



JOURNAL OF ZANKOY SULAIMANI

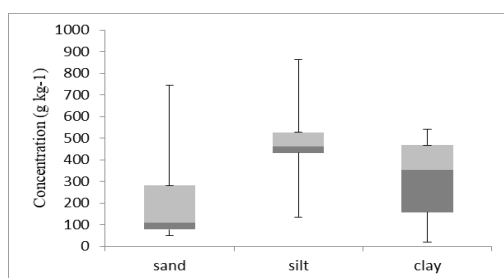
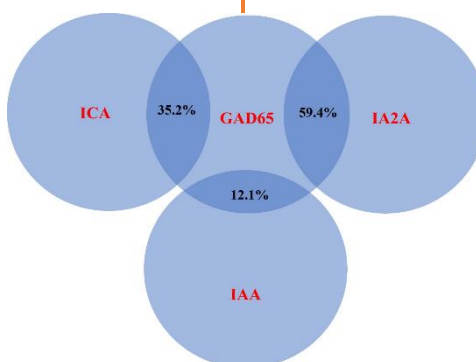
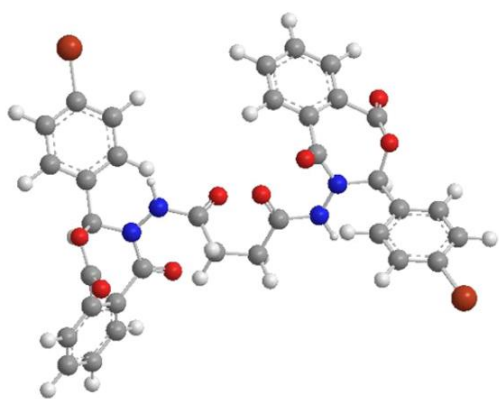
Part -A- (Pure and Applied Sciences)

VOLUME 25 ISSUE 2 December 2023

ISSN: 1812-4100

www.jzs.univsul.edu.iq

AUTHOR'S COPY





Assessment of Colon Cancer Screening Programs in Sulaimaniyah Province, Iraq

Sivar Tahir Abdulrazaq^{1,2*}, Anwar Kader Ibrahim Sheikha³

1 College of Nursing, University of Sulaimani, Sulaimani, Kurdistan Region, Iraq

2 Sulaimani Polytechnic University, Technical Institute of Sulaimani, Sulaimani, Kurdistan Region, Iraq

3 Anwar Sheikha Medical City, Ministry of Health, Zargata Hill, Sulaimani, Kurdistan Region, Iraq

*Corresponding email: sivar.abdulrazaq@univsul.edu.iq

Article info

Original: 20/05/2023
Revised: 25/08/2023
Accepted: 18/09/2023
Published online:
20/12/2023

Keywords:

*Assessment,
knowledge, colon
cancer, screening
program, nurse role*

Abstract

Background: The incidence and mortality of colorectal cancer (CRC) have increased over the last 25 years in young adults aged <50 years old. Early diagnosis, particularly through screening programs, is one of the major factors contributing to this welcome development. **Objectives:** To assess the knowledge of the CRC screening program among people in the Sulaimaniyah province, Iraq, about their sociodemographics and levels of knowledge. **Patients and Methods:** A descriptive cross-sectional study was conducted on 300 participants through an online questionnaire and interview. The collected data includes participants' sociodemographic data (age, gender, level of education, marital status, and occupation) and their knowledge of the CRC screening program. **Results:** The mean age of participants was 50.5±5.8 years, ranging from 30 to >70 years. Most participants were males (51%), married (61.8%), governmental employees (58.7%), and graduated from university (28.7%). More participants (77.6%) had an acceptable level of knowledge related to the CRC screening program, 17.7% had a good level, and only 4.7% had a poor level. Knowledge of the CRC screening program was statistically significant with age, occupation and marital status ($p=0.02$, $p<0.01$, and $p<0.01$, respectively). **Conclusions:** The outcomes showed most participants had fair knowledge regarding the CRC screening program. Nurses must have a good role and play an important part in health education about CRC. Thus, early detection programs, regular screening, and lifestyle maintenance decrease the risk of CRC in the community.

Introduction

Colorectal cancer (CRC) (71% are in the colon and 29% in the rectum) is the 3rd most common cancer among men and the 2nd most among women worldwide. It is the 4th cause of death from cancer among men and the 2nd among women [1]. It is estimated that by 2035, the total number of deaths from CRC will increase by 60-71.5% [2]. In Iraq during four-year period (2015-2018) the most common types of cancer by primary site in Iraqi males were lung, bladder, leukemia, colorectal and prostate cancers. In addition, the most common types of cancer in Iraqi females were breast, leukemia, thyroid, colorectal, and brain tumors. These figures may differ from one country to another depending on the degree of economic development [1], so it was in Iraq 5.94 % [3]. Also, 3.4% in Sulaimaniyah, 3.0% in Qatar 3, 3.6% in Egypt 3.6, 8.4% in Israel, 16.4% in Cyprus, and 32% in USA 32 [4].

CRC the term colorectal cancer refers to a slowly developing cancer that begins as a tumor or tissue growth on the inner lining of the rectum or colon. If this abnormal growth, known as a polyp, eventually becomes

cancerous, it can form a tumor on the wall of the rectum or colon, and subsequently grow into blood vessels or lymph vessels, increasing the chance of metastasis to other anatomical sites. Of the cancers that begin in the colorectal region, the vast majority (over 95%) are classified as adenocarcinomas. These begin in the mucus-making glands lining the colon and rectum [5]. Other less-common cancers of the colorectal region include carcinoid tumors (which begin in hormone-producing intestinal cells), gastrointestinal stromal tumors (which form in specialized colonic cells known as interstitial cells of Cajal), lymphomas (immune system cancers that form in the colon or rectum), and sarcomas (which typically begin in blood vessels but occasionally form in colorectal walls) [5].

CRC is increasingly being diagnosed nowadays, sometimes at an early stage and sometimes at an advanced stage. The stages at which CRC is diagnosed partly explain the differences in survival. The symptoms of CRC only appear at the advanced stages. Early detection is important in preventing metastasis, reducing mortality, and improving prognosis/quality of future life [6]. According to the World Health Organization (WHO), in 2018, 1.80 million new cases of CRC globally were diagnosed, and 862,000 patients died from CRC [7].

Environmental and/or genetic factors can increase the chance of developing CRC. Also, other risk factors for developing CRC include age (>50), low socioeconomic class, overweight/obesity, sedentary lifestyle, smoking, heavy alcohol intake, acromegaly, renal transplantation with long-term immunosuppression/androgen deprivation therapy, personal/family history of CRC or colorectal adenoma, low-fibre and high-fat diet, consumption of red meat, processed meat/burnt or charred meat [8], type 2 diabetes/insulin resistance, and chronic inflammatory bowel disease (IBD) [9].

The incidence and mortality have decreased with the adoption of widespread appropriate CRC screening in developed countries. Fortunately, there are various screening programs recommended by the American Cancer Society (ACS), the Multi-Society Task Force (MSTF), and the American College of Physicians (ACP) [10]. According to ACP, CRC screening is recommended in average-risk individuals aged 50-75 years [11], while recently, ACS recommended that average-risk individuals start regular CRC screening at age 45. Consequently, American Gastroenterological Association (AGA) supported this new recommendation for earlier CRC screening [12].

Although most (70%) of CRC occurs in the average risk individuals (sporadic), up to 25% of cases occur in patients with a family history of CRC, and about 10% of cases occur in hereditary CRC syndromes [10]. Every 3 years, the ACS updates CRC statistics based on incidence from population-based cancer registries and mortality from the National Center for Health Statistics. In 2023, approximately 153,020 individuals were diagnosed with CRC, and 52,550 died, including 3750 deaths in individuals aged <50. CRC mortality declined by 2% annually from 2011–2020; but increased by 0.5-3% annually in individuals aged <50 years and in Native Americans aged <65 years [13].

Knowledge participants on CRC screening results in adopting better health care and a healthy lifestyle and, therefore, prevention and early detection of CRC. Thus, the main goal of this study was to assess knowledge levels and the relationship between sociodemographic data and knowledge levels of participants in the general population of Sulaimaniyah, Iraq.

Materials and Methods

Design and setting of the study

A descriptive cross-sectional study was achieved on 300 participants in Sulaimaniyah Province, Iraq, from February 1, 2022, to November 30, 2022.

Questionnaire

A well-structured questionnaire was initially generated in English and then translated into Kurdish, as Kurdish is the native language for most of the population in Sulaimaniyah City. Data were collected through an online questionnaire and paper form (interview for 30 minutes) distributed to the general population of Sulaimaniyah City. The questionnaire was organized into 3 sections. Section 1 consists of participants' sociodemographic characteristics, including age, gender, level of education, occupation, and marital status, while section 2 included an assessment of the participant's knowledge regarding the CRC screening program as definitions, risk factors, signs/symptoms, complications, diagnostic tests, and role of the screening program. Regarding the scoring system, Yes (1) was the correct or best answer related to participants' knowledge, while the incorrect answer (zero) was considered a negative response to the CRC screening program. The total score was calculated from 32 questions, and the answers' score was presented as poor (<11 correct answers), fair (11-21 correct answers) and good knowledge (>21 correct answers). Lastly, section 3 comprised the association between sociodemographic and the level of knowledge regarding CRC screening.

Validity/Reliability of the questionnaire

The validity of the questionnaire content was determined by a panel of 6 experts in different scientific domains (Oncologists, Hematologists, Maternal Neonate Nursing, Surgeons, and Adult Nursing) to examine the elements' clarity, relevance and appropriateness. At the same time, the reliability was achieved through the application of internal consistency reliability by 60 participants knowing the CRC screening program.

Ethical considerations

The proposal of the current study was approved by the Ethics Committee at the College of Medicine, University of Sulaimani (No. 211 on October 05/2021). Participants' verbal consent was obtained before starting the study.

Data analysis

Collected data were analyzed using the statistical package for social sciences (SPSS, version 26), and a p-value of <0.05 was considered statistically significant.

Results

The mean age of participants was 50.5±5.8 years, and the age range was 30 to >70 years. Most participants were males (51%), belonged to the 40-49-year age group (44.9%), were married (61.8%), were governmental employees (58.7%), and graduated from University (28.7%) (Table 1).

Table 1: Sociodemographic distribution of colon cancer screening program among participants.

Variable	Value	Frequency (%)
Age (Years)	30-39	91 (30.2)
	40-49	135 (44.9)
	50-59	60 (19.9)
	60-69	9.0 (3.0)
	>70	5.0 (1.7)
Education level	Illiterate	33 (11.0)
	Elementary school	19 (6.3)
	Middle school	39 (13.0)
	High school	19 (6.3)
	Institute	51 (17.0)
	University	86 (28.7)
	Postgraduate	53 (17.7)
	Self-employment	30 (10.0)

Occupation	Government employee	176 (58.7)
	Retirement	2.0 (7.0)
	Housewife	20 (6.7)
	Privet sector employ	22 (7.3)
	Others	50 (16.7)
Gender	Male	153 (51.0)
	Female	147 (49.0)
Marital Status	Single	110 (36.5)
	Married	186 (61.8)
	Widowed/divorced	4.0 (1.3)
Total		300 (100)

Additionally, only 17.7% of participants had good knowledge of the CRC screening program, 77.6% had fair, and 4.7% needed better knowledge (Table 2).

Table 2: Distribution of participants according to their total score level of knowledge regarding colon cancer screening program.

Scores of knowledge level	Frequency (%)
Poor (<11)	14 (4.7)
Fair (11-21)	233 (77.6)
Good (>21)	53 (17.7)
Total	300 (100)

Regarding the association between the sociodemographic variable and the knowledge level of participants regarding the CRC screening program, there was a highly significant association between age ($p=0.02$), occupation ($p=0.010$, and marital status ($p=0.01$). In contrast, no significant correlations were seen for each gender and education level about knowledge score (Table 3).

Table 3: Association between level of knowledge in participants regarding colon cancer screening program.

Variable	Levels of knowledge							p-value
	Poor		Fair		Good		Total	
	Frequency	%	Frequency	%	Frequency	%	Frequency (%)	
Age (years)								0.02**
30-39	4.0	(28.6)	71	36.8	16	30.2	91 (30.3)	
40-49	4.0	(28.6)	106	54.9	25	47.2	135 (45)	
50-59	6.0	(42.9)	44	21	10	18.9	60 (20)	
60-69	0.0	(0.0)	8.0	4.1	1.0	1.9	9.0 (3)	
>70	0.0	(0.0)	4.0	2.1	1.0	1.9	5.0 (1.7)	
Educational level								0.06
Illiterate	2.0	14.2	29	13	2.0	3.8	33 (11)	
Elementary school	3.0	21.4	11	4.7	5.0	9.4	19 (6.3)	
Middle school	2.0	14.2	33	14.2	4.0	7.5	39 (13)	
High school	0.0	0.0	14	6.0	5.0	9.4	19 (6.3)	
Institute	2.0	14.2	41	17.6	8.0	15.1	51 (17)	
University	3.0	21.4	68	15.9	15	28.3	86 (28.7)	
Postgraduate	2.0	14.2	37	29.2	14	26.4	53 (17.7)	
Occupation								0.01**
Self-employment	1.0	0.07	24	10.2	5.0	9.8	30 (10)	
Governmental employee	11	78.5	129	54.9	36	70.6	176 (58.6)	
Retirement	0.0	0.0	2.0	0.9	0.0	0	2.0 (0.7)	
Housewife	0.0	0.0	15	6.4	5.0	9.8	20 (6.7)	
	0.0	0.0	20	8.5	2.0	3.9	22 (7.3)	

Privet sector employ Others	2.0	14.2	45	19.1	3.0	5.9	50 (16.7)	
Gender								0.49
Male	13	92.8	118	50.2	22	43.1	153 (51)	
Female	1.0	7.1	117	49.7	29	56.9	147 (49)	
Marital status								0.01**
Single	6.0	42.9	90	38.3	14	27.4	110 (36.6)	
Married	8.0	57.1	141	60	37	72.5	186 (62)	
Widowed/divorced	0.0	0.0	4.0	1.7	0.0	0.0	4.0 (1.3)	
Total	14	100	235	100	51	100	300(100)	

** : Highly significant using Fisher exact test/Chi-square test

Discussion

The average age of participants in this study was 50.5 ± 5.8 years, with the highest range in the group 40-49 years. Globally, from 2000 to 2013, the incidence rate of CRC in adults aged ≥ 50 declined by 32%, especially among those aged ≥ 65 [14]. A Preventive Services Task Force recommends CRC screening in the USA for persons at average risk (50-75 years old) using colonoscopy [15]. Also, population-based screening programs have already developed in several Asia Pacific regions, including China, Japan, Taiwan, Korea, and Singapore. Those aged 40-74 are screened and followed by a colonoscopy [16].

American Medical Associations Physicians in the USA mentioned that 1235 eligible respondents aged ≤ 75 years have an active medical license and whose major professional activity involves patient care. The majority were males, with a mean age of 48.0 years [17]. It was indicated that CRC is the 3rd most common cancer in men (746000 cases) and the 2nd in women (614000 cases) [18]. According to the annual report of INCRS, CRC is the 4th common cancer in men after stomach, bladder, and prostate and the 2nd among women after breast cancer [19]. On the other hand, National Comprehensive Cancer Control Program in Iran stated that the incidence of CRC has intensified in Iran during the last 25 years, and CRC constitutes the 3rd leading cause of cancer death [20]. However, the Iranian Cancer Research Center (ICRC) mentioned that CRC is the 3rd and 5th most common cancer among Iranian women and men, respectively [21]. However, another study in the UK stated the incidence of CRC to be higher in women < 69 years. They also mentioned that women were more likely to present as emergency cases, but with no gender differences in more advanced diseases and a similar age-standardized 5-year survival rate between the genders [22].

In the current study, most participants (77.6%) had adequate knowledge of the CRC screening program, 17.7% had a good understanding, and 4.7% had poor knowledge. In this regard, a study in Malaysia indicated that most patients with moderate risk for CRC had deficient expertise and attitude towards CRC screening programs [23]. Additionally, only 25 participants aged less than 49 years had adequate knowledge. This result is inconsistent with another study that found the screening uptake was superior in older people aged ≥ 65 years [24]. However, it is agreed with a randomized study in Italy [25].

The present study indicates no significant relationship between knowledge and some sociodemographic variables, such as the level of education and gender ($p \geq 0.05$), while a substantial correlation between knowledge and each age, occupation, and marital status was seen ($p \leq 0.05$). Thus, employment plays a highly significant role in the level of knowledge, contrary to another study in Australia which showed no associations between CRC screening and occupational variables [26].

Furthermore, knowledge of CRC screening in this study was not significantly associated with the participant's marital status, and only 37 married cases had good knowledge. In the same way, Hanke *et al.*, 2016, reported no statistical association between the level of knowledge and marital status regarding the CRC screening program [27]. The findings of a study in 14 Asian-Pacific countries/regions to assess the prevailing screening participation tests, knowledge and attitudes toward screening participation were determined for high-medium/low-participation countries. 7915 individuals (49% male, aged ≥ 50 years) participated in the CRC

screening test. The rate of participants in the Philippines was 69%, Australia (48%), Japan (38%), Brunei (13.7%), Pakistan (7.5%), India (1.5%), then Malaysia and Indonesia (3%) [17].

Physicians recommended that knowledge of screening tests were significant predictors of CRC test uptake. In countries with low test participation, lower perceived access barriers and higher perceived severity were independent predictors of involvement. Respondents from low participation countries had the least knowledge of symptoms, and risk factors, tested and reported the lowest physician recommendation rates [17]. Finally, early detection of CRC allows for less invasive treatment, low morbidity, mortality and treatment cause. Implementing the CRC screening program requires addressing strategic decisions [16].

Conclusions

This study recommended the development of health education tools for the prevention of CRC among people. The fundamental basis of many policies and decisions should be done in many different aspects of medical development, including evaluation of screening programs, treatment and health interventions in the field of CRC. An important part of CRC screening is to educate the patient about changing lifestyle, diet, exercise, regular screening and the administration of medication and the training of nurses on the safety and training needed to increase information about how to need screening regularly and provide advice to CRC screening program, implement a good diet plan and exercise, and avoid drinking alcohol, to prevent it.

Acknowledgements

The authors would like to thank the authorities from the College of Nursing, University of Sulaimani for their kind help and support to this study.

Conflict of interest

The authors confirm that they are not affiliated with or involved in any organization or entity with financial interests.

References

1. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, et al. (2018). Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: a cancer journal for clinicians* 68: 394-424.
2. Douaiher J, Ravipati A, Grams B, Chowdhury S, Alatise O, et al. (2017). Colorectal cancer—global burden, trends, and geographical variations. *Journal of Surgical Oncology* 115: 619-630.
3. Al-Mosawi AJ (2020) The Pattern of Cancer in Iraq (2015-2018): An Overview. *Archives of Oncology and Cancer Therapy* (ISSN: 2638-5074) 3: 11-13.
4. Khoshnaw N, Mohammed HA, Abdullah DA (2015). Patterns of cancer in Kurdistan-results of eight years cancer registration in Sulaymaniyah Province-Kurdistan-Iraq. *Asian Pacific Journal of Cancer Prevention* 16: 8525-8531.
5. Marley AR, Nan H (2016). Epidemiology of colorectal cancer. *International Journal of Molecular Epidemiology and Genetics* 7: 105.
6. Xi Y, Xu P (2021) Global colorectal cancer burden in 2020 and projections to 2040. *Translational Oncology* 14: 101174.
7. Xiang D, Hu S, Mai T, Zhang X, Zhang L, et al. (2022). Worldwide cancer statistics of adults over 75 years old in 2019: a systematic analysis of the global burden of disease study 2019. *BMC Public Health* 22: 1979.
8. Arnold M, Sierra MS, Laversanne M, Soerjomataram I, Jemal A, et al. (2017) Global patterns and trends in colorectal cancer incidence and mortality. *Gut* 66: 683-691.
9. Peeters P, Bazelier MT, Leufkens HG, de Vries F, De Bruin ML (2016). The risk of colorectal cancer in patients with type 2 diabetes mellitus: associations with treatment stage and obesity. *Etiological Studies in Complex Diseases* 38: 137.
10. Hadjipetrou A, Anyfantakis D, Galanakis CG, Kastanakis M, Kastanakis S (2017). Colorectal cancer, screening and primary care: a mini literature review. *World Journal of Gastroenterology* 23: 6049.

11. Kisiel JB, Papadopoulos N, Liu MC, Crosby D, Srivastava S, et al. (2022). Multicancer early detection test: Preclinical, translational, and clinical evidence—generation plan and provocative questions. *Cancer* 128: 861-874.
12. Wolf AM, Fontham ET, Church TR, Flowers CR, Guerra CE, et al. (2018). Colorectal cancer screening for average-risk adults: 2018 guideline update from the American Cancer Society. *CA: A Cancer Journal for Clinicians* 68: 250-281.
13. Siegel RL, Miller KD, Wagle NS, Jemal A (2023). Cancer statistics, 2023. *Cancer Journal for Clinicians* 73: 17-48.
14. Siegel RL, Miller KD, Fedewa SA, Ahnen DJ, Meester RG, et al. (2017). Colorectal cancer statistics, 2017. *CA: A Cancer Journal for Clinicians* 67: 177-193.
15. Goss PE, Strasser-Weippl K, Lee-Bychkovsky BL, Fan L, Li J, et al. (2014). Challenges to effective cancer control in China, India, and Russia. *The Lancet Oncology* 15: 489-538.
16. Schreuders EH, Ruco A, Rabeneck L, Schoen RE, Sung JJ, et al. (2015). Colorectal cancer screening: a global overview of existing programmes. *Gut* 64: 1637-1649.
17. Koo JH, Leong RW, Ching J, Yeoh K-G, Wu D-C, et al. (2012). Knowledge of, attitudes toward, and barriers to participation of colorectal cancer screening tests in the Asia-Pacific region: a multicenter study. *Gastrointestinal Endoscopy* 76: 126-135.
18. Christou A, Thompson SC (2012). Colorectal cancer screening knowledge, attitudes and behavioural intention among Indigenous Western Australians. *BMC Public Health* 12: 1-16.
19. Hajmanoochehri F, Asefzadeh S, Kazemifar AM, Ebtehaj M (2014). Clinicopathological features of colon adenocarcinoma in Qazvin, Iran: a 16 year study. *Asian Pacific Journal of Cancer Prevention* 15: 951-955.
20. Rouhollahi MR, Mohagheghi MA, Mohammadrezai N, Ghiasvand R, GHANBARI MA, et al. (2014). Situation analysis of the national comprehensive cancer control program (2013) in the ir of Iran, assessment and recommendations based on the IAEA impact mission. *Archives of Iranian Medicine* 17: 222-233.
21. Amirkhah R, Naderi-Meshkin H, Mirahmadi M, Allahyari A, Sharifi HR (2017). Cancer statistics in Iran: Towards finding priority for prevention and treatment. *Cancer Press Journal* 3: 27-38.
22. White A, Ironmonger L, Steele RJ, Ormiston-Smith N, Crawford C, et al. (2018). A review of sex-related differences in colorectal cancer incidence, screening uptake, routes to diagnosis, cancer stage and survival in the UK. *BMC Cancer* 18: 1-11.
23. Hussain Z, Yusoff ZM, Sulaiman SAS (2015). Evaluation of knowledge regarding gestational diabetes mellitus and its association with glycaemic level: A Malaysian study. *Primary Care Diabetes* 9: 184-190.
24. Gimeno García AZ (2012). Factors influencing colorectal cancer screening participation. *Gastroenterology Research and Practice* 2012: 1-10.
25. Wools A, Dapper E, Leeuw Jd (2016). Colorectal cancer screening participation: a systematic review. *The European Journal of Public Health* 26: 158-168.
26. Carey RN, El-Zaemey S (2019). Lifestyle and occupational factors associated with participation in colorectal cancer screening among men and women in Australia. *Preventive Medicine* 126: 105777.
27. Hanske J, Meyer CP, Sammon JD, Choueiri TK, Menon M, et al. (2016). The influence of marital status on the use of breast, cervical, and colorectal cancer screening. *Preventive Medicine* 89: 140-145.