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Factors Influencing Colorectal Cancer Screening Uptake among Saudi Adults; A Cross-Sectional Study

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Abstract

Introduction: Cancer is a leading cause of death worldwide, accounting for nearly 10 million deaths in 2020. 1-5 The most commonly recognized cancers are colorectal, lung, and breast cancers with colorectal cancer (CRC) ranks as the third most common in terms of new cases (1.93 million cases) in the world and is also the second most common cancer-related deaths (935 000 deaths).6-9 CRC screening can contribute to early diagnosis, lead to early treatment and better outcomes. Moreover, screening is proved to have sound contribution in the coming down of CRC incidence rate by 32% and reduction in mortality rate by 34% among adults aged 50 years and older.15-18

Methods: This is a cross-sectional study conducted during the period from April to 30 May 2020 aims to determine the level of awareness and find the influence of individual characteristics on CRC screening non-participation among adults Saudi. The self-administered questionnaire was distributed to participants who were randomly selected and recruited from adult Saudi general population targeting those who were older than 35 years. Participants were voluntarily enrolled in the study.

Results: Our sample was comprised of 471 participants surveyed from April to 30 May 2020. The response rate was 86.4%. 35% of the participants were 35 to 40 years old, and 65% were of age of 40 and above . Participants had almost equal distribution in gender, higher education, and regular physician check-ups. More than half of the participants (66%) did not know of any family member or friends with CRC, had insurance coverage (78%), and were currently employed (65%) with a job not related to health care (83.6%). Among our participants (584), 93.8% who respond (548 of them return back the questionnaires completed and were included in the data analysis). The majority (63.5%) were in the age group of 56 years and above, most of our respondents were of diploma and university graduates (72.5%), and (34.4%) were unemployed or not working. Majority (95.9%) of our respondents showed that had at least one type of health insurance plan.

Conclusion: Majority of our respondents shows insufficient awareness regarding CRC screening guideline and CRC screening methods. This deficiency of information can result in a low rate of contribution in CRC screenings, since adequate knowledge is important for participation.

Keywords: Screening; Colorectal cancer; Awareness; Early diagnosis; Better outcomes

Introduction

Cancer is a leading cause of death worldwide, accounting for nearly 10 million deaths in 2020 [1-5]. The most commonly recognized cancers are colorectal, lung, and breast cancers with colorectal cancer (CRC) ranks as the third most common in terms of new cases (1.93 million cases) in the world and is also the second most common cancer-related deaths (935 000 deaths) [6-9]. According to the Saudi Cancer Registry's 2020 Cancer Incidence Report, colorectal cancer (CRC) is the leading form (19.3%) of malignant cancer among Saudi adult's men and ranks third (9.2%) among Saudi women. These are alarmingly increasing and is expected to jump up to a fourfold increase by the year 2030 [10-12]. Many studies have described several factors related with an increased risk of CRC, which consist of non-modifiable risk factors such as male gender, old age, previous colon diseases such as inflammatory bowel disease and polyp, diabetes mellitus, and family history of the CRC [11, 12, 19-21], and lifestyle behaviors including smoking, obesity, physical inactivity, diet containing low fiber and low fruit and vegetable [22-26] Patients with CRC present with symptoms as recurrent abdominal pain, fatigue, changes in bowel habits, rectal bleeding, and weight loss, these symptoms usually appear at the late stage of the disease. Therefore, early detection of cancer is a basis of cancer endurance [13], this can be succeeded by directing towards two main constituents: screening and education of healthcare workers and the beneficiaries [14]. CRC screening can contribute to early diagnosis, lead to early treatment and better outcomes. Moreover, screening is proved to have sound contribution in the coming down of CRC incidence rate by 32% and reduction in mortality rate by 34% among adults aged 50 years and older [15-18]. Available methods for CRC screening, include fecal occult blood testing (occult blood testing, immunochemical testing [FIT]), radiologic and endoscopic screening tests. Involvement is a vital contributing factor in the success of CRC screening. If screening is to complete its full possible as a public health strategy, non-contribution in screening should be limited [27, 28]. Several studies have searched at the awareness, perception and screening utilization regarding CRC in various countries including Saudi Arabia with findings that there is a low level of awareness [29-44]. To enable involvement in CRC screening, the important step is finding factors that determine their screening uptake. Our study aims to determine the level of awareness and find the influence of individual characteristics on CRC screening non-participation among adults Saudi.

Material and Methods

Study design, setting and sampling: This is a cross-sectional study conducted during the period from April to 30 May 2020 aims to

determine the level of awareness and find the influence of individual characteristics on CRC screening non-participation among adults Saudi.

Study setting and sampling

The study has been conducted at the Albaha province; Saudi Arabia.

Study sampling

The self-administered questionnaire was distributed to participants who were randomly selected and recruited from adult Saudi general population targeting those who were older than 35 years. Participants were voluntarily enrolled in the study. The inclusion criteria included Saudi males and females aged ≥ 25 years. Those with a current or previous diagnosis of CRC, those with any large bowel disease, and those who did not give consent were excluded from our study. Immigrants and citizens who do not reside in Albaha were excluded from the study. Survey instrument and variables: self-administered questionnaire was used to assess 3 factors: awareness of risk factors of CRC, awareness of CRC screening, and barriers towards the screening tests for CRC. Questions used for assessing the level of awareness of CRC risk factors consisted of a set of multiple choice questions wherein participants were given a set of risk factors in the form of 12 questions that are related to CRC, and asked to choose between "yes", "no", and "I don't know" for each risk factor, where "yes" was the correct answer. Similarly, participants were also asked about awareness of screening, like colonoscopy and fecal occult blood test (FOBT), their attitudes towards CRC screening and barriers that delayed their participation in such tests. The Socio-demographics included personal information such as age, gender, marital status, employment, occupational sector, income, checkups with general practitioner, insurance coverage, educational level: (Highest educational level achieved), smoking (yes/no, frequency), drinking (yes/no, frequency), encountering a CRC patient, and demographics.

Statistical Analysis

Data were analyzed using Statistical software package (SPSS), version 16.0. Z-test was used to compare the results among the two groups. P-value less than 0.05 will be considered as statistical significance to compare the effect of categorical data between the two groups.

Results

Socio-demographics characteristics: Our sample was comprised of 471 participants surveyed from April to 30 May 2020. The response rate was 86.4%. The demographic distribution of our respondents is shown in (Table 1). 35% of the participants were 35 to 40 years old, and 65% were of age of 40 and above. Participants had almost equal distribution in gender, higher education, and regular physician check-ups. More than half of the participants (66%)

did not know of any family member or friends with CRC, had insurance coverage (78%), and were currently employed (65%) with a job not related to health care (83.6%).

Among our participants (584), 93.8% who respond (548 of them return back the questionnaires completed and were included in the data analysis). The sociodemographic characteristics of participants are presented in (Table 1) below, with near equal number of males and females, with male constituting about 50.3%, The majority (63.5%) were in the age group of 56 years and above, most of our respondents were of diploma and university graduates (72.5%), and (34.4%) were unemployed or not working. Majority (95.9%) of our respondents showed that had at least one type of health insurance plan.

Table 1: Socio-Demographic Characteristics of the Respondents

Characteristics	frequency	Percent (%)
Sex		
Male	276	50.3
Female	272	49.7
Age(years) (mean age 41.0 +/-10.7)		
45 -55	200	36.5
56-65	236	43.0
66-75	112	20.5
Education Level		
Up to secondary	151	27.5
Diploma	156	28.5
University	241	44.0
Currently employed	359	65.6
Health Insurance Coverage		
Public	141	25.8
Private	384	70.1
Others	23	4.1
Had History of Chronic diseases	370	67.6
Heard about colorectal cancer	367	67
Family or close friends had CRC history	75	13.6

CRC screening uptake

Regarding the awareness of the necessity and importance of CRC screening uptake, only 12.7% of the respondents were familiar that adults should be routinely screened for colorectal cancer starting at age 45 as recommended, only 22.4% of them are able to identify the required frequency of CRC screening. This because the majority (350, 64%) were thinking that CRC is not common, and did not hear of the screening test for CRC (367, 67%). Moreover the overall evaluation of the answers revealed a poor level of knowledge on risk factors of CRC (Table 2). The awareness of respondents for several risk factors was 27.5 % for age, 40% for physical inactivity, 44% for obesity, 65.6% for cigarette smoking, 25.8% for family history of colorectal cancer, and 67.6 % for colonic ulcers and inflammation as risk factors for CRC (Table 2).

Table 2: Knowledge, Attitude and Practice of Colon Cancer Screening

Item	frequency	Percent (%)
Have you ever heard of screening tests for Colorectal Cancer?		
Yes	181	33
No	367	67
Which of the following are symptoms for Colorectal Cancer		
Dark colored stool	200	36.5
Change in bowel habits (diarrhea/constipation)	236	43.0
abdominal pains	112	20.5
Loss of weight	285	52
Which of the following are risk factors for Colorectal Cancer?		
Old Age	151	27.5
Physical inactivity	219	40
Obesity	241	44.0
Cigarette smoking	359	65.6
Family history of colorectal cancer	141	25.8
Colonic polyps	370	67.6
What is the appropriate age to start screening for Colorectal cancer?		
40-49 years	141	25.8
50-59 years	384	70.1
60-69 years	23	4.1

Attitude of the Respondents towards CRC screening

The screening method identified by most of our respondents as shown by (Figure 1) was colonoscopy (58%), which was followed by FOBT (55%) while abdominal ultrasound and sigmoidoscopy were the least (36% and 31% respectively). Furthermore, most our respondents (61%) were immediately available to undertake CRC screening if suggested by their physician while 16% of them refused doing CRC screening ($P < .0001$). Among those who were ready to undertake CRC screening were questioned on their selection of screening options, 53% of them select FOBT as their preferred method of screening and 39% preferred colonoscopy ($P < .0001$). With regard to the reasons that might prevent respondents from undertake required tests, "Fear of finding cancer" was the most identified barrier (57.0%) for screening, while the "screening procedure is not effective" or a feeling of "embarrassment if I was screened" was the least barrier revealed by our respondents ($P = 0.002$) as shown in (Table 3) For the general barriers, the most significant difference in barriers among our respondents was lack of knowledge about guidelines for CRC screening (7.3%, $p < 0.002$).

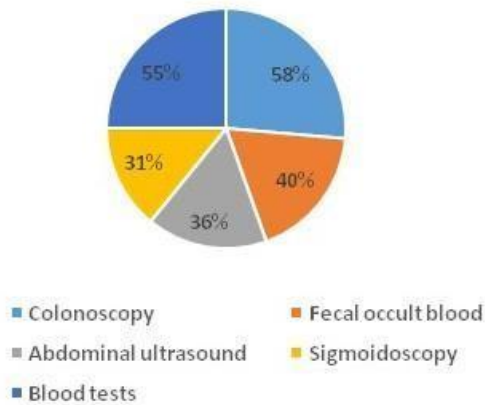


Figure 1: Respondent's rate according to their Awareness of CRC Screening Methods

Table 3: Attitude and Barriers towards CRC screening among Respondents

Item	Percentage	<i>P</i> -value
Willing to have a screening test for the bowel cancer		<i>P</i> < .0001
Yes	61.0%	
No	16.0%	
Not sure	23.0%	
Preferred Colorectal Cancer screening method if willing for screening?		<i>P</i> < .0001
Faecal blood test	53.0%	
Sigmoidoscopy & Colonoscopy	39.0%	
Others	8.0%	
Barriers		<i>P</i> = 0.002
Fear of finding cancer (result)	57.0%	
Embarrassment /anxiety	8.2%	
High cost and lack of coverage	8.3%	
Lack of knowledge about colorectal cancer guidelines	7.3%	
Not recommended from my doctor	14.2%	
Others	5.0 %	

Discussion

To our knowledge this is the first study in this regard among studied population at Albaha Saudi population toward CRC screening, which reveal that the overall awareness towards screening was found to be relatively unsatisfactory. Our study recognized a number of barriers to perform CRC screening among the adult Saudi population especially among those of aged ≥ 45 years. The most common identified barrier described was Lack of knowledge about colorectal cancer. Lack of physician recommendation and embarrassment /anxiety regarding CRC were other chief barriers preventing our respondents from up taking of CRC screening tests.

Our findings reveal the poor level of awareness and education among those at risk of CRC. These findings were similar to a previous national studies conducted in different regions of Saudi such as study report from Makkah [45], Alahsa [46] and western region [47] and other areas of Saudi Arabia [48-52] which all reveal a lack in the awareness about CRC screening among study population, in addition our findings are consistent with studies from surrounding countries as studies from Jordanian [53] and East Iran [54,55] and international studies [56-65] in which study population reveal inadequate and low levels of awareness in relation to CRC and screening tests. Of the well-known as a screening methods, colonoscopy and FOBT [66] which are the two most common screening tests preferred among our respondents for CRC especially among those who were ready to undertake CRC screening when were questioned on their selection of screening options. For barriers to undertake screening, we found that having a "Fear of finding cancer" was the most identified barrier was one of the leading barriers, a finding that is consistent with that of other regional and global studies [56, 65,66,67]. However, the difference in the findings between the present study and western reports is the issue of financial burden associated with high costs of the procedures which is not a barrier as in Saudi Arabia, healthcare services and screening tests are covered freely by the Ministry of Health, so that a large proportion of the population has admittance to free healthcare services. These barriers relate to respondent knowledge and attitude, they can, however, be solved by increasing public awareness via mass campaigns and awareness programs. At the end, our findings are similar with those of previous regional surveys, which reveal the poor effect of in progress measures to increase the screening uptake in the study population. These findings will be the same if no shift in screening awareness activities follows or a massive national screening program is applied.

Conclusion

Majority of our respondents shows insufficient awareness regarding CRC screening guideline and CRC screening methods. This deficiency of information can result in a low rate of contribution in CRC screenings, since adequate knowledge is important for participation. Furthermore, a lack of physician recommendation was identified as the most common barrier to CRC screening in general. Fear of finding cancer "was a barrier for screening" was the most common specific barrier to screening among our respondents. It is recommended to report the observed barriers to CRC screening recognized in our study beforehand carry out a screening program at the national level. Additional studies are necessary to discover more specific barriers among the population in the area.

Conflict of interest

No conflict of interest

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