

Barriers to Colorectal Cancer Screening in Palestine: A National Study in a Medically Underserved Population

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BACKGROUND & AIMS: Cultural, religious, and financial barriers can hinder uptake of colorectal cancer (CRC) screening in Arab communities. We aim to understand attitudes and barriers that contribute to the low rate of CRC screening among Palestinians in the West Bank.

METHODS: We performed a national, cross-sectional study of Palestinian adults older than 50 years. A self-administered questionnaire was developed and validated. Data were randomly collected in all major districts of the West Bank. The primary outcome was the willingness to undergo CRC screening. Multivariable logistic regression models were used to assess the strength of association between the primary outcome and its predictors while controlling for possible confounders.

RESULTS: Of 1601 people approached for an interview, 1352 agreed to participate (response rate, 84%). Only 193 had undergone CRC screening (14%); 1069 (79%) agreed to take a fecal occult blood test, 906 (67%) agreed to a colonoscopy examination, and 1098 (81%) were willing to undergo CRC screening if recommended by a physician. Only 194 (14%) said they had been informed about CRC screening by a physician. Urban residents were more likely to be screened for CRC than nonurban residents (odds ratio, 0.73; 95% confidence interval, 0.56–0.93; $P = .011$). Multivariable analysis showed that lack of education beyond elementary school or familiarity with CRC screening, distrust of Western medicine, religious objection, and finding the test to be embarrassing were all associated with decreased odds of accepting CRC screening.

CONCLUSIONS: Based on a national, cross-sectional study of Palestinian adults, there are many cultural and religious barriers to CRC screening. Improving our understanding of these could increase screening among Arab populations in the Middle East and in Western countries.

Keywords: Colon Cancer Screening; Ethnic; Arab Americans; Middle East.

Colorectal cancer (CRC) is a leading cause of cancer death in Western countries. Epidemiologic studies have shown that this pattern is also true among Palestinians living in the West Bank, home of more than 2.5 million Palestinian Arabs. Among all-cause mortality in Palestine, cancer ranks second after cardiovascular disease. Of all cancers, CRC is the most commonly diagnosed cancer in Palestinian men (15% of all cancers) and only second to breast cancer in women (14.6%).^{1,2} Despite the lower prevalence compared with Western countries, the incidence of CRC among Palestinian women increased by 208% in the last 2 decades.³ Additionally, CRC among Palestinians seems to affect younger patients, has a more aggressive course, and is more likely to be on the right side of the colon compared with Jewish residents of Israel.^{4,5} Factors that contribute to this

increase are poorly understood. Westernization of diet and lifestyle, high levels of smoking, and lack of screening are all possible contributors to this trend.⁶

CRC screening can decrease the incidence and mortality of CRC.^{7–13} Many countries have adopted screening guidelines, including the United States,^{14,15} European Union,¹⁶ and Israel.³ No such guidelines exist in Palestine, where a few centers offer CRC screening. However, fecal occult blood test (FOBT) is widely

Abbreviations used in this paper: CI, confidence interval; CRC, colorectal cancer; FOBT, fecal occult blood test; IQR, interquartile range; OR, odds ratio.

available and relatively affordable. In addition, there are a few centers that offer colonoscopies. Based on preliminary data and discussions with physicians in the West Bank, the rate of CRC screening in this area is expected to be very low (<15%, compared with 64% in the United States).¹⁷

Reported barriers to CRC screening in Western populations include lack of knowledge, fear of test results, finding the test to be embarrassing, and lack of physician recommendations.¹⁸⁻²¹ Barriers to CRC screening in Arab populations have not been well studied. From an international public health perspective, it is important to understand the main barriers to CRC screening in non-Western, resource-limited countries to implement policies and/or campaigns that are directed toward overcoming such barriers. On a local level, this study may further the understanding of possible cultural and religious barriers to CRC screening among millions of Arab Americans. Our goal is to identify factors associated with low prevalence of CRC among Palestinian Arabs living in the West Bank.

Methods

Study Design and Population

We conducted a population-based, cross-sectional study using a validated questionnaire. All Palestinians older than age 50 years who reside in the West Bank were eligible to participate in the study. This is the age group for whom CRC screening is currently recommended in many countries including the United States and Israel.^{14,16} Exclusion criteria included age <50 years and a personal history of CRC. In the West Bank, most houses do not have clear addresses, and as such, most people do not get home mail. Telephone lines reach only 50% of the households.²² Given the above circumstances, we needed field workers to conduct the survey. Trained students and physicians from Al-Quds University, Palestine, conducted the fieldwork. Each of these individuals underwent special training on fieldwork and survey methodology to minimize any influence on the interviewees. We assigned each worker to 1-2 districts in the West Bank and asked them to randomly collect data from urban centers, villages, and refugee camps. Each fieldworker collected data in 5 major venues: (1) home visits, (2) streets, (3) markets, (4) schools, and (5) religious centers (churches or mosques). Workers obtained informed consent and then handed out the questionnaire. Participants filled out the questionnaires and returned them to the surveyors who examined each form to ensure completeness.

Questionnaire Development and Validation

We developed the questionnaire in both the English and Arabic languages. The form included basic questions

about demographics, common abdominal symptoms associated with CRC (including abdominal pain or change in bowel habits), and questions to assess the main study outcomes. We developed a 4-step process to establish face, content, and construct validity of the survey. First, we used a panel of 3 expert physicians who reviewed each item in the questionnaire. They made comments on the wording of each item, overall content, and cultural appropriateness for the population. In the second step, we used a debriefing questionnaire that was administered to 50 interviewees from the West Bank who were randomly selected to take the survey. After completing the survey, they were asked to assess the understandability and cultural appropriateness of each of the questions. We then tested correlation, using Kappa correlation coefficient to assess the consistency of responses for given individuals. Kappa ≥ 0.7 was used as a cutoff for good correlation. In addition, after the study was completed, we further assessed construct validity by comparing responses for key questions with patient characteristics and data from previous studies to determine if responses followed expected patterns. The final version of the questionnaires in Arabic and English are included in Supplementary [Appendixes 1 and 2](#).

Outcomes, Predictors, and Confounders

The main outcome of the study was the willingness to undergo CRC screening. Secondary outcomes included identifying the proportion of people who already had CRC screening (current screening rate). We also assessed perceived barriers to CRC screening (financial, cultural, religious). The predictors of the primary outcome included familiarity with CRC, fear of finding out if one has cancer, lack of trust in Western medicine, doubt in the protective effects of screening, finding the test to be embarrassing, religious objection to the test, and inability to afford the test. We controlled for the following factors: age, gender, socioeconomic factors (education, marital status, employment, and being insured), area of residence, having a physician, and family history of colon cancer. We also tried to identify factors that would prompt people to reconsider screening, including physician recommendation, availability of medical insurance, and accessibility of medical care.

Sample Size

For sample size calculation, type I error was set at 5%, and the power was set at 95%. The baseline rate of willingness to undergo CRC screening was not established. Based on extrapolation from breast cancer studies in Palestinian women in Gaza, we predicted that this rate would be around 25%.²³ We wanted to detect this rate with a 5% margin of error. Based on the above, the sample size was calculated to be 970. Based on previous surveys, we expected that the rate of participation would

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