

## Knowledge and socio-demographic factors about colorectal cancer screening: cross sectional analysis the west of Iran

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### ABSTRACT

Cancer is the second leading cause of death in developed countries and the third one in developing countries. The aim of this study was to determine the knowledge on colorectal cancer and the related background factors in the urban population aged over 50 years in the western of Iran. This study was of descriptive cross-sectional type which was conducted among 500 individuals aged over 50 years in city Ravansar were randomly selected to participate voluntarily in the study. Data collected by questioner and were analyzed by SPSS version 21 using independent t-test, ANOVA and correlation statistical tests at 95% significant level. The mean age of respondents was 58.32 years [95% CI: 57.7, 58.9], ranged from 50 to 73 years. Only 4.7 percent of the participants knew what colorectal cancer was and what its screening methods were. The mean score of knowledge construct about colorectal cancer among the participants was 5.72 with standard deviation of  $\pm 2.57$ . Furthermore, knowledge of cervical cancer was significant association with sex, educational level and positive family history of colorectal cancer. In addition, knowledge about colorectal cancer was significantly related to the age ( $r = -0.095$  &  $P = 0.040$ ). Based on our result, it seems that designing and implementation of educational programs to improve knowledge about colorectal cancer among population is necessary.

**Keywords:** Colorectal Cancer, Knowledge, Socio-Demographic Factors.

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### Introduction

Cancer is the second leading cause of death in developed countries and the third one in developing countries. According to the statistics published in 2008 by the World Health Organization (WHO) over 12.7 million individuals are diagnosed with cancer and over 7.6 million individuals die due to cancer each year. The prevalence of cancer is predicted to reach 75

million individuals and 27 million individuals get diagnosed with cancer each year by the year 2030. Around 60 percent of the new cases of cancer would be in less-developed countries (1, 2). The epidemiology of cancer in each region is dependent on the ethnicity, age, sex, geographical location, cultural, social and dietary customs and traditions and individuals' way of life

in a way that, in each country, the statistic of individuals with cancer changes over time and with the change of common patterns (3). Meanwhile health and therapeutic systems in different countries explore and analyze the statistical condition of cancer in their respective populations in order to have a knowledge of cancer statistics in different periods and, in addition to paying attention to those statistics and investigating preventive methods, they present their necessary suggestions to the population and medical staff for implementation of screening programs (5). Having enough information on the cancer epidemiology and the way different cancers spread in different geographical locations can significantly help in screening groups at a higher risk of cancer and timely diagnosis and treatment of patients. In this regard, different studies indicate the increase of the prevalence of gastrointestinal cancers in central regions of Iran (3). Among gastrointestinal cancers, colorectal cancer is considered as a common cancer in developed countries in a way that it is the fourth common cancer in the US and the second leading cause of death due to cancer in US and UK (5, 6). In this regard, statistics show that 5000 individuals are diagnosed with this cancer each year in Iran and based on national cancer registration statistics colorectal cancer is the third common type of cancer in women and the fifth common one in men in Iran. This indicates the importance of prevention of this cancer in Iran (7, 8). The prevalence of cancer is increased with the increase of age. Considering this increase and the increase of prevalence, it is predicted that by the year 2030 over 70 percent of cancers will occur in individuals aged over 65 and this can be due to more sensitivity of older individuals to environmental carcinogens. The

epidemiology of cancer in individuals may be impacted by age, tumor type (leukemia, lymphoma, ovarian and etc.) and the tumor location (lung, breast). Most cancers in elderly individuals have high level of progress (9). Though there is a high prevalence of cancer, it should be noted that cancer is a disease caused by the involvement of different factors. The effects of most of these factors are often adjustable, reducible and even eliminable and this reasons makes at least one third of cancers preventable (10). Conducting epidemiological studies is the first step in designing preventive interventions (11-14). And knowledge on the disease is an impactful factor for participating in cancer screening and early-diagnosis programs (15). Considering the importance of individuals' knowledge of colorectal cancer screening, the present study was conducted with the aim of determining knowledge on colorectal cancer and the related background factors in the urban population aged over 50 years in the city Ravansar in western Iran.

## **Materials and Methods**

This study was of descriptive cross-sectional type which was conducted among 500 individuals aged over 50 years in the city Ravansar. For conducting the study, first, the health centers of Ravansar was selected as cluster and, using simple random sampling method and with probability proportional to size in each cluster, the participants were selected based on each family's health file. Then, the necessary data were collected by the researcher through visiting the houses of the individuals who had the necessary criteria for inclusion in the study. The subjects willingly entered the study after explanations were presented to them on the way the study is

conducted and on the confidentiality of information. Of the population of 500, 463 (92.6%) signed the consent form and voluntarily agreed to participate in the study, which has been approved by the institutional review board at the Kermanshah University of medical sciences (KUMS.REC.1394.269).

The data collection tool was a written questionnaire which had three sections and the necessary information was collected from the participants using interview. The first section of the questionnaire was dedicated to background information (five questions on demographic and background information of the participants) and measured information such as age (years), sex (male, female), marital status (single, married, divorced, widow, widower), education level (illiterate, elementary education, middle school education, diploma, university education) and economic condition (independent, dependent).

The second section of the questionnaire was consisted of four closed-ended questions, with two or multiple options, regarding colorectal cancer and information such as familiarity with colorectal cancer (yes, no), having colorectal cancer in the family (yes, no), obtaining information on colorectal cancer (yes, no), the source of obtaining information on colorectal cancer (physician, family, staff of medical centers, media, other).

The third part of the questionnaire was consisted of questions related to knowledge. This section had 14 questions and the score was between 0 and 14 and higher scores indicated higher level of knowledge. In order to measure the reliability of the knowledge questionnaire, a pilot study was conducted among 30 of the participants in the study and the reliability of 0.64 was obtained using split-half method. Also, the content validity was verified by a group of experts

(internist, health education and improvement PhD, medical and health service management PhD and health expert.

Finally, the collected information were entered into SPSS version 21 and analyzed at the significance level of 0.05 using independent t-test, ANOVA and correlation test.

## Results

The mean age of respondents was 58.32 years [95% CI: 57.7, 58.9], ranged from 50 to 73 years. More details of demographic characteristics of the participants are shown in Table 1.

**Table 1.** Description of the demographic characteristics among the participants

Variables	Number	Percent
Age group (year)		
50-59	291	62.9
60-69	135	29.2
70 and over	37	8
Sex		
Men	246	53.1
Women	217	46.9
Education level		
Illiteracy and Primary School	281	60.7
Under Diploma	124	26.8
Diploma	46	9.9
Academic Status	12	2.6
Marital Status		
Married	356	76.9
Single	107	23.1
Positive family history of colorectal cancer		
Yes	17	3.6
No	446	96.3
Economic Status		
Independent	122	26.3
Dependent	341	73.7

Only 4.7 percent of the participants knew what colorectal cancer was and what its screening

**Table 2.** Association between background variable and knowledge of colorectal cancer

		Mean (SD)	P-value
Sex	Men	5.08 (2.18)	< 0.001
	Women	6.51 (2.74)	
Marital Status	Married	5.64 (2.52)	P = 0.228
	Single	5.98 (2.73)	
	Illiteracy and Primary School	5.62 (2.48)	
Education Level	Under Diploma (12 Grade >)	5.30 (2.32)	< 0.001
	Diploma	6.69 (2.88)	
	Academic Education	8.58 (3.47)	
Positive family history of colorectal cancer	Yes	7.17 (2.57)	P = 0.018
	No	5.66 (2.24)	
Economic Status	Dependent	5.58 (2.72)	P = 0.469
	Independent	5.77 (2.52)	

methods were. Physicians and the staff of medical centers were mentioned as the main sources for obtaining information on colorectal cancer.

Our findings indicated the mean score of knowledge construct about colorectal cancer among the participants was 5.72 with standard deviation of  $\pm 2.57$ .

Then, the results indicated that women, compared with men, had significantly more knowledge of colorectal cancer. In addition, the association between background variable and knowledge of cervical cancer was showed in Table 2. Additionally, knowledge about colorectal cancer was significantly related to the age ( $r = -0.095$  &  $P = 0.040$ ).

## Discussion

The present study was conducted with the aim of determining the condition of knowledge of colorectal cancer symptoms and preventive methods in a group of individuals in the city Ravansar in western Iran. The findings indicated that the mean score of participants' knowledge was 5.72 from the maximum score of 14 which indicates they have a low level of knowledge on the aforementioned symptoms and methods. In

line with this, in their study on individuals aged over 18 years old in Tehran, Jamali et al showed that just a low number of individuals have an appropriate knowledge of cancer signs and symptoms and preventive methods for cancer and these results are consistent with the findings of the present study. Also, the findings of the studies conducted by Shcartzman and Sessa too indicate the low level of public knowledge on warning signs of cancer and colorectal cancer screening methods (17, 18). It should be noted that, in some studies, the low level of knowledge has been mentioned to be the main cause for the lack of screening behavior for the prevention of cancer (19, 20); and on the other hand, individuals' more knowledge is one of the major strategies of WHO in cancer control program (21). Low level of knowledge on colorectal cancer can act as an obstacle against the occurrence of healthy behaviors and it can prevent the development of screening programs (22). In their study conducted in Catalonia, Sala et al pointed out that the knowledge of the subject in the study on the colonial symptoms and preventive methods of colorectal cancer was in a low level and this disease had not been introduced

to the groups at risk of this disease in an appropriate level (23).

Despite the effect of screening programs in diagnosis of the initial stages of cancer, many individuals at risk of cancer do not participate in screening programs; on the other hand, the instance and prevalence of cancer in the world is highly increasing and knowledge of its warning signs can be an effective step in prevention of the disease, and in the next stages, the prevention of advanced stages of the disease (8). Avoiding facing the factors that result in cancer or make the individual susceptible to cancer and diminishing their presence in life can highly reduce the risk of affliction with the disease. On the other hand, knowing the warning signs of cancer and doing necessary actions such as undergoing diagnostic test can be an effective in prevention of cancer, and in the next stage, the prevention of the disease entering into an advanced stage (16). Considering the trend of occurrence of colorectal cancer in Iran and the little knowledge of individuals in the studied population, the necessity of educational interventions for making the society aware of colorectal cancer symptoms and methods for its prevention is felt.

The findings of the present study indicated that the level of knowledge had a significant relationship with higher education levels, female sex and the history of colorectal cancer in the family. These findings are consistent with the findings of similar studies. For example, Jamali et al reported a relationship between sex and education and knowledge of cancer (16). Many studies have also indicated that the increase of knowledge of warning signs of cancer is significantly related to the increase of education level (24-27). Considering these results, the necessity of implementing educational interventions in individuals with lower education levels becomes more evident.

Sex has been mentioned as a variable impacting the individuals' knowledge of the warning signs of cancer in several studies in a way that compared with men; women have a higher knowledge on the aforementioned signs (28-31). Regarding colorectal cancer, Hart too points out that knowledge of colorectal cancer is more in women (31). The reasons for the difference in knowledge level among men and women includes the different views of the disease among them; in men's view preventive measures such a controlling different aspects of lifestyle, avoiding facing risk factors for cancer and protective measures such as visiting a physician in the case of observing a warning sign of cancer are less important (16). These findings show the necessity of paying more attention to me and increasing their perceived sensitivity and susceptibility to the effects of serious diseases such as cancer.

Another finding of the present study was the inverse and significant relationship between age and the knowledge level of the participants in a way the knowledge was decreased, with the increase of age. These findings are consistent with the results of the study by Abdolazadeh on individuals aged over 50 years in the city Tabriz (22) but they are not consistent with findings of the studies conducted by Brunswick and Breslow (24, 32). In this regard, it should be noted that the distribution of education level is uniform in most age ranges and as pointed out before, education is one of the main factors impacting knowledge and thus, this variable has synergistic effect with age but this is not the case in developing countries and the education level is usually reduced with the increase of age in developing countries (16). It seems that the findings of the present study are due to the aforementioned reason and the education level has been very lower in individuals with higher ages and thus, the knowledge level is

decreased, with the increase of age in the present study.

Also, the findings of the present study indicated that knowledge level was significantly higher in individuals who had a history of cancer in their family, compared with the other participants in the study and this finding is consistent with those of other studies on this subject (28, 29). It seems that individuals who have observed cancer in their relatives are more willing to obtain knowledge on the disease and preventive methods for it and they are expected to be more sensitive on this issue.

The present study has some limitations; one of the limitations is collection of data through a questionnaire (which can always have some errors) and another one is a relatively low reliability of the knowledge questionnaire ( $\alpha=0.64$ ).

## **Conclusion**

The findings of the present study indicated that the level of knowledge on warning signs of colorectal cancer is low in the explored population and there is a necessity for designing interventions in this regard. The findings of this study on the factors related to knowledge on colorectal cancer can be useful for creating programs for prevention and screening of colorectal cancer.

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## **Conflict of Interest**

The authors declare no conflict of interest.

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