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KNOWLEDGE AND ATTITUDE TOWARDS SCREENING OF COLORECTAL CANCER

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Abstract:

Background: *Colorectal cancer is neoplastic proliferation of cells in the colon, rectum, and anus. It is the world's second leading cause of mortality by cancer with 935,173 associated deaths in 2020. Despite extensive attempts to raise colorectal cancer screening rates, at least 40% of adult patients struggle to meet screening recommendations. More than half of the participants from Saudi Arabia has poor attitude.*

Objective: *To assess the level of knowledge, awareness about colorectal cancer in Al Qassim region of Saudi Arabia.*

Methods: *This cross-sectional study was conducted in Al-Qassim region of Kingdom of Saudi Arabia. Data were collected using a validated self-administered questionnaire in Arabic language.*

Results: *A total of 442 respondents with a mean age of 33.4 ± 11.46 SD years participated. More than half of our respondents (64.5%) had no previous knowledge about early screening for colorectal cancer. Average knowledge score was found to be 5.1 ± 3.53 (range from 1 to 17) and average attitude score was found to be 25.2 ± 4.11 (range from 7 to 35). About 50.5% of the respondents stated that both men and women are capable of developing colon cancer. Most of the respondents, 62%, agreed with blood in stool as a symptom of colon cancer. Age, occupation, and marital status significantly affected respondent's knowledge about screening of colon cancer with p-values 0.001, <0.001, and 0.006, respectively. Socio-demographic factors did not affect respondent's attitude toward screening of colon cancer.*

Conclusion: *There is a low level of awareness and knowledge about colorectal cancer and its screening. Positive attitude towards screening was observed in only one third of respondents.*

Key words: *Knowledge, Attitude, Screening, Colorectal Cancer.*

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INTRODUCTION:

Colorectal cancer (CRC) is neoplastic proliferation of cells in the colon, rectum, and anus [1]. In the year 2020, CRC was the third most common cancer in the world accounting for 10% of the total cancer weight and the world's second leading cause of mortality by cancer with 935,173 associated deaths [2]. Its high morbidity and mortality has been attributed to numerous factors including consumption of red meat, sedentary lifestyle, and increased calorie intake [3].

CRC can appear at any age, although it is more common among older individuals. Many forms of CRC can be prevented through early and routine screening. However, despite extensive attempts to raise CRC screening rates, at least 40% of adult patients struggle to meet screening recommendations [4].

In Saudi Arabia, CRC ranks second leading cause of mortality by cancer for both sexes, first among men and second among women [5]. Understanding of the disease and its risk among population is an important factor for promotion of health seeking behavior and lower mortality and morbidity associated with a disease. Previous studies have shown varying knowledge and attitude among population of Saudi Arabia and middle east.

Evidence suggests people over the age of 50 and those with a history of colorectal cancer have a high level of knowledge [6]. Moreover, female over the age of 46, post-graduate degree, western nationals, and those with a history of CRC are also associated with higher awareness of risk factors and symptoms [7]. Conflicting has been found with general population's perspective on which sex is more prone to CRC [6,8,9]. Moreover, most frequent signs and symptoms chosen by participants include rapid weight loss, change in the quantity of bowel movements, and abdominal pain [6,7]. Constipation or diarrhea, as well as anal bleeding, were reported to be the most prevalent signs and symptoms in a study performed in Saudi Arabia [8].

Poor knowledge for CRC screen has been seen. In a poll conducted in Riyadh, just 47% of respondents had heard of cancer screening tests, and only 45% recognized that colonoscopy is one of the procedures used for this purpose. Another 24.2 percent were aware that one of the early detection techniques for colon cancer is blood in the stool [6]. Widespread poor attitude among Saudi Arabia has also been seen in the literature [10].

Colorectal cancer is one of the most common and prevalent types of cancer among men. Early detection and awareness of colorectal cancer can help with an early intervention for the cancer. This study aims to assess people' knowledge and attitudes about colorectal cancer and how to avoid it in the Al Qassim region Saudi Arabia.

SUBJECTS AND METHODS:

This cross-sectional study was conducted in different cities of Al-Qassim region of Kingdom of Saudi Arabia, from August 2021 to October 2021. A validated self-administered online Google forms questionnaire of Arabic language was used to collect data from participants [6]. The questionnaire was disseminated using social media platforms (WhatsApp, Telegram, Twitter, and Facebook).

Sample size was estimated to be 384 using EPI-Info app. A simple random sampling technique was used to select from different areas of Al-Qassim. All adult participants of both genders and all level of education were included into the analyses. Anyone with an already diagnosed colorectal cancer, who did not belong to Al-Qassim region, or was younger than 18 years of age were excluded from the study.

The questionnaire comprised of three sections containing 16 questions. First section collected socio-demographic data including age, gender, nationality, the city where they live, education level, occupation, and marital status. Second section collected knowledge related to risk factors including lifestyle details, family history, and signs and symptoms. Third section collected knowledge regarding screening tests and the source(s) of information about colorectal cancer screening. The possible answers to these questions were "yes," "no," and "I do not know." We investigated the attitude questions by a Likert scale ranging from strongly agree, agree, neutral, disagree, and strongly disagree.

A pilot study was conducted on 25 participants to estimate the clarity of data collection and the timing of the collection and appropriate changes were made. All the data collected was transferred to statistical package for the social sciences (SPSS) version 23 for analysis. Chi-square test was used for analyzing qualitative data. P-values was considered statistically significant if $P < 0.05$.

An informed consent was obtained all participants in first page of our questionnaire. Confidentiality of all personal identifiers was maintained, and only aggregated data was used for analysis. Ethical

approval was obtained from the Qassim Research Ethics Committee.

RESULTS:

A total of 446 respondents completed the questionnaire, 4 out of them were previously diagnosed with colorectal cancer, so they were excluded them from the study sample lowering our sample size to 444. Mean age of respondents was found to be 33.4 ± 11.46 SD. More than half (52.9%) of the respondents were males and 208 (47.1%) were females. Almost all of the respondents (99.3%) were of Saudi nationality. Most of our respondents (45.7%) were from Burayadah and only 8 (1.8%) were from Riyadh Al Khabra. More than two-thirds (76%) were at university level and 3 (0.7%) had education level of elementary school. Most of the participants were employed (49.5%) and 26 (5.9%) were not employed. About 48.9% of respondents were married (Table 1).

Table 1: Socio-demographic data of the respondents (n=442)

Variable	Category	Frequency	Percent
Gender	Male	234	52.9%
	Female	208	47.1%
Nationality	Saudi	439	99.3%
	Non-Saudi	3	0.7%
Place of stay	Unaizah	140	31.7%
	Buraydah	202	45.7%
	Alraas	47	10.6%
	Al Badayea	9	2.0%
	Al Bukayriyah	6	1.4%
	Riyadh Al Khabra	8	1.8%
	Al Mithnab	15	3.4%
	Other	15	3.4%
Educational level	Elementary	3	0.7%
	Middle school	9	2.0%
	High school	76	17.2%
	Collage	336	76.0%
	Postgraduate	18	4.1%
Current occupation	Student	127	28.7%
	Home maker	24	5.4%
	Employed	219	49.5%
	Unemployed	46	10.4%
	Retired	26	5.9%
Marital status	Single	214	48.4%
	Married	216	48.9%
	Divorced	7	1.6%
	Widow	5	1.1%

Average knowledge score was found to be 5.1 ± 3.53 out of 18 and average attitude score was found to be 25.2 ± 4.11 out of 35. Most of the participants (91.9%) have no family history of colorectal cancer. Meanwhile, 36 (8.1%) have positive family history, most frequently their parent (36.1%), 8 (22.1%) from uncle/aunt, and 8 (22.1%) grandparents. More than two-thirds (83.9%) never considered screening for colorectal cancer and only 71 (16.1%) think of it. Most frequent (25.9%) reason for not considering screening was that they felt it was not needed i.e., they had no symptoms or no risk factors. Almost all the respondents (98.6%) were never screened. Among those who were screened, 6 (1.4%) had colonoscopy 3 years ago, 2 (33.3%) were recently screened, and 1 (16.7%) was screened less than a year ago. More than half (64.5%) of the respondents did not know that they should be yearly screened if they are over 50 years old and only 130 (29.4%) agreed to that (Table 2).

Table 2: Colorectal cancer risk factors (lifestyle & family history), early signs and symptoms and source of information about colorectal cancer screening

	N (%)
1. Do you have a family history of Colorectal cancer?	
Yes	36 (8.1%)
No	406 (91.9%)
2. If the answer is "Yes", specify the relation:	
Father/Mother	13 (36.1%)
Brother/Sister	5 (13.9%)
Husband/Wife	2 (5.6%)
Uncle/Ante	8 (22.2%)
Grandfather/Grandmother	8 (22.2%)
3. Have you ever considered to do a screening for colonscopy?	
Yes	71 (16.1%)
No	371 (83.9%)
4. If the answer is "No", elaborate why:	
Lack of knowledge	32 (8.6%)
Not needed (No symptoms/No risk factors)	96 (25.9%)
Fear of being tested	13 (3.5%)
Shame	2 (0.5%)
Neglect & not caring	2 (0.5%)
Difficulty making appointments with the doctor	3 (0.8%)
There is no reason	34 (9.2%)
I didn't think about it	14 (3.8%)
Missing answers	175 (47.2%)
5. Did you ever have a screening for Colon cancer?	
Yes	6 (1.4%)
No	436 (98.6%)
6. If the answer is yes, when was it and what kind of screening did, they use?	
Colonoscopy – 3 years ago	2 (33.3%)
Colonoscopy – a year ago	1 (16.7%)
Colonoscopy – Less than a year ago	1 (16.7%)
Protoscope & anal canal – 3 years ago	1 (16.7%)
CT scan abadomin	1 (16.7%)

7. You have to get yearly screening for colon cancer when you over 50 years old	
Yes	130 (29.4%)
No	27 (6.1%)
I don't know	285 (64.5%)

In regard to the knowledge about the measures used to screen for colorectal cancer more than half of our respondents (64.5%) have no previous knowledge about early screening for colorectal cancer but about 29% knew about colonoscopy, 10.9% knew about proctoscopy and anal canal examination, 5.4% knew about CT scan abdomen, and no one choose analyzing bloody stool as screening measure for colorectal cancer. While few respondents wrongly think that you can screen through blood analysis (9.3%), physical examination of anal canal and rectum (6.1%) or through Barium X-ray (5%) (Figure 1).

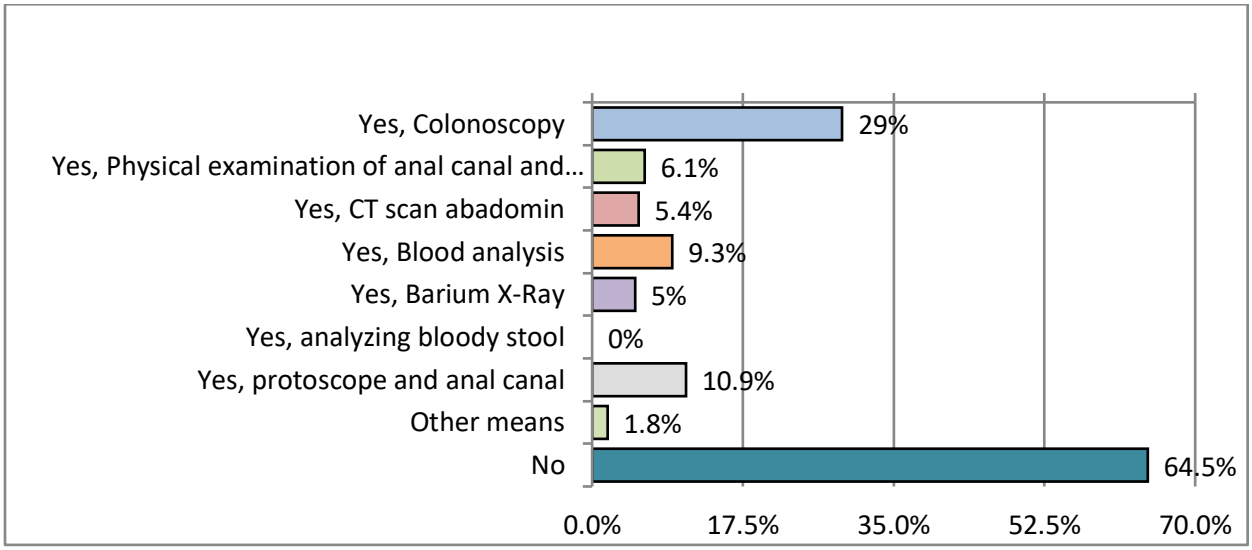

Figure 1: Do you have a previous knowledge about early screening for colorectal cancer?

In response to the question that state, "where do you get your information regarding colon cancer screening?", 56.8% have no information about screening for this cancer, 14.9% gained their knowledge from ministry of health, 13.1% from doctors, 12.2% from colleagues, 9.7% from awareness campaign, about 7.5% had their information from CDC, and the remaining reported their source of knowledge as social media like twitter (8.6%) and WhatsApp (5%) (Figure 2).

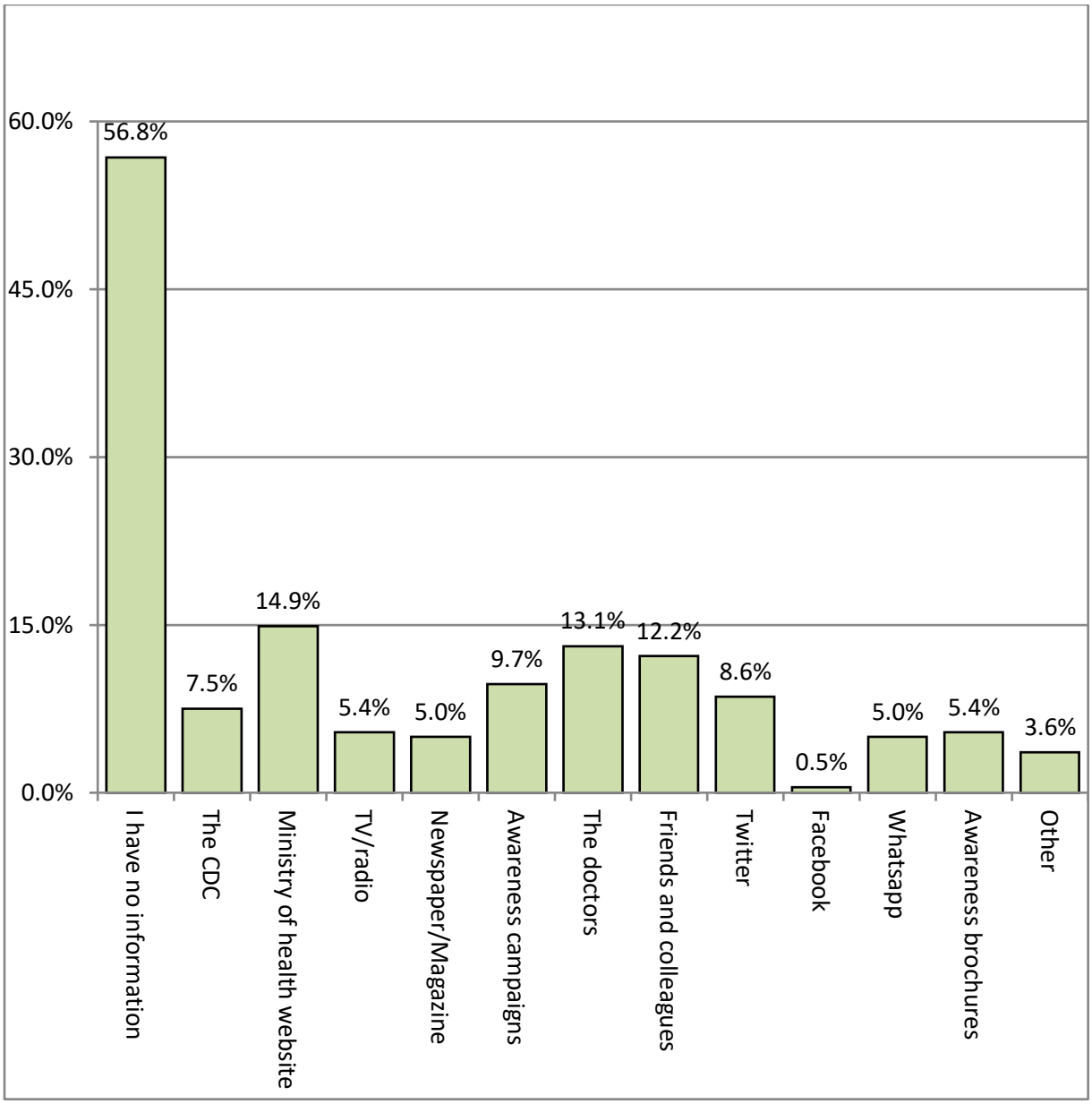

Figure 2: Where do you get your information regarding colon cancer screenings?

Regarding risk factors that expose the person to develop colon cancer, 50.5% stated that both men and women are capable of developing colon cancer, 42.1% reported that low fiber high fat diet considered risk factor for colon cancer, 38.2% think of inflammatory bowel disease as a cause of colon cancer. The chance of cancer increases with age and lack of physical activity, each one constituted 24.9% of respondent's opinion towards colon cancer risk factors. Noticeably only minority (27.6%) of our participants related smoking to colon cancer while 25.1% of the respondents wrongly related weight gain as one of the predictors of cancer (Figure 3).

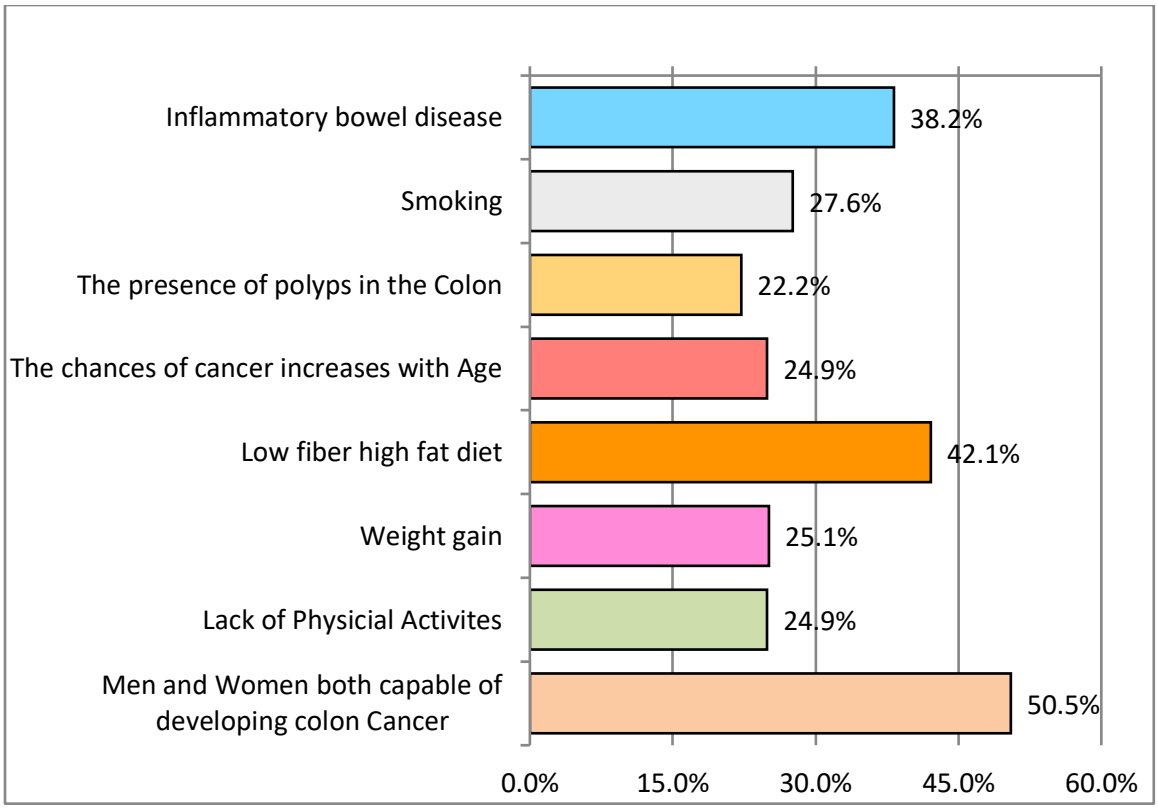

Figure 3: Risk factors for Colon Cancer

Our respondents reported different symptomatic representation of colon cancer, but most of them (30%) agreed with blood in stool as a symptom, 17.9% think of sudden weight loss, 17.7% go with sudden change in bowel habits or change in stool type, pain and abdominal cramps were also reported by 13.8%. Feeling of incomplete defecation (11%) was also sought to be one of the presenting symptoms of colon cancer. While 9.8% of the respondents wrongly thought that increase in secretion with stool is a one of the symptoms of colon cancer (Figure 4).

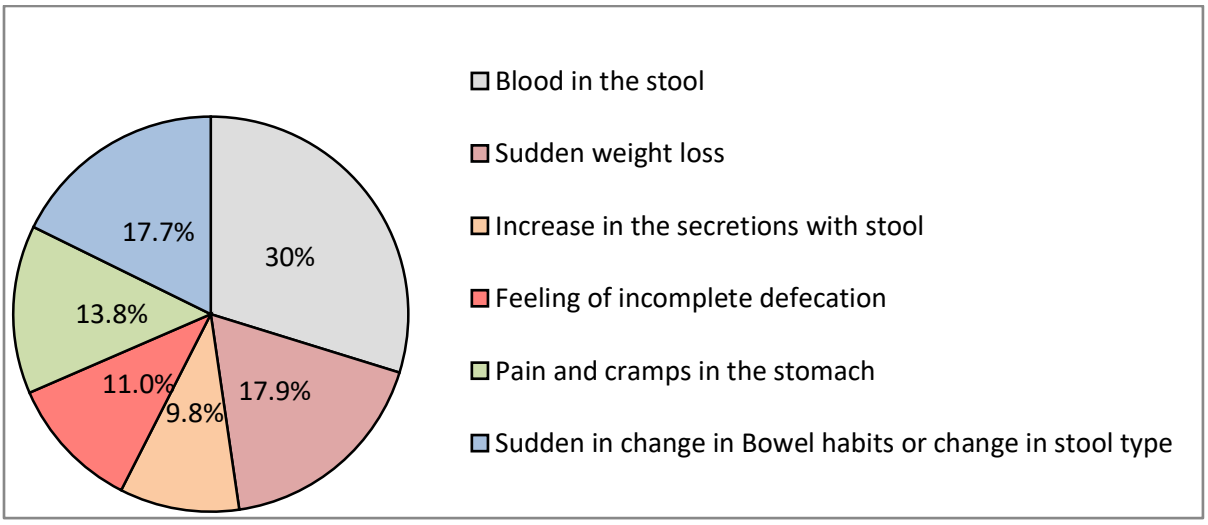

Figure 4: Symptoms of Colon Cancer

More than one-third (34.2%) of the respondents have a neutral opinion toward their vulnerability to have colon cancer, 68 (15.4%) strongly disagree and only 32 (7.2%) strongly agree that they could get colon cancer. Almost half of the participants (49.1%) agreed and 147 (33.3%) strongly agreed that colon cancer could be prevented, only 9 (2%) disagree and 5 (1.1%) strongly disagree that colon cancer is a preventable disease. More than one-third (36.4%) think neutrally of colon cancer as a deadly disease, 74 (16.7%) strongly agreed to this. 154 (34.8%) disagree that they have sufficient information about colon cancer. 212 (48%) of the respondents strongly agree that colon cancer survival rate increases when detected early and only 5 (1.1%) strongly disagree to this. 200 (45.2%) strongly agreed that they will screen for cancer if their doctor order it. 144 (32.6%) neutrally think that older people are more vulnerable to colon cancer, 129 (29.2%) agreed to this and 127 (28.7%) strongly agreed (Table 3).

Table 3: Attitude toward colorectal cancer screening

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I think I'm vulnerable for colon cancer	32 (7.2%)	63 (14.3%)	151 (34.2%)	128 (29%)	68 (15.4%)
Colon Cancer can be prevented	147 (33.3%)	217 (49.1%)	64 (14.5%)	9 (2%)	5 (1.1%)
Colon Cancer is deadly	74 (16.7%)	136 (30.8%)	161 (36.4%)	65 (14.7%)	6 (1.4%)
I think I've sufficient information about colon cancer	44 (10%)	80 (18.1%)	96 (21.7%)	154 (34.8%)	68 (15.4%)
Colon Cancer Survival rate increases when detected early	212 (48%)	153 (34.6%)	65 (14.7%)	7 (1.6%)	5 (1.1%)
I'll do Colon cancer screening if my doctor ordered it	200 (45.2%)	155 (35.1%)	70 (15.8%)	12 (2.7%)	5 (1.1%)
Older people are more vulnerable to get Colon Cancer	127 (28.7%)	129 (29.2%)	144 (32.6%)	29 (6.6%)	13 (2.9%)

Age significantly affects respondent's knowledge about screening of colon cancer (P-value = 0.001), those within the age group 18 – 25 have a higher mean knowledge score than others. No significant association between gender, nationality, and place of stay in relation to the knowledge about colon cancer screening was found, P-value = 0.354, 0.705 and 0.381, respectively. The different elements of educational level do not significantly associate with knowledge (P-value = 0.053). Students were more knowledgeable about colon cancer screening than other occupational groups and this difference was found to be significant (P-value = 0.000). Marital status also significantly affects knowledge score (P-value = 0.006), single respondents were more knowledgeable than others.

Regarding the attitude toward screening of colorectal cancer; there is no significant association between age, gender, nationality, place of stay, educational level, current occupation and marital status in relation to the attitude toward screening of colorectal cancer (P-value = 0.464, 0.412, 0.539, 0.574, 0.578, 0.571 and 0.174 respectively) (Table 4).

Table 4: Factors associated with Knowledge and attitude toward Screening of Colorectal Cancer

Variable	N	Knowledge Score		P value	Attitude Score		P value
		Mean	SD		Mean	SD	
Age (Years)							
18-25	172	6.0	3.92	0.001	24.9	3.81	0.464
26-35	92	4.3	3.10		25.1	4.77	
36-45	98	4.9	3.32		25.4	4.50	
46-55	66	4.5	2.98		25.9	3.52	
≥ 55	14	4.6	3.06		25.6	2.56	
Gender							
Male	234	5.0	3.63	0.354	25.4	4.74	0.412
Female	208	5.3	3.41		25.0	3.28	
Nationality							
Saudi	439	5.1	3.53	0.705	25.2	4.13	0.539
Non-Saudi	3	4.3	3.06		26.7	0.58	
Place of Stay							
Unaizah	140	5.1	3.62	0.381	24.9	4.91	0.574
Buraydah	202	4.8	3.36		25.4	3.55	
Alraas	47	5.4	3.32		25.1	2.68	
Al Badayea	9	6.7	3.74		25.6	3.75	
Al Bukayriyah	6	6.7	2.94		28.7	3.39	
Riyadh Al Khabra	8	4.9	4.42		24.6	5.13	
Al Mithnab	15	4.8	3.30		25.1	4.05	
Other	15	6.7	5.04		25.1	6.39	
Educational level							
Elementary	3	7.3	3.51	0.053	28.7	4.04	0.578
Middle school	9	3.2	2.99		24.3	8.46	
High school	76	4.9	3.60		25.5	4.05	
Collage	336	5.1	3.40		25.2	3.98	
Postgraduate	18	7.0	5.08		25.2	4.08	
Current Occupation							

Student	127	6.3	3.97	0.000	25.0	3.97	0.571
Home maker	24	5.2	3.55		25.7	3.27	
Employed	219	4.8	3.33		25.2	4.16	
Unemployed	46	3.7	2.67		24.8	4.93	
Retired	26	4.1	2.54		26.3	3.53	
Marital status							
Single	214	5.7	3.87	0.006	24.9	4.03	0.174
Married	216	4.7	3.14		25.6	4.25	
Divorced	7	2.7	0.95		23.6	2.07	
Widow	5	4.2	2.28		23.2	2.28	

DISCUSSION:

Studying population knowledge and attitude towards colorectal cancer screening may determine the required intervention to curb the increasing colorectal cancer incidence around the globe, which can be attributed to increased population dependency on unhealthy diets such as processed meats and diets low in fibers and antioxidants. Cancer screening got its importance from its role in an early detection of cancer in early stages providing better possibility for cure [11]. Hence, we conducted this study to assess the level of knowledge about symptoms and risk factors for colorectal cancer and attitude toward colorectal cancer screening in Saudi Arabia.

The mean age of the respondents was found to be thirty-three years old. About half of the respondents were males. Nearly all the respondents were of Saudi nationality. More than two-thirds were at university educational level. Half of the participants were employed and half of them were married.

The average knowledge score was found to be 5.1 ± 3.53 from a total of 18 points and this score was found to be lower than that of the study conducted by Huang et al in which knowledge score was nearly half of the total score [12].

Most of the respondents have no family history of colorectal cancer and only eight percent have positive family history, the most frequently reported family relationship was their father or mother which reported by one-third of those with positive family history and one-fifth of mentioned uncle or aunt and similar finding were found in other study carried on by Henriksen et al showing prevalence of family history in about ten percent of participants [13].

More than three-quarters had never considered screening for colorectal cancer and only sixteen percent have considered it. About two-thirds of respondents did not know that they should be yearly screened if they are over 50 years old and less than one-third agreed on they should be yearly screened and six percent of them were refusing the idea of yearly screening. The most frequent reason for not considering screening was not needed (no symptoms and no risk factors) and this was reported by more than one-fifth of respondents; these findings was found to be contradictory to other study which conducted by Dayana et al which reported fear of being diagnosed with colorectal cancer was the main reason of not considering screening for colorectal cancer [14].

Nearly all the respondents (98.6%) have never being screened before, and those who screened equal only one percent and that was three years ago. The most reported screening tool was colonoscopy as reported by one-third of respondents who undergone screening.

Concerning the knowledge about the measures used to screen for colorectal cancer; more than two-thirds of respondents have no previous knowledge about early screening for colorectal cancer but about one-third knew about colonoscopy. Similar findings were reported in the study which carried on by Althobaiti et al with most of respondents mentioned colonoscopy as the main screening tool for colorectal cancer [15].

No one chose analyzing blood in stool as screening measure for colorectal cancer. This finding was

contradictory to the study came on by Alshammari et al showing one-quarter of participants knew this type of screening tests [6].

About the source of information regarding colon cancer screening more than half of respondents have no information about screening for this cancer, fifteen percent gain their knowledge from ministry of health then doctors and most of the rest report that their source of knowledge is social media.

Considering risk factors and symptoms of colon cancer; half of them stated that both men and women are capable of developing colon cancer. About two-fifth of them clearly stated that low fiber high fat diet considered risk factor for colon cancer, more than one third of them think of inflammatory bowel disease is one of the risk factors for colorectal cancer, one-quarter of them stated that the chance of getting cancer increases with age and lack of physical activity but only one-quarter of them relate smoking to colon cancer. Two-thirds of respondents agreed with blood in stool as a symptom, one-third of them reported sudden weight loss and change in bowel habits or in stool, also pain, feeling of incomplete defecation and abdominal cramps were also reported by less than one third. These results were found to be consistent with the findings of Gede et al study [16].

Regarding attitude toward colorectal cancer screening, about one-third of the participants have a neutral opinion regarding their vulnerability to have colon cancer, fifteen percent were thought they are not vulnerable and only seven percent strongly think they could get colon cancer. These results were found to be consistent with the findings of Alshammari et al study [6].

Nearly half of the respondents agreed on and one-third of them strongly agreed that colon cancer could be prevented and only two percent of them strongly disagree that colon cancer is a preventable disease. More than one-third of participants think neutrally of colon cancer as a deadly disease and about fourteen percent strongly agreed to this. Nearly half of the participants strongly agree that colon cancer survival rate increases when detected early. Slightly less than half of respondents strongly agreed that they will screen for cancer if their doctor order it. One third of them neutrally think that older people are more vulnerable to colon cancer. Consistent findings were reported in other study conducted by Weinberg et al with results showing most of patient aware of cancer as preventable disease and also perceiving their risk of colorectal cancer [17].

Age was found to be significantly affect respondent's knowledge about screening of colon cancer with those within the age group from eighteen to twenty-five years old a higher mean knowledge score than others. No significant difference was found between male and female regarding their knowledge about colon cancer screening. Students were more knowledgeable about colon cancer screening than other occupational groups and this difference was found to be significant. Similar results were found in congruent study Tin su which reported no gender difference an also stated that students having more knowledge and awareness [18].

CONCLUSION:

Level of awareness and knowledge about colorectal cancer and screening for colorectal cancer was found to be low in more than half of respondents. Only one third of respondents had positive attitude towards screening for colorectal cancer. Age group of eighteen to twenty-five years old, student and single respondents were found to be associated with higher level of knowledge.

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Consent for participation:
Informed consent was taken from the participants prior to the start of the questionnaire.

Ethical Approval:
Ethical approval was obtained from the Regional Research Ethics Committee, General Directorate of Health Affairs, AlQassim Region, Ministry of Health Saudi Arabia, via reference # 1442-77862, dated: 18 August 2021.

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