

Colorectal cancer screening in Middle Eastern countries: Current status and future strategies to enhance screening

Colorectal cancer (CRC) screening has been proven effective to reduce mortality^[1] and has been proposed by international guidelines and the Asia Pacific Consensus Statements^[2,3] as important preventive strategies in individuals aged 50–75 years. In the past decade, many studies have examined the knowledge, attitude, screening uptake, and colonoscopy yield in numerous nations,^[4,5] yet few have been conducted in Saudi Arabia. In the Saudi guidelines, average-risk individuals are recommended to start CRC screening at 45 years and colonoscopy was the first-line screening modality.^[6]

In this issue of the Journal, two important studies by Almadi *et al.*^[7,8] have thoroughly investigated the CRC uptake rate and its pertinent variables, as well as colonoscopy findings among asymptomatic individuals in a Middle Eastern screening cohort. The first study^[7] is a nationwide survey that examined the acceptance and barriers of the public to undergo CRC screening based on an electronic platform. It provides invaluable insight into CRC screening perception in the general public in Saudi Arabia. This is a large-scale study involving more than 5,700 residents in 13 jurisdictions of the country, and it was found that the uptake rate of CRC screening was only around 15%. The knowledge level on CRC screening was found to be low, whereas a majority of the respondents expressed willingness to undergo screening. An interesting finding included a nonsignificant association between knowledge or willingness to undergo screening and screening uptake, which contrasts with the findings reported in other studies.^[9,10] The study has a major strength in its theory-driven design and clear research questions involving multiple regions of the country, while the survey instrument used is also based on the Health Belief Model and reviewed by a panel of experts. Some potential limitations include its sampling strategies and survey dissemination method via social media platforms instead of household-based approach, which might hinder the generalizability of the findings. Nevertheless, the conclusion is an important one highlighting the gap between knowledge/intention to screening and actual uptake – signifying that improving population knowledge on CRC screening via public education is probably insufficient as the only strategy to promote screening participation. Screening uptake is, therefore, affected

by multiple variables, including those from the theory of planned behavior.^[11] Attitude to screening has been speculated as one of the influential variables to predict intention of receiving screening. Hence, this study has shed light into an important future research perspective – namely, to investigate the most significant predictor of screening uptake for primary care physicians and policy-makers to promote screening participation in both opportunistic clinical settings and for the general public.

Another study by Almadi *et al.*^[8] investigated the prevalence of various types of polyps and CRC in an adequately powered database study in three tertiary care hospitals in Riyadh, Saudi Arabia, among 1,180 subjects aged ≥ 45 years, who received opportunistic colonoscopy screening. They found an overall polyp detection rate and adenoma detection rate of 24.8% and 16.8%, respectively. The removed polyps were mostly tubular adenomas (56.6%) and hyperplastic polyps (32.7%), followed by tubulovillous adenomas (8.2%), and villous adenomas (2.5%). The prevalence of polyps (24.8%) was, therefore, much lower than that reported in Western European and North American countries (25%–38%). The study also points out that there was a variation in the prevalence of adenoma and advanced adenoma in different age, sex, race and ethnicity groups. Another interesting finding is the association between the use of anticoagulants and a higher prevalence of polyps. Although the study is retrospective in nature, the use of electronic endoscopy reports and histopathology reports supplemented by manual review of patient records represents a robust means to ascertain outcomes. Some cautions in interpretation of the study findings include the recruitment of subjects in only one area of the country, and that screening participants might come from various catchment areas, which limits the generalizability of the findings. Other limitations mentioned by the authors include that the study population could be more health conscious than the general population of Saudi Arabia, as they underwent opportunistic screening for CRC. They were also more likely to have received physicians' recommendations on decision to undergo screening and advice on the primary screening tool, which may have led to selection bias. However, after comparing the

prevalence of comorbidities and risk factors between the study population and general population of Saudi Arabia, the characteristics of these two populations were found to be similar. In addition, the histopathology findings of the colonoscopy-detected lesions represent useful information for policy formulation of a population-based screening program in terms of resource planning, as Saudi Arabia does not have a national screening program at present. The prevalence figures could also represent important data that may be employed for future cost-effectiveness analysis and synthesis of economic models to evaluate program performance.

These two studies have laid down a solid foundation for Saudi Arabia to pilot a national CRC screening program. Future studies should examine the perception, attitude, satisfaction, barriers, and willingness to pay screening participants and other relevant stakeholders, including various service providers and administrators at different levels. In addition, many countries have devised and validated a risk scoring system that predicts the risk of advanced colorectal neoplasia for guiding screening decision.^[12] Compliance over time is another important topic of interest as the effectiveness of CRC screening program is limited if the population who have received the first screening test does not comply with recommended screening schedules. The preferences of the general population to different screening modalities, including flexible sigmoidoscopy and fecal immunochemical tests that are currently the second-line screening tests in Saudi Arabia, should be explored in various population groups. Similar to the CRC screening pilot program in Hong Kong started in 2016, a selected group of high-risk individuals could be invited for subsidized screening and later evaluated via summative and formative means, subsequently followed by expansion of the population groups targeted for screening. Local data should be collected to explore if a tailored screening strategy through a personalized approach according to individual preferences could be a key to success when a large-scale population-based screening program is being planned.^[13]

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Access this article online	
Quick Response Code:	Website:
	www.saudijgastro.com
	DOI:
	10.4103/sjg.SJG_611_18

How to cite this article: Wong MC, Chan FK. Colorectal cancer screening in middle eastern countries: Current status and future strategies to enhance screening. *Saudi J Gastroenterol* 2019;25:1-2.