

Adherence and Utilisation

Determinants of adherence to screening by colonoscopy in individuals with a family history of colorectal cancer



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ABSTRACT

Objective: Although first-degree relatives (FDRs) of colorectal cancer (CRC) patients, as a high-risk population, have the most to gain from colonoscopy screening, their adherence is suboptimal. Thus, an assessment of the determinants of adherence to screening is of potential importance.

Methods: A cross-sectional study was conducted among 318 FDRs of 164 CRC patients treated at Tel-Aviv Sourasky Medical Center. Interviews were conducted with a questionnaire using I-Change Model.

Results: Adherence to interval colonoscopy was low with only 73 FDRs (23.0%). Greater adherence was associated with socio-demographic variables (older age, siblings, having spouse, higher level of education and income) and behavioral variables (healthier lifestyle, utilization of preventive health services).

Family physicians and kin were identified as the most influential figures on uptake. Intention, affective barriers, positive attitudes, social support, cues to action, age, and health maintenance were the strongest determinants of participation in CRC screening.

Conclusion: Adherence to colonoscopy is determined by multiple variables. Medical staff can play a key role in increasing adherence to colonoscopy.

Practice implications: Future interventions should focus on fostering positive attitudes, overcoming barriers, enhancing social support and providing a medical recommendation. Special efforts should be invested in young FDRs, those of low socio-economic status and those who underutilize preventive medicine.

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1. Introduction

The pathophysiology of colorectal cancer (CRC) involves a long, latent progression from the first appearance of an adenomatous polyp to the development of CRC. Preventive efforts are aimed at the early detection and colonoscopic excision of precancerous polyps before they transform to CRC [1–6]. The optimal CRC screening onset and interval is based on personal risk profiles [7–9].

Abbreviations: CRC, colorectal cancer; FDRs, first-degree relatives; FOBT, fecal occult blood test; CTC, computerized tomographic colonography.

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A family history of CRC is the most prominent risk factor for advanced neoplasia in asymptomatic individuals compared to other recognized risk factors such as lifestyle habits and nutrition [10]. Individuals with a family history of CRC have a two- to four-fold increased lifetime risk for CRC. Thus, they are advised to undergo interval colonoscopy [7,11–13]. The cost-effectiveness of CRC screening can be increased by raising adherence rates [14,15], particularly in high-risk groups, so that more life-years are gained at the same cost [16]. However, most studies have demonstrated an underutilization of CRC screening at rates ranging from 18% to 34% [17–23]. Several studies [24–26] have reported higher utilization rates (34–43%) for a single colonoscopy in individuals whose first-degree relatives (FDRs) developed CRC at a young age. However, only 10.8% underwent screening colonoscopy at recommended intervals [25].

Prior studies among average-risk populations have shown that adherence to screening colonoscopy is associated with

socio-demographic factors such as being a male, older age, socio-economic and education levels. A correlation was also found between adherence to screening recommendations and variables such as knowledge about CRC, a positive attitude toward screening, lower emotional barriers, social support, and physician recommendation [17–47]. The paucity of studies on the determinants of colonoscopy screening in high risk populations [46] and the abundance of potential influences highlight the need for a systematic theory-based behavioral approach. The Integrated Model for Behavioural Change (I-Change Model) [50–52] was selected as the theoretical framework for the current study (Fig. 1). As its core, the I-Change Model proposes that human behavior is the result of a person's intention. Intention is perceived as a continuum of stages of change, and is determined by diverse motivational factors, awareness, information, and predisposition variables (Fig. 1).

The aims of the present study were: (a) to characterize CRC screening behavior among FDRs (siblings and children) of CRC patients, (b) to distinguish between three sub-groups of colonoscopy screeners, i.e., *non-screeners* (FDRs who have never undergone colonoscopy), *symptomatic screeners* (FDRs who have undergone colonoscopy as a diagnostic test), and *asymptomatic screeners* (FDRs who have undergone a single colonoscopy as a screening test), and (c) to elucidate the determinants of CRC screening by colonoscopy in asymptomatic FDRs of CRC patients, according to the I-Change Model.

2. Methods

2.1. Study design and population

A cross-sectional study was conducted among FDRs of living CRC patients treated in the Tel Aviv Sourasky Medical Center, Israel between July and October 2008. CRC patients were recruited in person at the oncology day-care-unit and outpatient clinic, or via telephone, based on medical records of individuals who underwent surgery for colonic malignancy (ICD 153–4), according to the ICD-9-CM, 2008 [53].

Inclusion criteria for CRC patients were a pathological diagnosis of primary non-hereditary CRC, i.e., exclusion of FAP and Lynch Syndrome (HNPCC), residency in Israel, written consent to participate in the study, and provision of contact details for all their FDRs. FDRs were contacted by telephone to determine eligibility and obtain informed consent. Inclusion criteria for FDRs were (a) a sibling or child of a CRC patient, (b) 21–79 years of age, (c) no personal history of CRC or advanced polyps, (d) no personal history of inflammatory bowel disease, (e) no current alarm

symptoms e.g., change in bowel habit, diarrhea, constipation, rectal bleeding, or unexplained weight loss, (f) residency in Israel, and (g) fluent Hebrew. The Helsinki Committee (Ethical Review Board) of the Tel Aviv Sourasky Medical Center approved the study (approval #0175-08 TLV). Telephone interviews were based on a structured questionnaire. Individuals ($N = 72$) who declined to be interviewed via phone were offered the opportunity to complete the questionnaire on their own and send it back by e-mail, fax, or mail. These participants were followed up with reminders to increase their response rate.

2.2. Questionnaire

The determinants of screening colonoscopy behavior were measured with a quantitative structured questionnaire, based on the I-Change Model (Fig. 1). The development of the questionnaire was guided by variables identified in a systematic literature review and previous studies [17–49]. The questionnaire was piloted and revised before use in the present study. Its measure constructs are described in Appendix A.

2.3. Data analysis

Descriptive statistics were used for socio-demographic variables. Correlations were identified by Spearman's correlation, likelihood Ratio Chi-Square, and Fisher's Exact tests. Factor analysis was used to formulate four attitude factors, as discussed in Appendix A. A reliability test was conducted to measure internal consistency of questions that assessed knowledge, social influence, and self-efficacy. ANOVA and *T*-test were used to identify significant differences among asymptomatic screeners, symptomatic screeners and non-screeners as well as among CRC patients who did or did not consent to participate in the study. A multiple logistic regression was used to analyze the predictive value of variables for screening colonoscopy among non-screeners, symptomatic screeners, and asymptomatic screeners. Four models were formulated in accordance with I-Change Model [50–52] (Fig. 1). The first model included questionnaire mode, interviewer, and demographic variables excluding health condition and health maintenance scores. The second model was composed of the variables included in model 1 and awareness factors. The third model was composed of variables in models 1 and 2 and motivational factors. The fourth and final model was composed of all the variables in the previous models and intention. Previous studies have demonstrated that having alarm symptoms is a catalyst for seeking medical diagnosis and participation in CRC

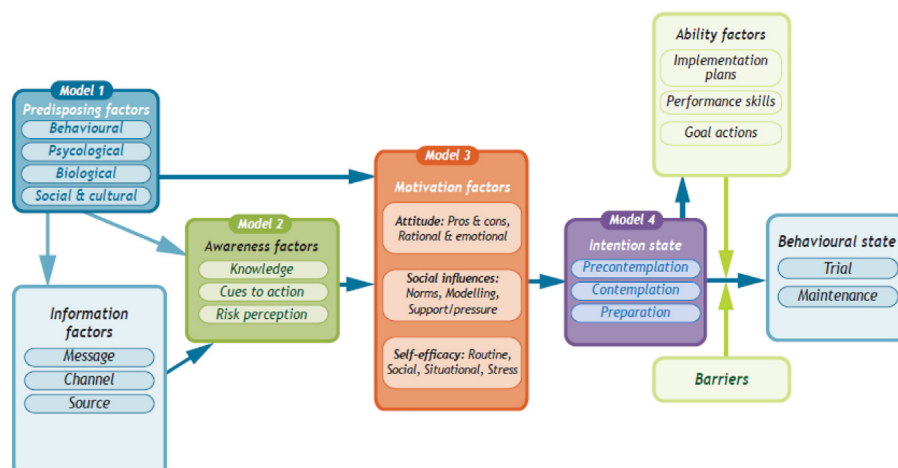


Fig. 1. The Integrated Model for Behavioural Change (I-Change Model) (de Vries et al. Health Educational Research, 2003;18(5):611–26).

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