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Abstract

Background: Colorectal cancer is among the leading malignancies globally and in Jordan. It causes significant morbidity and mortality. It can be detected early, but uptake of colorectal cancer screening in Jordan is substantially low.

Aim: To determine the underlying barriers to the uptake of colorectal cancer screening in

Jordan.

Methods: A cross-sectional study was conducted in the northern, central and southern regions of Jordan using self-administered questionnaire that evaluated the barriers and attitudes towards colorectal cancer screening among adults aged 45 years and above living in Jordan. The data was analyzed using SPSS version 25.0.

Results: Of the 1477 participants enrolled in the study, 29.1% reported the lack of information about screening as a major barrier to uptake, followed by the fear of any potential complications due to the test (10%), embarrassment associated with colonoscopy (7.8%), and fear of the result (7.4%). Only 9% of the study participants had taken the colonoscopy test for colorectal cancer screening.

Conclusion: Lack of information about colorectal cancer screening, misconceptions and embarrassment drive the low uptake of colorectal cancer screening in Jordan. There is a need for nationwide education and awareness on colorectal cancer screening to address the barriers reported in this study and increase screening uptake.

Keywords: colorectal cancer, screening, uptake, barrier, attitude, colonoscopy, fear, embarrassment, Jordan

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Background

Colorectal cancer (CRC) is one of the most common cancers: it was the third most common cancer and second leading cause of cancer-related deaths worldwide for both genders in 2020 (1). CRC notably affects males more commonly, with a male:female ratio of 1.25:1. In Jordan, CRC is the second most common cancer, accounting for 10.7% of cancer cases in Jordan and for 9.8% of all cancer-related deaths in Jordan in 2016 (2).

CRC usually develops from a pre-existing non-malignant polyp that generally requires 5–15 years for malignant transformation. Because of this prolonged time interval, CRC is known to be one of the few malignancies that may be prevented in many ways, including modification of lifestyle changes and early detection. Multiple methods exist to screen for CRC, including faecal occult blood test (FOBT), flexible sigmoidoscopy and colonoscopy. For example, annual FOBT screening has been shown to decrease CRC mortality significantly (3). Screening by flexible sigmoidoscopy substantially reduced CRC incidence (4). CRC screening has been shown to reduce overall health care costs (5).

Despite well-established evidence of the benefits of screening, which has made many countries to adopt a national CRC screening programme, many barriers remain. For example, in the United Kingdom, anticipated pain and embarrassment are among the most commonly cited reasons for avoiding screening (6). In Finland, males and individuals younger than 60 years tend to refuse screening more often than older individuals (7).

Even though CRC ranks highly in Jordan in both incidence and mortality, there is no national CRC screening programme, partly due to lack of data on the barriers to screening among the at-risk Jordanian population.

Objective

This study aimed to identify the key barriers to CRC screening and colonoscopy uptake in Jordan. The results may provide insight to policymakers for establishing a national CRC screening programme in Jordan.

Methodology

A population-based cross-sectional study using a self-administered questionnaire was conducted across Jordan by enrolling participants from the northern, central and southern

regions of the country. Our exclusion criteria included participants younger than 45 years and those with an active or previous history of colorectal cancer.

The questionnaire was administered by qualified healthcare workers, who underwent comprehensive data collection training for cross-sectional studies. The questionnaire was administered across most of the Jordanian provinces and considered the population distribution across the regions. Potential participants were approached in a variety of settings, including mosques, hypermarkets, parks, schools and government institutions via a simple random convenience sampling method.

Verbal consent was obtained from the participants after explaining the concept and aim of the study and the right of the individual to withdraw from participation at any time. The healthcare workers were readily available to the participants during questionnaire administration to respond to any concerns. The study was conducted ethically in accordance with the World Medical Association Declaration of Helsinki in addition to obtaining an IRB approval from the IRB board of the Abdali Hospital (2021900001).

Questionnaire

The questionnaire was developed through a multiple-step process. A review of similar studies was initially conducted before producing a preliminary questionnaire, which was reviewed by a gastroenterologist and a medical research expert. The questionnaire was pretested among 30 individuals different backgrounds who were not included in the study to ensure that the questions were easy to understand and appropriate for purpose. The final version of the questionnaire in Arabic was approved for the study, along with an English version for non-Arabic-speaking participants.

The questionnaire consisted of 27 questions: 25 multiple-choice and 2 fill-ins (date of birth and name of city/village/camp of residence). The questions were about demographics, presence of comorbidities, smoking status, family history of colon cancer, knowledge of screening methods, and barriers to participation in colorectal cancer screening.

Study population

The age of the target population was set at 45 years or older, as recent guidelines by the American Society of Gastroenterology recommend screening from the age of 45 rather than 50 (8). The population size of this age range was 1 806 880, according to Jordan’s estimated population in 2019. The sample size calculation was done with confidence level set at 95,

confidence interval set at 3; the determined sample size was 1066.

Our minimum expected sample size for the study was 1066. Accordingly, we approached 2000 participants, of whom 1607 agreed to participate in the study, with a participation rate of 80.4%. Among the participants, 130 were excluded because their age was below 45 or they refused to answer all the questions. Consequently, 1477 participants were enrolled. At this sample size, the confidence interval was 2.55.

Outcomes

The aim of this study was to obtain data on the barriers to colorectal cancer screening among Jordan's population. We also aimed to gain insight into the population's awareness of screening methods. This was done in relation to factors such as marital status, employment, educational level, insurance and gender. The study assessed which factors could have influenced screening among those who underwent colorectal cancer screening and the attitude of participants towards screening methods.

Data analysis

Data from 1477 participants were obtained and a descriptive analysis was performed. All categorical data, such as age group, gender and other factors were presented as counts and percentages. The mean and standard deviation were calculated for continuous data, such as age. Chi-square ($\chi 2$) tests were done to investigate the proportional differences. The significant association was set at $P \leq 0.05$. SPSS for Windows 25.0 was used for the analysis.

Results

Demographics

In our sample, 942 (62.6%) participants were male, with a mean age of 57.2 ± 8.23 years. More than half of the participants (831, or 56.3%) were from the Central Region of Jordan, whereas 30.8% and 12.9% were from Northern and Southern regions of the country, respectively (see Figure 1).

Notably, 87.3% of the participants were married at the time of enrolment and were more likely to be an employer/employee (43.1%, n=637) or a retiree (23.8%, n=352). The predominant educational level among participants was bachelor's degree.

Although the most common type of insurance coverage in our sample was provided by the Ministry of Health (41.3%, n=610) followed by Royal Medical Services (19.6%, n=290), 17.1% (n=253) of our participants were not medically insured.

Knowledge of screening

The majority of participants (61.7%, n=911) were unaware of the availability of screening tools for early CRC detection and prevention. Of those who were aware, 39.6% (n= 224) were informed by a physician, 23.7% (n=134) by a friend or relative, and 35.7% (n=202) through awareness campaigns.

Among participants who were aware of CRC screening, their level of education was significantly associated: individuals with a postgraduate degree and those with a bachelor's degree were most likely to be aware of screening tools for CRC (P

Participants who underwent colonoscopy screening

Among the participants, 9% (n=133) underwent colonoscopy screening. Most of those who underwent screening had done it within 2 years prior to enrolment in our study (45.1%), whereas 20.3% had done it within the same year of enrolment, and 34.6% did it 3 or more years prior to enrolment (Figure 2).

Our findings revealed that individuals who had a postgraduate degree were most likely to undergo a colonoscopy screening compared to participants with lower educational levels (P