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# Psycho-social Determinants of Colorectal Cancer Screening in Iran

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## ABSTRACT

**Background:** Colorectal cancer (CRC) is the third most prevalent cancer among Iranians, and threatens them at younger ages. This study was guided by the theoretical concepts of the preventive health model (PHM) to assess the attitudes and beliefs of Iranians towards CRC screening.

**Methods:** This cross-sectional study was conducted with participation of 200 individuals aged 50 years or older in a Teaching Hospital in Tehran, Iran. Background characteristics (e.g., age, gender, marital status) were assessed and a validated instrument drawn from the PHM was applied to measure cognitive and psychosocial variables (i.e., self-efficacy, intention to screening, perceived susceptibility, cancer worries, response efficacy, and social support). Data were collected via face-to-face interviews and analyzed using the SPSS version 13.00 for Windows.

**Results:** The age of the participants ranged from 50 years to 83 years (mean 60.13). Most respondents were married (62.5%), unemployed (42%), and had secondary or higher education (44.5%). Overall, 11% of respondents reported prior screening. Individuals obtained relatively poor scores on self-efficacy, intention to screening, perceived susceptibility, cancer worries, response efficacy, and social support.

**Conclusions:** In this study, individuals mostly reported poor attitude in regard to CRC screening. The results of the present study could guide policy makers in designing tailored interventions to increase the participation of individuals in screening programs.

**Keywords:** Colorectal cancer, early detection, psychosocial determinants, screening

Original Article

## INTRODUCTION

Colorectal cancer (CRC) is the third most commonly diagnosed cancers and the fourth leading cause of death world-wide.[1-3] CRC is the third most prevalent cancer among Iranians and threatens them at younger ages with increasing prevalence similar to the Western countries.[2,4] The early detection of CRC during the initial stages can reduce the risk for mortality, and affect the health of the population and this would be achieved greatly by screening tests.[5-8]

Studies have shown that the psychosocial variables are important factors affecting at risk population's healthy beliefs and behavior. Indeed improved beliefs about CRC and screening encourage people to use screening tests.[9-14] Identifying the psychosocial variables provide important insights into the sorts of factors that influence an individual's decision to undergo CRC screening as a preventive activity.

In this survey, the preventive health model (PHM) was used to investigate the beliefs of Iranians regarding CRC and screening tests. The conceptual model of PHM integrates constructs from the theory of reasoned action, social learning theory, and the health belief model.[15-18] Generally, the PHM proposes that demographic data, societal determinants, program factors (e.g., interventions by health providers) and theoretical constructs are all the predictors of the intention to take a preventive action [Figure 1]. Intention, in turn, facilitates a process through which an individual adopt a health-related behavior (e.g., screening). Key constructs of the PHM are: (a) Perceived susceptibility, or an individual's assessment of the risk or the chances of getting a condition; (b) self-efficacy, referring to a belief in one's ability or competence to undertake and complete behavior of interest; (c) response efficacy or benefits, meaning that adopting a behavior will be effective in reducing disease threat; (d) social support, or the desire to comply with a behavior of interest due to key references' opinions such as attitudes by a friend or family member; and (e) worries (barriers), or one's opinion about negative consequences of performing a behavior.[15,18]

Since, there is scant data on attitudes and beliefs in regard to CRC and screening tests among Iranian at risk populations, it is necessary to investigate these variables to better understand the preventive behaviors. Therefore, the purpose of this study was to identify attitudes, and beliefs associated with CRC and its screening tests among an Iranian adult population.

## METHODS

This cross-sectional study was carried out in Tehran, with participating of a convenience sample of 200 individuals recruited from January 2011 to March 2011. Study setting was a multispecialty out-patient clinic in Shariati Hospital, a teaching

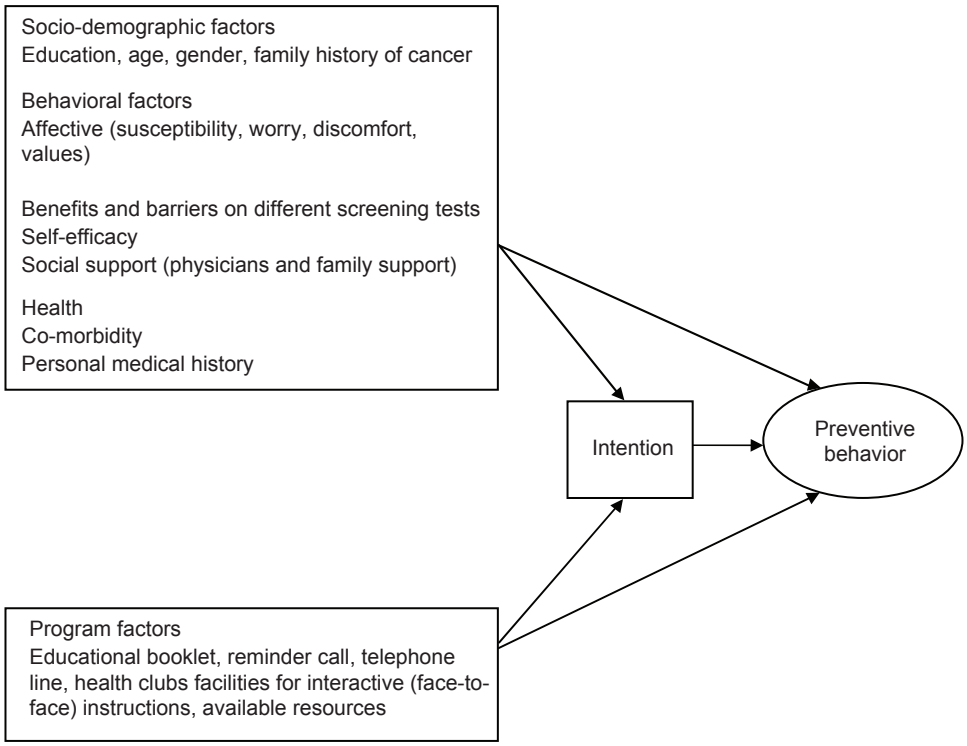


**Figure 1:** Conceptual framework of the preventive health model to explain participation in colorectal cancer screening (Adapted from Vernon, *et al*., 1997 and Myers, *et al*., 1994)

hospital affiliated to Tehran University of Medical Sciences. This medical center was chosen because it is a referral center and people from different socio-economic background attend the center.

The study participants were selected through sequential sampling method among the out-patient patient's relatives and caregivers. We estimated that the convenience sample of 200 individuals would provide at least a power of 80% with a two-sided $\alpha$ =0.05. The inclusion criteria were: Age 50 years or older, and being physical and mental competent to answer the questions. Respondents with Colitis, Crohn's disease, personal history of CRC or polyps were excluded from the study. To address inclusion criteria's, the authors used self-report measures relying on answers of respondents to questions about general health status, mental-health problems (i.e., depression, schizophrenia, dementia), and personal history of Ulcerative Colitis or Crohn's disease. Data were collected via private face-to-face interviews administered by two trained research assistants at the out-patient clinic.

An instrument included background characteristics (i.e., age, gender, marital status, education, employment, medical insurance status, and general rating of health), and risk factors (family history of CRC or polyps).

Participants completed a 30-item questionnaire containing cognitive and psychological items drawn from Vernon *et al*. study.[15] The Vernon questionnaire was adapted for use in the current study; moreover, it has been applied in different samples indicating good construct validity among different populations.[15,18,19] The questionnaire measured six constructs of the PHM as follows: Self-efficacy (12 items, $\alpha$ = 0.77), perceived susceptibility to colorectal polyps or cancer (4 items, $\alpha$ = 0.74), worries about tests and being diagnosed with CRC (3 items, $\alpha$ = 0.71), efficacy of screening (3 items, $\alpha$ = 0.50), social support or physician and family support for screening (4 items, $\alpha$ = 0.68), and intention to be screened for CRC (4 items, $\alpha$ = 0.73).

We used a 4-point scale (1 = strongly disagree to 4 = strongly agree) to rate each psychosocial item and negative items reverse coded prior to deriving the scales. Constructs were calculated by summing the individual items that comprised them, and dividing by the number of items. The score ranges from 1 to 4 with a higher score indicating greater improvement. To prepare a simple frame of reference, a brief description about fecal occult blood test and colonoscopy was read aloud to participants, after description they were asked about their attitudes and beliefs on CRC and its screening tests. Overall, each interview lasted 20-30 min.

Collected data were analyzed using the SPSS version 13.00 for Windows. Continuous variables were computed in the form of mean and standard deviation (±SD). Categorical variables were presented as relative and absolute frequency.

### Ethical concerns

The Tehran University of Medical Sciences Institutional Review Board approved all study procedures. Informed consent was obtained from participants after providing adequate information about the significance and aim of the study. Participants were assured that their participation was voluntary and their responses would be treated with confidentiality.

## RESULTS

The sample included 100 females and 100 males. The age of the participants ranged from 50 years to 83 years (mean 60.13). Socio-demographic characteristics of the study participants are shown in Table 1. Most respondents were married (62.5%), unemployed (42%), and had secondary or higher education (44.5%). The majority of participants reported having health insurance. 29 of individuals (14.5%) were identified as high-risk, who reported a positive history of CRC among their first-degree relatives. Overall, 89% of respondents had never been tested for CRC, whereas 11% reported undergoing screening tests. Respondents with positive screening history had been screened with either fecal occult blood test (FOBT) (6.5%) or a colonoscopy (4.5%) [Table 1].

Attitudes and health beliefs towards CRC and screening in terms of the PHM constructs were evaluated in this study, and Table 2 exhibits the distribution of scores for each of the PHM constructs among participants. As shown in Table 2, the study participants reported relatively poor scores on all of the PHM constructs, (i.e., self-efficacy, intention to screening, perceived susceptibility, cancer worries, response efficacy and social support) [Table 2].

**Table 1:** Demographic characteristics of the study participants (*N*=200)

| Variables | Frequency | % |
|---|---|---|
| Gender | | |
| Male | 100 | 50 |
| Female | 100 | 50 |
| Marital status | | |
| Single | 13 | 6.5 |
| Married | 125 | 62.5 |
| Widowed/divorced | 62 | 31 |
| Formal education | | |
| Illiterate | 84 | 42 |
| Primary | 27 | 13.5 |
| Secondary | 68 | 34 |
| Higher | 21 | 10.5 |
| Employment status | | |
| Employed | 59 | 29.5 |
| Retired | 57 | 28.5 |
| Unemployed | 84 | 42 |
| Family history of colorectal cancer/polyps | | |
| Yes | 29 | 14.5 |
| No | 171 | 85.5 |
| Health insurance | | |
| Yes | 133 | 66.5 |
| No | 67 | 33.5 |
| Prior screening | | |
| Yes | 22 | 11 |
| No | 178 | 89 |

**Table 2:** Participants mean score for cognitive and psychosocial constructs (*N*=200)

| Constructs | Mean | SD | Range | |
|---|---|---|---|---|
| | | | Min | Max |
| Self-efficacy | 2.87 | 0.44 | 1 | 4 |
| Intention to screening | 2.95 | 0.66 | 1 | 4 |
| Perceived susceptibility | 2.24 | 0.65 | 1 | 4 |
| Cancer worries | 2.48 | 0.75 | 1 | 4 |
| Response efficacy | 2.92 | 0.61 | 1 | 4 |
| Social support | 2.51 | 0.62 | 1 | 4 |

## DISCUSSION

Although, our study revealed that the majority of individuals despite being eligible had never been screened, this finding was not surprising because there is no current CRC screening plan in Iran. Screening rate for CRC still is relatively below even among developed countries, and despite some progress in the last few years, most of the eligible people are still not having appropriate screening tests for CRC.[20,21]

To date, no information is available in our national literature assessing psychosocial factors in relation with CRC screening behaviors. Only one study in Shiraz has explored some barriers of performing the screening tests among employees aged 40 years or older.[22] Psychosocial constructs are important predictors for adopting healthy behaviors in general and several studies have consistently demonstrated that these factors have a significant effect on undergoing colorectal screening in particular. That is, individuals with lower level of perceived susceptibility of CRC, intention to screening, perceived susceptibility, response efficacy and social support are less likely to participate in screening tests.[23-27] Although, results of the current study showed poor scores on self-efficacy, intention to screening, perceived susceptibility, cancer worries, response efficacy, and social support. These findings can explain in part the low rate of prior screening reported herein by the respondents. Indeed, the poor scores on psychosocial constructs reflect that our respondents were not aware of the importance of CRC as a threatening disease. In other words, these results indicate that Iranians are not well informed about CRC and screening due to factors such as lack of knowledge or lack of clinical symptoms for colorectal cancer. However, limited knowledge may be a meaningful factor and can lead to poor basic information about CRC and a limited capacity to understand educational materials and certain features of CRC screening.

One of the notable findings in our study was the poor scores on social support suggesting lack of physician and family members support in persuading to preventive behaviors. Physician support is a strong predictor for preventive behaviors[28-31] and lack of physician recommendation or support has been identified as a barrier to preventive behaviors by several studies.[32,33] This result may reflect that in Iran, the emphasis of physicians is on curative rather than preventive approaches. Moreover, this result reflects the critical role of the physicians in increasing CRC screening rate and taking such factor into account will be helpful in implementing CRC screening in Iran. As a result, physician support is a key element that through which preventive behaviors can be improved.

### Study limitations

Although, the healthy individuals studied were target and more likely to be representative for average risk people, the small sample size from one out-patient clinic may limit the generalizability of the results.

## CONCLUSIONS

Our study, for the 1st time, assessed the attitudes and beliefs of Iranians toward CRC and screening tests. In this study, individuals mostly reported poor scores on psychosocial variables in regard to CRC screening. Given the significance of psychosocial variables, understanding these factors can provide a foundation for implementing screening programs in Iran. Moreover, the results of the study would guide policy makers in designing tailored interventions to increase the participation of individuals in screening programs.

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