

# The Assessment of Awareness Level Regarding the Risk Factors and Screening of Colorectal Cancer among the People of the Northern Border Region - Kingdom of Saudi Arabia

SYED SAJID HUSSAIN SHAH, MUAZ BELAL A WALI, MESHARI DALAF M ALHAZMI, ADEL TURKI D ALENEZI, ALJOHNI ABDULAZIZ MUSALLAM S

Faculty of Medicine, Northern Border University – Arar -Kingdom of Saudi Arabia

Correspondence to Prof. Syed Sajid Hussain Shah Email: prof.sajid99@gmail.com, Cell: Cell: 00966537759649

## ABSTRACT

**Background:** Colorectal malignant tumor is ubiquitously found worldwide. In Saudi Arabia, colorectal malignant tumor is the most prevalent type of cancer in the male while in female; it is the third most common malignancy. Higher level of awareness regarding the risk factors, sign & symptoms and screening tests of the malignant tumors of colon and rectum among the people may be an effective strategy for the reduction in the prevalence of this cancer in the community.

**Aim:** To determine the awareness level regarding the risk factors and screening of colorectal malignancy.

**Methods:** After approval from ethical committee, a survey has been conducted among the willing participants from the Northern border region of the Kingdom of Saudi Arabia by using social media/ personal interviews and paper based questionnaire during the study period of March – April 2019.

**Results:** A total of 241 completely filled responses have been received which included 95 male and 146 females. There are 69 persons with school (primary/ secondary) level education and 172 persons have university level education. A significant proportion of people with lower level of education are unaware about the various risk factors associated with cancer of large bowel and screening regarding the malignant tumors of colon and rectum.

**Conclusion:** The awareness level regarding the risk factors and screening of malignant tumors of colon & rectum is quite deficient particularly among the people with lower level of education.

**Key words:** Risk Factors, Cancer Screening, Colorectal Cancer.

---

## INTRODUCTION

Colorectal malignancy is quite prevalent category of cancer which is associated with significant mortality and morbidity all over the world. Colorectal malignancy shows marked geographic variation in its prevalence. A significant rise in the mortality rate due to cancer of colon and rectum has been projected in various countries like Australia, USA, Canada and Ireland by year 2035<sup>1</sup>.

Colorectal malignancy is the most frequent (10.6%) cancer in the male and third most common (8.9%) cancer among the female population in the kingdom of Saudi Arabia<sup>2</sup>. A rise in the incidence of colorectal malignant tumors has been observed in the past ten years in the Arabic countries<sup>3</sup>.

The higher prevalence of colorectal malignancy is significantly contributing in the mortality and morbidity caused by malignant tumors. The reduction in the mortality and morbidity associated with colorectal cancer requires effective strategies for the prevention and early detection of malignant tumors of bowel. The preventive strategies require identification of risk factors and implementation of effective screening programs.

Multiple risk factors are attributed to the development of malignant tumors of colon and rectum which include increased consumption of processed meat, family history, advanced age, male gender, elevated BMI (body mass index), cigarette smoking and diabetes mellitus (4-5). Increased level of awareness among the people regarding the preventable measures contributes in the reduction of burden of disease in the community.

Similarly, the early detection of malignant tumors of colon & rectum in the high risk persons with the help

of bowel cancer screening tests may be another important strategy for the reduction in the morbidity and mortality associated with the colorectal malignancy. The detection and management of colonic polyps with the help of bowel screening tests may reduce the risk of development of malignant tumor of colon as these patients are at higher risk to have malignant tumors of colon subsequently. Certain tests like guaiac fecal occult blood test, immunochemical fecal occult blood test and stool DNA test may be helpful in the early detection of malignant tumors of large bowel<sup>6,7</sup>.

It would be imperative to raise the level of awareness regarding the risk factors, sign & symptoms and screening tests of the colorectal cancer among the community. The aim and objectives of the present research project is to evaluate the level of awareness regarding the risk factors and the screening of malignant tumors of colon & rectum among the people of the Northern border region of kingdom of Saudi Arabia.

## MATERIALS & METHODS

After getting the approval from local committee of bio ethics – Northern Border University, a survey has been conducted among the willing participants from the Northern border region of the Kingdom of Saudi Arabia by using social media/ personal interviews and paper based questionnaire during the study period of March – April 2019. The structured questionnaire contains 12 items regarding the risk factors which are related to higher risk of development of malignant tumors of colon & rectum and there are nine questions related to diet which are considered as protective factor against the

development of cancer of large bowel. The questionnaire also contains seven questions related to sign and symptoms of colorectal cancer and three questions about the screening.

A total of 241 responses have been received from the willing participants among the people of Northern border region during the study period. The data has been entered in the computer for the analysis.

## RESULTS

A total of 241 filled proformas have been received which included 95 male and 146 females. There are 69 persons with school level education level while 172 persons have university level education.

The majority of persons with lower level of education (primary / secondary school) have less knowledge regarding the risk factors of the large bowel cancer such as obesity, eating red and processed meat, eating baked and

barbecued meat, eating animal fat, eating highly processed foods and low levels of physical activity. The person with higher level of education (University) also have less knowledge regarding the risk factors of colorectal cancer like eating red and processed meat, eating baked and barbecued meat and eating animal fat but they have better knowledge about the risk factors of colon cancer as compared to people with lower level of education . Results are shown in table 1.

Regarding the dietary factors which are associated with reduced risk of malignant tumor of large bowel, majority of the people have sufficient knowledge about these factors. The results are depicted in table 2.

The majority of the people have lack of sufficient knowledge about the sign & symptoms and about the screening of malignant tumors of colon & rectum. The results are shown in table 3 & 4.

Table 1: The evaluation of awareness level regarding the risk factors of colorectal cancer

QUESTIONS Do you know that the following increases the risk of colorectal cancer	Lower Level Education		Higher Level Education	
	Yes (%)	No(%)	Yes (%)	No(%)
Obesity	47	53	59	41
Smoking	65	35	79	21
Having other types of bowel disease	61	39	71	29
Eating Red and processed meat	33	67	50	50
Eating baked and barbecued meat	30	70	45	55
Eating animal fat	40	60	50	50
Eating highly processed foods	43	57	57	43
Low levels of physical activity	42	58	62	38
Risk increases with age	44	56	54	46
Diabetes mellitus	40	60	48	52
Drinking alcohol	59	41	66	34
Risk increases if a close relative has bowel Cancer/ family history	47	53	72	28

Table 2: The assessment of awareness level regarding the dietary factors which reduce the risk of colorectal cancer

QUESTIONS Do you know that following decreases the risk of cancer of colon & rectum	Lower Level Education		Higher Level Education	
	Yes (%)	No(%)	Yes (%)	No(%)
Fibre Fruits	67	33	68	32
Vegetables	71	29	70	30
Yogurt	63	38	58	42
Nuts	50	50	45	55
Garlic	70	30	59	41
Fish	63	37	50	50
Olive oil	63	37	57	43
Consumption of products rich in omega-3	54	46	62	38
Consumption of products rich in omega-6	56	44	52	48

Table 3: The assessment of knowledge about the sign & symptoms of colorectal cancer

QUESTIONS Do you know that the following are the Signs and Symptoms of colorectal cancer?	Lower Level Education		Higher Level Education	
	Yes (%)	No(%)	Yes (%)	No(%)
Bleeding from the bowels	28	72	42	58
Change in bowel habits such as diarrhoea/Constipation	39	61	45	55
Loss of weight for no reason	30	70	43	57
Persistent abdominal pain/cramps	39	61	45	55
Unexplained tiredness or weakness	39	61	41	59
Loss of appetite	34	66	43	57
Bowel cancer can be present without any Symptoms	24	76	41	59

Table 4: The evaluation of awareness level about the screening of colorectal cancer

QUESTIONS	Lower Level Education		HigherLevel Education	
	Yes (%)	No(%)	Yes (%)	No(%)
Have you heard of early detection ofcolorectal(bowel) cancer by screening	35	65	36	64
Do you know someone in your family with colon cancer	22	78	16	84
Have your underwentbowel cancer screening program / tests	4	96	2	98

**DISCUSSION**

The malignant tumors of colon and rectum are quite prevalent all over the world. Despite the effective screening and early detection of colorectal cancers, still these cancers are significantly contributing in the morbidity and mortality. With the rise in the number of advanced aged people in the various communities, a significant rise in the number of colorectal cancer has been projected in various countries like Australia, United States, Ireland and Canada by year 2035<sup>1</sup>.

The higher prevalence of malignant tumors of colon & rectum is significantly contributing in mortality and morbidity associated with malignant tumors. The effective strategies for the prevention and early detection of malignant tumors of bowel have got paramount importance for the reduction in the mortality and morbidity associated with colorectal cancer. The preventive strategies require identification of potentially preventable risk factors. The implementation of effective screening programs for colorectal cancer has increased the chance of early detection of cancer & polyps and reduced the incidence of colorectal malignancy and it has also played an effective role in the reduction of the morbidity and mortality associated with this type of malignant tumors<sup>8,9,10,11</sup>.

Many risk factors are attributed to the development of malignant tumors of colon & rectum which include increased consumption of processed meat, family history, advanced age, male gender, obesity, cigarette smoking and diabetes mellitus. Increased level of awareness about the risk factor and screening programs among the people contributes in the reduction of prevalence of malignancy in the society. It would be imperative to raise the level of awareness regarding the risk factors, sign and symptoms and screening of the large bowel malignant tumors among the community.

In the present study, the majority of persons with lower level of education level( primary / secondary school level), the knowledge regarding the risk factors of colorectal malignant tumors such as obesity, eating red and processed meat, eating baked and barbecued meat, eating animal fat, eating highly processed foods and low levels of physical activity was deficient.

A study published from United Arab Emirates revealed that awareness level varied from 10 % to 55% about the various risk factors of colon cancer like red meat, fatty meals, cigarette smoking, obesity, physical inactivity, alcohol intake, age, gender and family history<sup>12</sup>.

Similarly, a severe deficiency of knowledge about the risk factors, symptoms and screening of malignant tumors of colon & rectum has been reported by Al-Sharif MN et al in their published study from Asir region<sup>13</sup>.

Another study published by Zubaidi A Met al revealed that the older persons and people with higher education level have got more knowledge regarding the certain risk factors

of malignant tumor of large intestine as compared to young and less educated people<sup>14</sup>.

In the present study, there were seven questions related to sign & symptoms of colorectal cancer. The group of people from the lower education level only responded correctly from 24% to 39% and the correct response from higher education level group was from 41% to 45%. Our results are quite low as compared to the series published from Australia in which the correct response was identified as 56% to 87 % regarding the various sign and symptoms of colorectal cancer<sup>15</sup>.

In the present series, 35% people from lower education group and 36% people from higher education group of our study are aware of the early detection of colorectal cancer by screening. These figures are higher as compared to the reported figure of a published series from Asir region<sup>13</sup>.

**CONCLUSION**

The awareness level regarding the risk factors, sign & symptoms and screening of malignant tumors of colon & rectum is less in the community especially with the lower level of education.

**Recommendations:** Since the colorectal cancer is quite common in the community, it would be helpful to disseminate the knowledge regarding its risk factors, sign and symptoms and screening tests with the help of electronic media, social media and it may be included in the curriculum of the schools and colleges.

**Conflict of interest:** Nil

**Funding:** Nil

**Acknowledgement:** The authors are thankful to Dr. Asmara Syed for her technical assistance.

**REFERENCES**

1. Araghi M, Soerjomataram I, Jenkins M, Brierley J, Morris E, Bray F, et al. Global trends in colorectal cancer mortality: projections to the year 2035. *Int J Cancer*. 2018 Dec 10. doi: 10.1002/ijc.32055
2. Al-Ahwal MS, Shafik YH, Al-Ahwal HM. First national survival data for colorectal cancer among Saudis between 1994 and 2004: What's next? *BMC Public Health*. 2013;13:73.
3. Arafa MA, Farhat K. Colorectal Cancer in the Arab World - Screening Practices and Future Prospects. *Asian Pac J Cancer Prev*. 2015; 16 (17), 7425-7430. DOI:http://dx.doi.org/10.7314/APJCP.2015.16.17.7425
4. Wei EK, Colditz GA, Giovannucci EL, Wu K, Glynn RJ, Fuchs CS, et al. A Comprehensive Model of Colorectal Cancer by Risk Factor Status and Subsite Using Data From the Nurses' Health Study. *Am J Epidemiol*. 2017;185(3):224-237.
5. Liu Y, Ding WB, Yan C , Bao H, Li K, Wang C. Risk factors of colorectal cancer and its clinical epidemiological study. *Biomedical Research* 2017; 28 (22): 9871-9874

6. Bretagne JF, Piette C, Cosson M, Durand G, Lievre A. Switching from guaiac to immunochemical faecal occult blood test increases participation and diagnostic yield of colorectal cancer screening. *Dig Liver Dis.* 2019 May 28. pii: S1590-8658(19)30581-X. doi: 10.1016/j.dld.2019.05.004.
7. Issa IA, Noureddine M. Colorectal cancer screening: An updated review of the available options. *World J Gastroenterol.* 2017;23(28):5086–5096. doi:10.3748/wjg.v23.i28.5086
8. Navarro M, Nicolas A, Ferrandez A, Lanas A. Colorectal cancer population screening programs worldwide in 2016: An update. *World J Gastroenterol* 2017; 23(20): 3632–3642. DOI: 10.3748/wjg.v23.i20.3632.
9. Sano Y, Byeon JS, Li XB, Wong MC, Chiu HM, Rerknimitr R, et al. Colorectal cancer screening of the general population in East Asia. *Dig Endosc.*2016;28(3):243-9. doi: 10.1111/den.12579.
10. Suchanek S, Majek O, Vojtechova G, Minarikova P, Rotnaglova B, Seifert B, et al. Colorectal cancer prevention in the Czech Republic: time trends in performance indicators and current situation after 10 years of screening. *Eur J Cancer Prev.*2014 ;23(1):18-26. doi:10.1097/CEJ.0b013e328364f203.
11. Bhurgri H, Samiullah S. Colon Cancer Screening - Is It Time Yet? *J Coll Physicians Surg Pak.* 2017 ;27(6):327-328. doi: 2629.
12. Al Abdouli L, Dalmook H, AkramAbdo M, Carrick FR, Abdul Rahman M. Colorectal Cancer Risk Awareness and Screening Uptake among Adults in the United Arab Emirates. *Asian Pac J Cancer Prev.* 2018;19(8):2343–2349. doi:10.22034/APJCP.2018.19.8.2343
13. Al-Sharif MN, Fayi KA, Alobaidi AA, Alshamrani BA. Awareness of colorectal cancer among public in Asir region. *J Family Med Prim Care.* 2018;7(1):87–92. doi:10.4103/jfmprc.jfmprc\_264\_17
14. Zubaidi AM, AlSubaie NM, AlHumaid AA, Shaik SA, AlKhayal KA, AlObeed OA. Public awareness of colorectal cancer in Saudi Arabia: A survey of 1070 participants in Riyadh. *Saudi J Gastroenterol.* 2015;21(2):78–83. doi:10.4103/1319-3767.153819.
15. Christou A, Thompson SC. Colorectal cancer screening knowledge, attitudes and behavioural intention among Indigenous Western Australians. *BMC Public Health.*2012;12:528. <https://doi.org/10.1186/1471-2458-12-528>