



Motivational interviewing and screening colonoscopy in high-risk individuals. A randomized controlled trial



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ABSTRACT

Objective: To measure the impact of motivational interviewing (MI) on cancer knowledge and screening practice among first degree relatives (FDRs) of patients with colon cancer.

Methods: This randomized controlled trial targeted patients with colon cancer first to recruit their possible FDRs. Digit randomization of the eligible index patients into intervention or control groups resulted in allocating their belonging FDRs to the same study arm. FDRs (n = 120) in intervention arm received MI counseling on phone by a trained oncology nurse and FDRs (n = 120) in control group received standard generic information by a physician on phone. Primary outcome was the rate of documented colonoscopy in FDRs within six months after the baseline.

Results: A total of 227 FDRs were followed up, 115 in the intervention and 112 in the control group. At follow-up, the uptake of screening colonoscopy in the intervention group was 83.5% versus 48.2% in controls (crude odds ratio, 5.4; 95% confidence interval, 2.9–10.0, $P < .001$).

Conclusion: This was the first randomized controlled trial in Iran that confirmed the efficaciousness of a phone-based MI counseling in improving colonoscopy uptake among family members of patients with colon cancer.

Practice implications: Phone-based motivational counseling that involves trained nurses or health providers seems to be feasible approach in Iran health system and enhances screening for colon cancer.

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1. Introduction

Colorectal cancer (CRC) with an up-ward trend in developing countries has a rapid rise particularly in the Eastern Asian regions [1,2]. In Iran, CRC is the third-most common cancer leading to 7163 new cases and 4262 deaths annually [3]. Risk of developing colon cancer among family members of patients with CRC is two- to four-fold higher than the general population [4,5]. Current guidelines strongly recommend screening colonoscopy in the first degree relatives (FDRs) of patients with CRC, starting at the age 40 or 10 years younger than the earliest CRC diagnosis in the family [6,7]. However, colonoscopy uptake in this population remains low, varying from 16 to 38% across different screening settings [8–11]. Iran has not yet introduced a national screening program for CRC while nearly 90% of people are covered by a medical insurance [12].

However, data of opportunistic screening in which screening test is offered by physicians, suggested poor screening practice amongst Iranian general population or even in FDRs [13,14].

There is a growing body of evidence concerned with the application of motivational interviewing (MI) as a patient-centered method of communication for diverse health promoting behaviors [15–18]. However, the impact of MI on CRC screening promotion is unclear. While research indicated that integration of a phone-based MI and a theory-driven intervention significantly enhanced CRC screening among people at average risk for CRC [19,20], in one study telephone MI plus tailored print materials versus print materials alone did not have significant impact on CRC screening in FDRs [21]. To the best of our knowledge, the application of MI counseling for CRC screening has not been previously studied in Iran. Given the greater risk of CRC in FDRs and the overall success of MI, we conducted a randomized controlled trial to measure the impact of MI on colonoscopy uptake among FDRs. The primary outcome was the rate of colonoscopy use in FDRs, change in the knowledge of CRC and screening tests was the secondary outcome.

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2. Methods

This randomized controlled trial was conducted as part of an ongoing screening program in the Shariati hospital in Digestive Diseases Research Institute (DDRI). FDRs assigned to the intervention group received a phone-based MI counseling and those in control group received usual care. All FDRs, regardless of group assignment, were recommended to schedule for a colonoscopy based on a flexible time table offered by the screening center. For this purpose, a 24-h telephone line was available to all FDRs for contacting the screening center. Free colonoscopy as well as adequate instructions on bowel preparation was offered to the FDRs in both study groups.

2.1. Participants

It was not ethical to directly approach a patient's relatives as the patient privacy has to be respected. Therefore, the first level contact was CRC index patients and for this purpose primary permission was obtained from the DDRI Ethic Committee. The initial sampling frame comprised index patients who were diagnosed between 2012 and 2013 and reported by the cancer registry of Tehran University of Medical Sciences (TUMS). Index patients whose age at diagnosis of CRC was 60 or younger [7] were listed from the cancer registry dataset. Then, a nurse specialized in screening contacted and assessed them for eligibility criteria, i.e., being able to communicate on phone, having at least one eligible FDR at-risk for CRC, and having consent to share the contact details of the FDRs. In the next step, FDRs were contacted by the investigators after obtaining the permission from their index patients. FDRs aged between 40 (or 10 years younger than the index patient at CRC diagnosis) and 75 years who lived in Tehran were included in this trial. FDRs were excluded if they underwent a total colonoscopy within past 5 years, or had a personal history of CRC or inflammatory bowel disease (i.e., Crohn's disease and ulcerative colitis), or were not available on phone. Verbal and written informed consent was obtained from all participant FDRs.

2.2. Randomization and concealment

We adopted a family-based recruitment approach to recruit the index patients' FDRs. Since FDRs belonging to a single index patient might be assigned to either the intervention or control groups at the same time, there could be a possibility of data sharing among

them. We, therefore, applied one-stage randomization at the index patients-level to avoid contamination. We randomized eligible index patients by generating a random digit into either intervention or control group which resulted in allocating all their belonging FDRs to the same study group. In the next step we randomly selected FDRs of the index patients in each study arm: 120 in intervention and 120 in control group. FDRs in each study group were separately interviewed on phone at the baseline. As the randomization was performed at the index patient's level, FDRs were blinded to the study group assignment. Also, the investigating nurse who was responsible for the follow-up measurements and the endoscopists who performed the colonoscopies were blinded to the group assignment. The study protocol was approved by the Institutional Review Board of Tehran University of Medical Sciences. This trial has been registered in Iranian Registry of Clinical Trials (IRCT) with trial ID number: IRCT2015061422711N1.

2.3. Usual care or standard information

In practice, physicians are the most eligible source for recommending CRC screening tests in Iran. Indeed, during treatment process, physicians briefly inform the index patients about the risk of developing CRC in their FDRs and encourage them to pass on the information of cancer risk and early screening to their FRDs. Following this pattern, a physician-led standard information was delivered via one phone-based interview targeting the FDRs assigned to the control group. That is, the investigating physician during a 15–20-min telephone interview provided the FDRs with screening information according to the current guidelines [6,7] and the risk of CRC, benefits of colonoscopy, and how to schedule and prepare for a colonoscopy. The information was generic and not tailored to the personal needs of the FDRs.

2.4. Intervention

Our intervention was guided by a five-step model for motivational interviewing (MI) developed by Rollnick et al. MI is a patient-centered counseling approach which helps behavior change by enabling counselees to explore and eliminate ambivalence [22,23]. FDRs belonging to the index patients in intervention group were contacted and received one-time, phone-based MI counseling by a trained already-employed oncology nurse. The counselor was expert in patient education and received a 2-day

Table 1

Conceptual framework of the motivational interviewing.

Phase 1: Exploring	
Step 1. Agenda setting	Introducing the issue of hereditary colon cancer risks and available preventive methods. Making sure if the participant is willing to discuss this subject.
Step 2. Exploring	Investigating whether the participant correctly knows basic information on CRC (i.e., symptoms and risk factors) and different CRC screening tests and screening guidelines for high risk individuals. Exploring participants' willingness or intention to undergo a colonoscopy.
Evaluation	After the first phase the counselor verified whether or not counselee scheduled for a colonoscopy. If the counselee agreed to schedule and complete the procedure counseling session would end. If not, the counselor would start phase 2.
Phase 2: Additional counseling	
Step 3. Additional information	Tailored additional information was provided, if needed. For example, in case of Lynch syndrome it was important to emphasis that younger relatives in a family are also at higher risk for CRC and thus need to be screened regularly with shorter intervals. Counselor focused on the role of polyp removal on CRC prevention.
Step 4. Building motivation	This phase was to motivate participants and strength their perceived self-efficacy. Counselor asked participants to verbalize subjects in favor of or barriers to undergoing a colonoscopy, to assess/discuss these concerns and thus strengthen the counselees' motivation. Participants were correctly and adequately informed about the alternative views (pros & cons) of having and not having a colonoscopy. Also, reasons for not undergoing a colonoscopy were explored. These barriers could be conceptual like common myths of CRC (e.g., CRC only affects men or screening is only necessary for individuals who have symptoms) and/or worry (fear of a painful procedure, fear of abnormal screening results, embarrassment, and fear of the procedure complications) and/or practical like lack of escort or transportation, etc.
Step 5. Problem-solving	The purpose of the final phase was to engage the participant to find possible solutions for colonoscopy barriers via active brainstorming. The goal was to help the participants to overcome the barriers and to schedule for and complete a colonoscopy.

CRC, colorectal cancer.

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