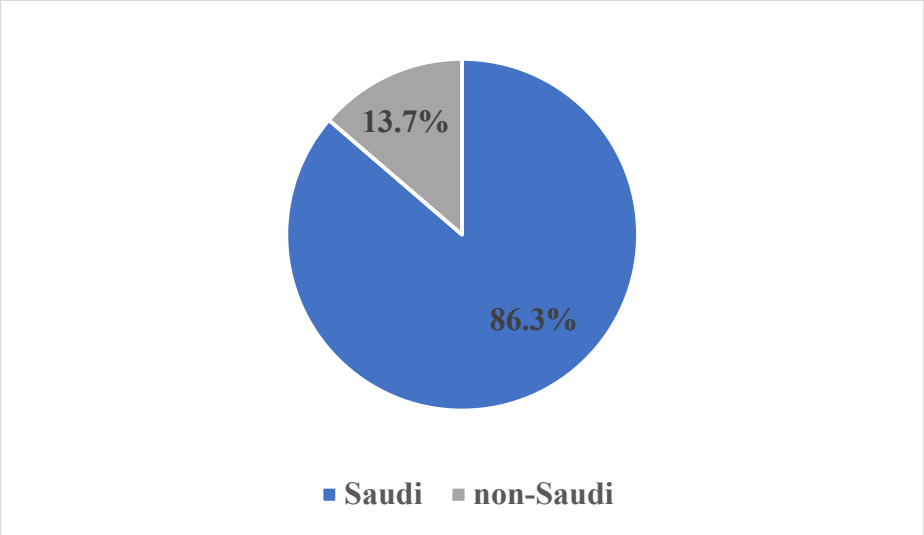

Figure 5: Nationality distribution among study participants

The marital status among study participants with most of them were married (n=181, 51.7%), divorced (n=71, 20.3%), then single (n=53, 15.1%), and widow (n=45, 12.9%).

The participants were asked, "Have you heard of colorectal cancer?" and their responses were as follows: Yes (n=314, 89.7%) and no (n=36,10.2%). The participants were asked, "Have you heard of colorectal cancer screening?" and their responses were as follows: Yes (n=296, 84.5%) and no (n=54,15.4%).

Participants were asked to assess their knowledge about the risk factors of colorectal cancer. Their responses and results are presented in Table 1.

Table 1: Risk factors of colorectal cancer

Which of the following is a risk factor for colorectal cancer?	Yes	No	I do not know
Age	330 (94.3%)	16 (4.6%)	4 (1.1%)
Sex	326 (93.1%)	14 (4%)	10 (2.9%)
Race	336 (96%)	8 (2.3%)	6 (1.7%)
Genetic factors	335 (95.7%)	9 (2.6%)	6 (1.7%)
History of adenomas/polyps	337 (96.3%)	9 (2.6%)	4 (1.1%)
Inflammatory Bowel Disease	333 (95.1%)	11 (3.1%)	6 (1.7%)
Obesity	334 (95.4%)	6 (1.7%)	10 (2.9%)
Type II DM	331 (94.6%)	14 (4%)	5 (1.4%)

Red meat	338 (96.6%)	5 (1.4%)	7 (2%)
Tobacco use	339 (96.9%)	3 (0.9%)	8 (2.3%)
Alcohol	343 (98%)	3 (0.9%)	4 (1.1%)
Peutz–Jeghers syndrome (PJS)	341 (97.4%)	4 (1.1%)	5 (1.4%)
Familial adenomatous polyposis	334 (95.4%)	13 (3.7%)	3 (0.9%)

Participants were asked to assess their knowledge about risk factor of colorectal cancer. Their responses and results are presented in table 2.

Table 2: sing of colorectal cancer

Which of the following is a sign/symptom of colorectal cancer?	Yes	No	I don't know
Bowel habits alteration	339 (96.9%)	6 (1.7%)	5 (1.4%)
Anemia	328 (93.7%)	13 (3.7%)	9 (2.6%)
Weight loss	325 (92.9%)	18 (5.1%)	7 (2%)
Fatigue	329 (94%)	13 (3.7%)	8 (2.3%)
Abdominal pain	331 (94.6%)	12 (3.4%)	7 (2%)
Blood in stool	324 (92.6%)	16 (4.6%)	10 (2.9%)
Bowel obstruction	325 (92.9%)	18 (5.1%)	7 (2%)

Participants were asked to about risk factor of colorectal cancer. Their responses and results are presented in table 3.

Table 3: Protective factor of colorectal cancer			
Which of the following is a protective factor of colorectal cancer?	Yes	No	I don't know
Physical activity	334 (95.4%)	8 (2.3%)	8 (2.3%)
Fiber consumption	323 (92.3%)	17 (4.9%)	10 (2.9%)
Fruits and vegetable consumption	335 (95.7%)	6 (1.7%)	9 (2.6%)
Aspirin	331 (94.6%)	12 (3.4%)	7 (2%)

Participants were asked to about the following is used as the CRC screening method. Their responses and results are presented in table 4.

Table 4: CRC screening method	Yes	No	I don't know
Abdominal ultrasound	326 (93.1%)	15 (4.3%)	9 (2.6%)
CT colonography	317 (90.6%)	18 (5.1%)	15 (4.3%)
MRI	329 (94%)	14 (4%)	7 (2%)
Simple X-ray	325 (92.9%)	18 (5.1%)	7 (2%)
Colonoscopy	326 (93.1%)	20 (5.7%)	4 (1.1%)
Sigmoidoscopy	335 (95.7%)	8 (2.3%)	7 (2%)
Fecal occulted blood	329 (94%)	12 (3.4%)	9 (2.6%)
Digital rectal examination	320 (91.4%)	18 (5.1%)	12 (3.4%)

Participants were asked about recommend CRC screening to family members and friends. The most frequent Yes (n=341, 97.4%) and No (n=9, 2.5%). Their responses and results are presented in figure 6.

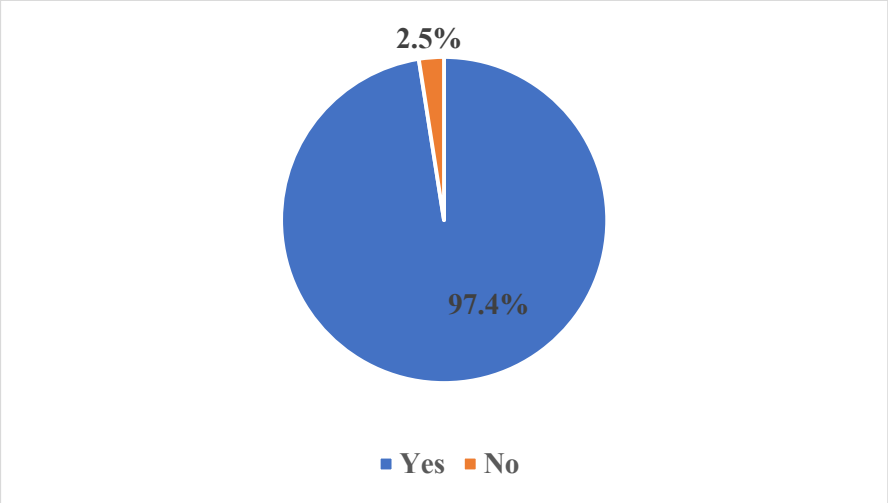

Figure 6: CRC screening to family members and friends

DISCUSSION

Colorectal cancer (CRC) accounts for one out of every eight cancer-related fatalities in the Kingdom of Saudi Arabia (KSA), with cancer ranking third among 22 nations in terms of cancer-related mortality before the age of 70 in 2015, according to the World Health Organization (WHO) estimate [16, 17]. Premature mortality in Saudi Arabia is a factor in one-third of colorectal cancer patients identified with distant metastases [18]. An effective method would be to either prevent colorectal cancer from occurring or diagnose it at an early stage, when death rates are lower compared to late-stage CRC. This is because colorectal cancer screening is linked with decreased mortality owing to the early diagnosis of precancerous lesions or tumors. We examine the epidemiology of colorectal cancer in Saudi Arabia, talk about the newest molecular biology advances that might aid in customized medication and predictive diagnostics for colorectal cancer patients, and suggest ways to avoid colorectal cancer in Saudi Arabia.

Epidemiology of CRC in KSA

CRC is the most common type of cancer in KSA

The prevalence of colorectal cancer (CRC) is on the rise worldwide, particularly in wealthy countries where, among other things, people adhere to a wide range of traditional food and lifestyle practices that put them at increased risk for colon cancer and other colonic illnesses. In 2014, there were 2047 newly diagnosed cases of CRC in KSA, which is consistent with a comparable contextual epidemiological pattern [17]. From 5.0 per 105 in 2001 to 10.5 per 105 in 2009, the age-standardized incidence rate of colorectal cancer in KSA increased by a factor of two. Saudi Arabia has one of the highest rates of cancer incidence among GCC nations, and it is on the rise [19]. Because there is now no PPPM system in place, the number of new cases of colorectal cancer (CRC) is expected to double in the next ten years [5, 6]. Under the complex concept developed and promoted by the European Association for Predictive, Preventive and Personalized Medicine (EPMA, Brussels) [20, 21], the PPPM approach takes into account both modifiable and non-modifiable risk factors, as well as mitigating measures, patient stratification, population screening programs, and treatments that are customized to match patient profiles. It is important to think about common comorbid disorders that are country-specific, including obesity and diabetes mellitus [22, 23].

Among Saudi men, CRC is the most often diagnosed cancer, whereas among females, it ranks third [24, 25]. The median age of diagnosis for Saudi men is 60 years, but the median age for

females is 55 years, indicating that the condition is more frequent among males. Due to greater life expectancy, females have a 30% lower incidence rate and a 40% lower fatality rate from colorectal cancer, although having the same lifetime risk as men [26, 27].

Unfortunately, KSA does not have access to comprehensive cancer mortality statistics. Nevertheless, the IARC used a modeled survival approach to estimate Saudi Arabia's population's death rates, which takes into consideration a country's CRC incidence and survival rates to anticipate mortality rates. Estimates for 2012 put the male death rate at 10 per 105 and the female mortality rate at 7.0 per 105 in Saudi Arabia [28].

Early onset of CRC could pose major healthcare problems in KSA

KSA is a country with prevalence of young population

In 2018, there were 20,768,627 people in Saudi Arabia, with 49% being female and 51% being male, according to the General Authority for Statistics of Saudi Arabia. Most people call the eastern (15.39%), central (22.83%), or western (22.13%) regions home. Approximately 35% of Saudis are in their twenties and thirties, while almost half are under the age of twenty-five. In light of recent findings detailing the early development of colorectal cancer in the 20-49 year age range [27, 29–31], this trend is especially worrisome since it has the potential to raise the disease burden in the next fifteen to twenty years.

CRC may burden KSA healthcare particularly affecting young generations

Among those less than 50 years old, the incidence of CRC has been on the rise [27, 32]. The incidence of colon and rectal cancers is projected to rise by 90% and 124.2%, respectively, for the 20-34 year old age group by 2030, and by 27.7% and 46%, for the 35-49 year old cohort, according to the same analysis [33]. Multiple investigations have shown that aggressive tumor features and an advanced stage at diagnosis are common in early-onset colorectal cancer patients [34–37].

In a study comparing CRC incidence rates in the United States and Saudi Arabia, Alsanea and colleagues discovered that both countries' rates were comparable in the 20–24 age bracket (0.6 in the US vs. 0.5 in KSA), but that US patients had higher rates in the 25–29, 30-34, and 35–39 age brackets [24]. Despite a lower-than-reported increase in Saudi patients in the 20-39 age range from 2000-2006 when all data points are included, the large number of young Saudis in the population means that the burden might rise in the intervening 15-20 years.

In Saudi Arabia, CRC incidence is influenced by factors such as age and geographical location [25, 38]. While the southern area had an incidence rate of just 2.8 per 105, the eastern and central regions had rates of 17.0 and 16.8 per 105, respectively. Greater patient referrals and easier access to more modern healthcare institutions in the eastern and central areas may explain the higher detection rates [18]. An other element that may be contributing to the higher incidence rate might be the presence of the petroleum sector in the eastern area [39]. The low incidence rates indicated for the southern area, which has the least number of industries, further support this.

CONCLUSION

The study highlights a high level of awareness and knowledge about colorectal cancer among medical staff in Saudi Arabia. Most participants recommended CRC screening for their families and friends, emphasizing the importance of early detection and preventive measures in reducing cancer mortality rates. However, there are still barriers such as limited resources and misconceptions that need to be addressed to further improve screening participation rates.

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ANNEX 1: DATA COLLECTION TOOL

Age (years)		Gender	Male	Female
Marital Status	Single	Married	Divorced	Widow
Professional level	General Practitioner	Resident	Specialist	Consultant
Others	Nurse	Health Allied Professional		
Monthly income	Weak	Good	High	
Experience	=<5 years	6-10 years	>10 years	
Center name		**Smoking status**	Yes	No
Nationality	Saudi / Non-Saudi	**Working hours per week**		
Weight (Kg)		**Height (meter)**		

1. 1. Have you heard of colorectal cancer? □ Yes □ No
2. 2. Have you heard of colorectal cancer screening? □ Yes □ No
3. 3. What is colorectal cancer screening? (Single correct answer)
   - □ A surgical procedure to identify cancer stage.
   - □ A biopsy from a mass to detect cancer.
   - □ A test performed on a healthy individual.
   - □ A clinical examination of healthy individuals.
   - □ I do not know.
4. 4. Which of the following is a risk factor of colorectal cancer?
   - Age □ Yes □ No □ I do not know
   - Sex □ Yes □ No □ I do not know
   - Race □ Yes □ No □ I do not know
   - Genetic factors □ Yes □ No □ I do not know
   - History of adenomas/polyps □ Yes □ No □ I do not know
   - Inflammatory Bowel Disease □ Yes □ No □ I do not know
   - Obesity □ Yes □ No □ I do not know
   - Type II DM □ Yes □ No □ I do not know
   - Red meat □ Yes □ No □ I do not know
   - Tobacco use □ Yes □ No □ I do not know
   - Alcohol □ Yes □ No □ I do not know
   - Peutz–Jeghers syndrome (PJS) □ Yes □ No □ I do not know
   - Familial adenomatous polyposis □ Yes □ No □ I do not know
5. 5. Which of the following is a sign/symptom of colorectal cancer?
   - Bowel habits alteration □ Yes □ No □ I do not know
   - Anemia □ Yes □ No □ I do not know
   - Weight loss □ Yes □ No □ I do not know
   - Fatigue □ Yes □ No □ I do not know

- Abdominal pain □ Yes □ No □ I do not know
- Blood in stool □ Yes □ No □ I do not know
- Bowel obstruction □ Yes □ No □ I do not know

6. 6. Which of the following is a protective factor of colorectal cancer?

- Physical activity □ Yes □ No □ I do not know
- Fiber consumption □ Yes □ No □ I do not know
- Fruits and vegetable consumption □ Yes □ No □ I do not know
- Aspirin □ Yes □ No □ I do not know

7. 7. Select the proper answer:

- Is more common in older people. □ True □ False □ I do not know
- Screening decreases the incidence of CRC □ True □ False □ I do not know
- Screening decreases mortality of CRC □ True □ False □ I do not know
- Academic curriculum contains information about CRC screening methods. □ True □ False □ I do not know
- CRC is a preventable disease. □ True □ False □ I do not know
- CRC is one of the most fatal cancers
- worldwide. □ True □ False □ I do not know

8. 8. Which of the following is used as the CRC screening method?

- Abdominal ultrasound □ Yes □ No □ I do not know
- CT colonography □ Yes □ No □ I do not know
- MRI □ Yes □ No □ I do not know
- Simple X-ray □ Yes □ No □ I do not know
- Colonoscopy □ Yes □ No □ I do not know
- Sigmoidoscopy □ Yes □ No □ I do not know
- Fecal occulted blood □ Yes □ No □ I do not know
- Digital rectal examination □ Yes □ No □ I do not know

9. 9. In average-risk population, at which age should CRC screening start?

- □ Thirty □ Forty □ Fifty □ Sixty □ Seventy □ I do not know

10. 10. What barriers are perceived to performing CRC screening in the region?

- Lack of knowledge about CRC and screening methods among the population.
- □ Yes □ No □ I do not know
- Lack of knowledge about CRC and screening methods among physicians.
- □ Yes □ No □ I do not know
- Religious reasons. □ Yes □ No □ I do not know
- Lack of trust in western technology. □ Yes □ No □ I do not know
- Lack of equipment and resources for screening.
- □ Yes □ No □ I do not know
- Lack of national screening program. □ Yes □ No □ I do not know
- No need for screening. □ Yes □ No □ I do not know
- Other reasons (please specify): _____

11. 11. What are the resources you rely on for information about CRC and its screening methods?

- Academic curriculum. □ Yes □ No
- Extra curriculum medical textbooks. □ Yes □ No
- Family and friends. □ Yes □ No
- Internet and social media. □ Yes □ No
- Journal articles. □ Yes □ No

12. 12. Do you recommend CRC screening to family members and friends? □ Yes □ No

APPENDIX 2: Participants responses to scale items

gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	206	58.9	58.9	58.9
	Female	144	41.1	41.1	100.0
	Total	350	100.0	100.0	

age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	less than 25 year	37	10.6	10.6	10.6
	25-30 year	42	12.0	12.0	22.6
	31-35 year	88	25.1	25.1	47.7
	36-40 year	96	27.4	27.4	75.1
	40 years and more	87	24.9	24.9	100.0
	Total	350	100.0	100.0	

Nationality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Saudi	302	86.3	86.3	86.3
	non-Saudi	48	13.7	13.7	100.0
	Total	350	100.0	100.0	

Marital status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	single	53	15.1	15.1	15.1
	married	181	51.7	51.7	66.9
	divorced	71	20.3	20.3	87.1

	widow	45	12.9	12.9	100.0
	Total	350	100.0	100.0	

Weight level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	50 kg and less	18	5.1	5.1	5.1
	51-65 kg	32	9.1	9.1	14.3
	66-75 kg	47	13.4	13.4	27.7
	76-85 kg	56	16.0	16.0	43.7
	86-95 kg	114	32.6	32.6	76.3
	96 kg and more	83	23.7	23.7	100.0
	Total	350	100.0	100.0	

Hight level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.50 and less	75	21.4	21.4	21.4
	1.51-1.60	124	35.4	35.4	56.9
	1.61-1.70	132	37.7	37.7	94.6
	1.71-1.80	19	5.4	5.4	100.0
	Total	350	100.0	100.0	

Professional level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	general peactitioner	40	11.4	11.4	11.4
	resident	33	9.4	9.4	20.9
	specialist	53	15.1	15.1	36.0
	consultant	85	24.3	24.3	60.3
	nurse	74	21.1	21.1	81.4
	health allied professional	38	10.9	10.9	92.3
	others	27	7.7	7.7	100.0
	Total	350	100.0	100.0	

Monthly income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	weak	112	32.0	32.0	32.0
	good	153	43.7	43.7	75.7
	high	85	24.3	24.3	100.0
	Total	350	100.0	100.0	

experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5 years or less	85	24.3	24.3	24.3
	6-10 years	167	47.7	47.7	72.0
	more than 10 years	98	28.0	28.0	100.0
	Total	350	100.0	100.0	

Smoking status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	200	57.1	57.1	57.1
	no	150	42.9	42.9	100.0
	Total	350	100.0	100.0	

Which of the following is a risk factor of colorectal cancer?	Yes	No	I do not know
Age	330 (94.3%)	16 (4.6%)	4 (1.1%)
Sex	326 (93.1%)	14 (4%)	10 (2.9%)
Race	336 (96%)	8 (2.3%)	6 (1.7%)
Genetic factors	335 (95.7%)	9 (2.6%)	6 (1.7%)
History of adenomas/polyps	337 (96.3%)	9 (2.6%)	4 (1.1%)
Inflammatory Bowel Disease	333 (95.1%)	11 (3.1%)	6 (1.7%)

Obesity	334 (95.4%)	6 (1.7%)	10 (2.9%)
Type II DM	331 (94.6%)	14 (4%)	5 (1.4%)
Red meat	338 (96.6%)	5 (1.4%)	7 (2%)
Tobacco use	339 (96.9%)	3 (0.9%)	8 (2.3%)
Alcohol	343 (98%)	3 (0.9%)	4 (1.1%)
Peutz–Jeghers syndrome (PJS)	341 (97.4%)	4 (1.1%)	5 (1.4%)
Familial adenomatous polyposis	334 (95.4%)	13 (3.7%)	3 (0.9%)

Which of the following is a sign/symptom of colorectal cancer?	Yes	No	I don't know
Bowel habits alteration	339 (96.9%)	6 (1.7%)	5 (1.4%)
Anemia	328 (93.7%)	13 (3.7%)	9 (2.6%)
Weight loss	325 (92.9%)	18 (5.1%)	7 (2%)
Fatigue	329 (94%)	13 (3.7%)	8 (2.3%)
Abdominal pain	331 (94.6%)	12 (3.4%)	7 (2%)
Blood in stool	324 (92.6%)	16 (4.6%)	10 (2.9%)
Bowel obstruction	325 (92.9%)	18 (5.1%)	7 (2%)

Which of the following is a protective factor of colorectal cancer?	Yes	No	I don't know
Physical activity	334 (95.4%)	8 (2.3%)	8 (2.3%)
Fiber consumption	323 (92.3%)	17 (4.9%)	10 (2.9%)
Fruits and vegetable consumption	335 (95.7%)	6 (1.7%)	9 (2.6%)
Aspirin	331 (94.6%)	12 (3.4%)	7 (2%)

Select the proper answer:	TRUE	FALSE	I don't know
Is more common in older people	308 (88%)	18 (5.1%)	24 (6.9%)
Screening decreases the incidence of CRC	320 (91.4%)	18 (5.1%)	12 (3.4%)
Screening decreases mortality of CRC	323 (92.3%)	18 (5.1%)	9 (2.6%)
Academic curriculum contains information about CRC screening methods	332 (94.9%)	12 (3.4%)	6 (1.7%)
CRC is a preventable disease.	324 (92.6%)	13 (3.7%)	13 (3.7%)
CRC is one of the most fatal cancers	328 (93.7%)	10 (2.9%)	12 (3.4%)
worldwide.	303 (86.6%)	27 (7.7%)	20 (5.7%)

Which of the following is used as the CRC screening method?	Yes	No	I don't know
Abdominal ultrasound	326 (93.1%)	15 (4.3%)	9 (2.6%)
CT colonography	317 (90.6%)	18 (5.1%)	15 (4.3%)
MRI	329 (94%)	14 (4%)	7 (2%)

Simple X-ray	325 (92.9%)	18 (5.1%)	7 (2%)
Colonoscopy	326 (93.1%)	20 (5.7%)	4 (1.1%)
Sigmoidoscopy	335 (95.7%)	8 (2.3%)	7 (2%)
Fecal occulted blood	329 (94%)	12 (3.4%)	9 (2.6%)
Digital rectal examination	320 (91.4%)	18 (5.1%)	12 (3.4%)

What barriers are perceived to performing CRC screening in the region?	Yes	No	I don't know
Lack of knowledge about CRC and screening methods among the population.	317 (90.6%)	27 (7.7%)	11 (3.1%)
Lack of knowledge about CRC and screening methods among physicians.	319 (91.1%)	20 (5.7%)	11 (3.1%)
Religious reasons.	304 (86.9%)	33 (9.4%)	13 (3.7%)
Lack of trust in western technology.	321 (91.7%)	20 (5.7%)	9 (2.6%)
Lack of equipment and resources for screening.	323 (92.3%)	17 (4.9%)	10 (2.9%)
Lack of national screening program.	318 (90.9%)	19 (5.4%)	13 (3.7%)
No need for screening.	307 (87.7%)	24 (6.9%)	19 (5.4%)

What are the resources you rely on for information about CRC and its screening methods?	Yes	No
Academic curriculum.	343 (98%)	7 (2%)
Extra curriculum medical textbooks.	345 (98.6%)	5 (1.4%)

Family and friends.	340 (97.1%)	10 (2.9%)
Internet and social media.	339 (96.9%)	11 (3.1%)
Journal articles.	333 (95.1%)	17 (4.9%)