

Barriers related to fecal occult blood test for colorectal cancer screening in moderate risk individuals

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ABSTRACT

Introduction and Objective: Colorectal cancer is one of the most important and most common cancer and second leading cause of cancer deaths worldwide. Through secondary prevention of this cancer, effective proactive measures would be taken to treat and to prevent the incidence of the disease. The fecal occult blood test (FOBT) has priority over other methods and is recommended for adults above 50 years. This study was carried out to assess perceived barriers related to participating in colorectal cancer screening programs among average risk population, based on health belief model. **Materials and Methods:** A cross-sectional survey of 196 individuals of more than 50 years was conducted in Isfahan. The target group consisted of people going to laboratories for doing FOBT test ($n = 98$), and those who refrained from going to laboratories ($n = 98$). The questionnaire was used based on barrier assessment question associated with performing fecal occult blood test. The data collected were analyzed using descriptive and inferential statistics methods. **Results:** The mean score of perceived barriers in the first group was 40.9 and in other group was 56.54, with significant difference statistically ($P < 0.001$). Lack of information, fear of cancer diagnosis, lack of recommendation by doctors, and not setting the priority of time for doing the test were some of barriers reported by the nongoing group. **Discussion and Conclusion:** According to this study, it seems that there is an urgent need to more information to be provided for the public about colorectal cancer and its prevention through screening, as important step to increase the rate of early detection and curb the mortality rate, costs, and improve community health outcomes.

Key words: Colorectal cancer, fecal occult blood testing, barriers, moderate risk individuals

INTRODUCTION

Nowadays cancer is the second important cause of mortality worldwide.^[1] Among cancers, colorectal cancer is the most

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prevalent type of cancer and the second most important cause of cancer-related mortality worldwide.^[2,3] Every year nearly one million new cases of colorectal cancer are diagnosed around the world and nearly half of them die of the disease.^[4] Cancer is the third cause of deaths in Iran.^[5] According to statistics, gastrointestinal cancers among males and breast cancer among females are the most prevalent cases in Iran.^[6]

The incidence of colorectal cancer has soared during recent 25 years in Iran; however, data show that compared to disease impact on western countries, it has infected the younger cohort in Iran.^[7] Given the disturbing colorectal cancer-related mortality rate, prevention of this cancer takes paramount importance.^[8] Secondary prevention is preferred in the case of diseases with no primary method of prevention.^[9] Similarly, there is no primary preventive measure against cancer and thus secondary prevention methods could help through

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timely diagnosis of the disease in treatment and prevention of the prevalence of the cancer.^[8]

Given the slow rate of progress of colorectal cancer, its diagnosis makes it possible to treat fully 90% of the patients. Regular screening is one of the best and most valuable method of timely diagnosis of this cancer.^[10,11]

Among the colorectal cancer screening test, fecal occult blood test (FOBT) is preferred over other methods for its ease of performance and lower cost.^[12] The colorectal screening program in the United States is carried out in the following fashion. Individuals with moderate and high risk give take FOBT, and in the case if the result is positive, colonoscopy and sigmoidoscopy tests are performed on individuals for their more precise results.^[13,14]

Despite the impact of screening on timely and treatable stage of the cancer, large number of the individuals subjected to the risk refrain from participating in the screening tests.^[15] According to the studies, given the possibility of the treatment of more than 90% of colorectal cancer in primary stage, only 40% of the cases are diagnosed and treated.^[16]

The rate of individual participations in colorectal cancer screening programs in Iran is low, with no precise data, and given the high incidence of the disease during past few decades, and the paucity of research on the relevant causes of the refraining from participating in screening tests by high and moderate risk individuals, doing a research on the subject gains importance.

A study by James *et al.* with the objective of examining the role played by perceived barriers and perceived benefits in doing the colorectal cancer screening program indicated that among components of performing of the screening test, there was a statistically significant relationship.^[11]

Brouse *et al.* carried out a qualitative research on barriers of participation on FOBT and indicated that the lack of information, lack of communicative skills, lower self-sufficiency, and lower perceived sensitivity were directly related to lower rate of participation in FOBT.^[14]

This study was carried out to examine the perceived barriers in going to laboratory for an FOBT, which is the most successful methods of timely diagnosis of colorectal cancer, by moderate risk individuals in Isfahan. The researchers hope that the findings of their study provide more precise insights about factors of impact on doing screening of this cancer.

MATERIALS AND METHODS

This study is a cross-sectional and descriptive–statistical study carried out on 196 subjects aged above 50 in Isfahan in the winter and spring of 2010, with the objective of determining related barriers on FOBT. The sample population was assigned to two groups consisting of 98 subjects. The

first group consisted of individuals over 50 who participated in diagnostic tests of FOBT. The second group consisted of individuals who refrained from participation. This group was researched through home interview.

For sample collecting in the first group, 98 people going to Navab Safavi, Dr. Baradaran, and Al-Zahra Hospital laboratories either to do the test or returning kits to laboratories were randomly selected. The second 98 people of research group were collected through cluster sampling from across the city, with Health Network as cluster heads. Four clusters from first network and four other clusters from second health network were taken randomly. Then, moving to the left side of each health network, 12 to 13 people above 50 were incorporated into groups. Having briefed on the objectives of the study and seeking their consent, questionnaire was filled in the conditions for being included in the study being above 50, having no past record of colorectal cancer by subjects or their first-hand family members, having no past record of large intestine benign tumors, the ability to answer questions in terms of physical and mental capabilities, and consent to participate in the research. The conditions for exclusion did not fully answer to the questionnaire.

The data collection tool was researcher-made questionnaire, whose components were determined according to the results of different studies on barriers related to cancer screening especially colorectal cancer worldwide. The validity of the questionnaire was examined and agreed by the gastronomical experts and lecturers of Health Education and Promotion department, Isfahan University of Medical Sciences.

The questionnaire consisted of two sections, one related to personal data and the other related to questions measuring barriers on FOBT with 12 questions. The questions of measuring barriers have answers in Likert five-point range, including completely agree, agree, no idea, disagree, and completely disagree. The scores of perceived barriers fall between 10 and 100. Two questions south data on the record of doing the test during past year and the intention to do this in the next year.

The reliability of the questionnaire was determined according to 40 filled-in questionnaires by Cronbach's alpha test with assurance rate of 95% and a value of 0.87. To analyze the results, the research drew upon SPSS-18 software and descriptive statistics and χ^2 and *t*-tests.

RESULTS

Table 1 gives the frequency distribution of personal characteristics of the subjects of the study. Independent *t*-test produced no significant difference for the age of both groups and χ^2 did neither for gender of both groups. χ^2 test indicated that among those going to laboratory for screening tests, larger number reported their economic status as moderate and better ($P = 0.001$). These individuals also enjoyed higher education compared to those in the second group who

refrained from doing the screening test ($P = 0.047$). In the second group, only 13.3% of the individuals did FOBT in the last year, while in the first group, this was 60.8, producing a significant difference ($P < 0.001$).

Overall, the first group mean-scored 40.09 for perceived barriers, while this was 56.54 for the second group, with significant difference ($P < 0.001$). Similarly, the perceived barriers score was the mean of 35.04 for those individuals who did test within the last year, comparable to a mean of 56.14 for those who did not, with significant difference ($P < 0.001$). In second group, developing unfavorable feeling toward FOBT (84.7%) and disbelief on the preventable nature of colorectal cancer (83.7%) was reported the most as barriers. In the first group, 75.5% of the participants cited developing of unfavorable feeling toward the test as barrier. Table 2 shows the frequency of barriers related to FOBT reported by participants.

DISCUSSION

According to recommendations by WHO and American Association of Cancer Prevention,^[17] all individuals above 50 are subject to the risk of colorectal cancer, and they should perform FOBT annually and colonoscopy test every 5 years. Despite the higher rate of incidence of this type of cancer and the related mortality, screening program for the disease is not carried out. As our results indicated, only 13.3% of the individuals in the first group performed the test last year, relatively low when compared to that reported in James *et al.*^[11] as 23% in the United States.

The score recorded for perceived barriers for the second group and individuals who did not perform the test in the last year was relatively high. In a research on 288 people in Nango, Japan, Jang, and Saito found that participating in screening program and annual FOBT were inversely related to the perceived barrier score reported by the participants^[18]. Also, Farmer and Belman reported on their research on 498 people above 50 to explore the belief of individuals subject to risk of the disease that higher perceived barrier scores were significantly related to lower rate of participation in FOBT, colonoscopy, and sigmoidoscopy tests^[19]. Other researchers found similar results.^[20-23]

Our results indicated that developing an unfavorable feeling toward doing the test was one of the most important barriers among individuals in both groups, which were similar to the results found in Busch *et al.*, which examined the African-American female beliefs and information about colorectal cancer.^[21] Other research found similar results.^[24-27]

Also, not having time needed for doing the test was reported by participants as barriers in line with the results of Bajracharya *et al.* carried out to examine the perceived barriers related to the strategies of timely diagnosis of colorectal cancer.^[26] Similarly, Austin *et al.* reported similar results on perceived barriers related to sigmoidoscopy in the colorectal cancer screening program.^[28]

Table 1: Demographic characteristics of moderate risk individuals in both studied groups

	N (%)		P value
	Non-referred to the laboratory	People referred to laboratory	
Sex			
Male	46 (43.1)	42 (41.3)	0.462
Female	52 (56.9)	56 (58.7)	
Education			
Illiterate	24 (24.5)	10 (10.2)	0.047
Primary education	27 (27.5)	37 (37.8)	
Upper secondary education	36 (36.7)	35 (35.7)	
University education	11 (11.2)	16 (16.2)	
Marriage status			
Married	79 (80.6)	90 (91.8)	0.041
Divorced or widow	19 (19.4)	8 (8.2)	
Self-reported economic status			
Good	14 (14.3)	18 (18.3)	0.001
Medium	53 (54.1)	78 (79.6)	
Bad	31 (31.6)	2 (2)	

Table 2: Barriers to fecal occult blood testing frequency in terms of moderate risk individuals Isfahan city

Perceived barrier	People referred to laboratory (%)	Non-referred to the laboratory (%)
Lack of awareness about colorectal cancer prevention	26.56	22.4
Fecal occult blood testing is not a necessity	71.4	56.6
Lack of knowledge about fecal occult blood test	23.7	21.4
Feeling bad about doing the FOBT test	84.7	75.5
Fear of cancer diagnosis	53.1	24.5
Lack of time	79.6	70.4
Lack of knowledge about where to do the FOBT test	62.8	49.2
The FOBT test is not a priority	62.4	60.2
Inability to pay the costs of testing	38.3	22.4
Doctor doesn't recommend it to me	75.2	45.5
Lack of belief in usefulness testing for cancer prevention	68.2	38.4
Don't believe that colorectal cancer is preventable	83.7	46.9

FOBT: Fecal occult blood test

Among cited barriers by participants, inter alia, was being no priority, consistent with the results found by van Rijn, entitled 'Low Priority Main Reason Not to Participate in a Colorectal Cancer Screening Program with a Fecal Occult Blood Test'.^[29] Jang and Saito also cited similar results.^[18]

As our results indicated, there was a significant relationship between higher scores for perceived barriers and lower

scores for doing FOBT. In a study of 298 people above 40, Greiner *et al.* found similar results, with higher age and perceived barrier scores effective on refraining from doing FOBT.^[30]

This study is a unique research carried out to examine the perceived barriers related to FOBT as best screening methods of colorectal cancer in Iran, which was highly needed, given the high prevalence of the disease and literature review undertaken. However, further research is recommended for other age groups, since the Iranian inception age of colorectal cancer is below the global average age.

CONCLUSION

Our findings indicated that lower perceived barrier was a good predictor of doing FOBT, and it is expected that the rate of participation would be improved through extensive training programs to raise the public awareness of individuals in risk of inception, as well as engaging doctors in the process given the effectiveness of their recommendations and prescriptions.

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