Original Article

Colorectal Cancer Symptoms and Risk Factors

Assessment of Public and High-Risk Group Awareness Regarding Colorectal Cancer Symptoms and Risk Factors in Peshawar, Pakistan

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ABSTRACT

Objective: To assess the knowledge of colorectal cancer (CRC) symptoms and risk factors among the general population and at-risk groups attending the Surgical Department at Hayatabad Medical Complex, Peshawar.

Study Design: Descriptive cross-sectional study

Place and Duration of Study: This study was conducted at the Department of General Surgery, Hayatabad Medical Complex (HMC), Peshawar, from December 2023, to November 2024.

Methods: All adult patients who visited outpatient surgical clinics or accompanied patients admitted to surgical wards during the study period and were at least 18 years old were included in the study. Subjects were enrolled using convenience sampling.

Results: Total 64(35.6%) correctly identified rectal bleeding as a warning sign, while 51(28.3%) recognized persistent changes in bowel habits as a symptom. Other commonly known symptoms included abdominal pain (27.2%) and unexplained weight loss (23.9%). However, only 31(17.2%) could identify three or more CRC-related symptoms accurately.

Conclusion: Knowledge of colorectal cancer symptoms and risk factors is minimal in general as well as in at-risk population of Peshawar, substantial disparities are found due to education and residence. Targeted awareness programmes and increased physician involvement are crucial to increase early diagnosis and reduce CRC-load in this region.

Key Words: Colorectal cancer, Risk factors, Symptoms, Awareness, diagnosis

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INTRODUCTION

With an expected 1.9 million new cases and 935,000 deaths in 2020, colorectal cancer (CRC) is the second most common cause of cancer-related deaths globally and the third most common type of cancer[1]. Although CRC was traditionally considered a disease of the western world, recent epidemiological patterns suggest an upsurge in the developing countries, including Pakistan[2]. These figures are largely the result of urbanization, changes in diet, lack of exercise and longer life expectancy[3].

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However, the issue of public knowledge of CRC symptoms and signs in the country is alarming; hence, cases are diagnosed late with a resultant poor clinical outcome[4].

Early detection, through the identification of symptoms, including rectal bleeding, continuous change in bowel habits, abdominal pain, and unexplained weight loss, is an important factor of CRC management[5]. Yet, several researches have demonstrated that the public commonly do not relate these symptoms to CRC, and typically consider them to be caused by benign conditions such as hemorrhoids or indigestion[6]. In addition, knowledge of established risk factors such as older age, family history, smoking, obesity, low dietary fiber intake, consumption of red/processed meats, and physical inactivity is also low, in both the general population and high-risk groups[7]. This gap in knowledge is striking, especially considering that CRC is highly preventable by life style changes and early screening[8].

In Pakistan, lack of national CRC screening program, sociocultural barriers, low level of health literacy and poor accessibility to diagnostic facilities are few among the factors that have made patients present even in advanced stages of disease[9]. These higher risk groups including first degree relatives of patients with

colorectal neoplasia and patients with inflammatory bowel disease are also poorly served with respect to education and campaigns directed at them. Furthermore, the stigma surrounding GI symptoms and the embarrassment to enquire about bowel habit also cause delay in seeking help, especially in women and elderly population[10].

This cross-sectional survey is conducted to assess the awareness level of CRC symptoms, risk factors and evaluation among the general population, and at-risk population in Pakistan. The results are expected to highlight specific areas for knowledge enhancement, associations with sociodemographic variables, and help guide the development of culturally tailored knowledge-translation approaches and policy changes to improve early detection and reduce CRC burden.

METHODS

This was a descriptive cross-sectional study conducted at the Department of General Surgery, Hayatabad Medical Complex, Peshawar, KPK Pakistan. The period of data collection ranged from December 2023, to November 2024. The study comprised 180 adult patients who were at least 18 years old and who either accompanied patients admitted to surgical wards or visited the outpatient surgical department during the study period. Patients with previous colorectal carcinoma and those who were unable to comprehend the questionnaire due to cognitive and language differences were excluded in order to limit any bias and to ensure appropriate responses. Those at risk were defined as having a family history of colon cancer, being overweight, having diabetes, inflammatory bowel disease, smoking and older than 50 years.

A semi structured interviewer administered questionnaire was employed for data collection. The questionnaire was adapted to fit the local context and was based on previously used tools by international literature. It was translated in local languages (Pashto and Urdu) for understanding and included three parts, first, related to socio-demographic characteristics, second related to knowledge of CRC according to the most important warning signals, and third related to knowledge of associated risk factors. Each correct answer received a score of 1, whereas wrong or "don't know" answers received a score of 0. A total knowledge score was determined for overall awareness.

Information was cumulated by trained research personnel under the supervision of senior surgical staff to achieve uniformity and minimize interviewer bias. All participants provided written informed consent before being enrolled in the study. Names and confidential data were coded to ensure no one was identifiable.

IBM SPSS version 25 was utilized for the collection and analysis of data. The data was described using frequency, percentage, mean ± SD. To examine the relationship between knowledge levels and sociodemographic factors, the chi-square test and the independent t-test were employed. A P value of ≤ 0.05 was deemed statistically significant. The study protocol was approved by the Institutional Review Board (reference # 1761).

RESULTS

The mean age was 41.3 ± 13.2 years, with participants ranging from 18 to 72 years. Of the total sample, 96(53.3%) were male and 84(46.7%) females. Majority of respondents were from urban areas (62.2%), and the remainder (37.8%) belonged to rural regions. Educational background varied with 21.1% having no formal education, 32.8% having completed secondary education, and 46.1% having a college-level or higher qualification. Among the participants, 77(42.8%) were categorized as being at risk for colorectal cancer due to factors such as age ≥50, family history of CRC, diabetes, smoking, obesity, or inflammatory bowel disease. The remaining 103(57.2%) represented the general population without known risk factors. Table-1

Table No.1: Sociodemographic Characteristics of Study Participants

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	Mean ± SD	-	41.3 ± 13.2
Gender	Male	96	53.3%
	Female	84	46.7%
Residence	Urban	112	62.2%
	Rural	68	37.8%
Education Level	No formal education	38	21.1%
	Secondary education	59	32.8%
	College or higher	83	46.1%
Risk Group	At-risk group	77	42.8%
	General population	103	57.2%

When asked about symptoms of colorectal cancer, 64(35.6%) correctly identified rectal bleeding as a warning sign, while 51(28.3%) recognized persistent changes in bowel habits as a symptom. Other commonly known symptoms included abdominal pain (27.2%) and unexplained weight loss (23.9%). However, only 31(17.2%) could identify three or more CRC-related symptoms accurately.

Knowledge of risk factors was also minimal with only 72(40%) were aware that increasing age is a risk factor, 61(33.9%) identified smoking, 58(32.2%) recognized a family history of CRC, and 53(29.4%) acknowledged obesity as a contributing factor. Limited participants

identified a low fiber diet (20%) or inflammatory bowel disease (12.2%) as risk factors. Only 47(26.1%) were able to correctly identify three or more risk factors. Table-2

Table No.2: Knowledge of Colorectal Cancer Symptoms and Risk Factors

Knowledge Area	Item	Frequency (n)	Percentage (%)
Symptoms	Rectal bleeding	64	35.6%
	Change in bowel habits	51	28.3%
	Abdominal pain	49	27.2%
	Unexplained weight loss	43	23.9%
	≥3 symptoms correctly identified	31	17.2%
Risk Factors	Increased age	72	40.0%
	Smoking	61	33.9%
	Family history of CRC	58	32.2%
	Obesity	53	29.4%
	Low fiber diet	36	20.0%
	Inflammatory bowel disease	22	12.2%
	≥3 risk factors correctly identified	47	26.1%

The mean knowledge score (out of 15) was 4.8 ± 2.6. Based on score categories, 26(14.4%) demonstrated good knowledge (score ≥8), 91(50.6%) had moderate knowledge (score 4–7), and 63 (35%) showed poor knowledge (score <4). Knowledge scores were significantly higher among participants from urban areas (mean score 5.2) than rural (4.1, $p = 0.02$), and among those with higher education ($p < 0.001$). The at-risk group had a slightly higher mean knowledge score (5.3 ± 2.5) compared to the general group (4.5 ± 2.6, $p = 0.04$). Table-3.

Table No.3: Knowledge score distribution among participants

Knowledge Level	Score Range	Frequency (n)	%age
Good knowledge	≥ 8	26	14.4%
Moderate knowledge	4–7	91	50.6%
Poor knowledge	< 4	63	35%

Overall mean knowledge score 4.8 ± 2.6

DISCUSSION

The results of the present study suggested that knowledge of both groups were far below optimal, the awareness among the known risk factors was relatively better. These findings are in agreement with conclusions from various national and international studies highlighting the formidability of low CRC awareness in the general population.

The average score of knowledge being 4.8 (out of 15) indicates poor to fair overall level of awareness, we are closely resemble this with the results of Khan et al[11] where the median score was 5.2 in an analogous Pakistani sample. Only 14.4% of participants showed good knowledge in our study which is significantly lower than the 28% reported by Imran et al[12] in a Saudi population. This discrepancy might be related to the divergence in the pubic healthcare system or national CRC screening program and public education program which are more commonly available in high income countries.

Symptom awareness in our study was poor; only 35.6% report rectal bleeding, then changes in bowel habits (28.3%) and abdominal pain (27.2%). These numbers are lower than the figures provided by Almadi et al[13], there was a 48% reporting of rectal bleeding as a CRC symptom among Saudi participants. The discrepancy may be due to different levels of awareness and access to medical information in populations. Similarly, Bhurgri H et al[14] also indicated that more than 50% of the urban population of Lahore was aware of symptoms, indicating the positive effect that geographic and urban–rural disparities have on cancer awareness in Pakistan.

Risk factor awareness was also inadequate. Older age was identified as a risk factor by 40% of our respondent population and this is consistent with the reports of Abuadas et al[15] who also found age to be the most frequently identified risk factor in a sample in which the majority had poor oral hygiene. However, other modifiable risk factors like obesity (29.4%) and smoking (33.9%) were poorly known. These numbers are lower than those reported by Gong et al[16], who found a recognition of over 50% of these risk factors among educated populations in Shingai, China. The low awareness in our cohort could be attributed to sociocultural taboos involving cancer discussions and the lack of appropriate educational campaigns in the area.

In this study 32.2% of respondents identified a family history of colorectal cancer (CRC) as a risk factor, which is marginally higher than the 25% reported by Pnadurangan et al[17] in India. However, this recognition is still below ideal given its significance in clinical practice. It can be a reflection of the overall undervaluation of genetic risk in Pakistani public health message. The extremely low awareness of inflammatory bowel disease (12.2%) as a risk factor is consistent with that of Schliemann et al[18], who observed the same tendencies in rural Iran communities. These consistent global patterns imply a common requirement to incorporate this information into routine education of health.

There was a strong correlation between level of education and CRC knowledge in our study ($p < 0.001$) This supports finding by May F et al[19] who highlighted the importance of formal education in enhancing health literacy and cancer awareness. Urban participants also had a significantly better knowledge score than rural participants (mean score 5.2 vs. 4.1, $p = 0.02$) as found in previous studies, including the ones of Kamangar et al[20], who revealed that urban place of residence was associated with cancer awareness among Iranian. This difference might be attributed to higher electronic media, health care, and school accessibility in urban areas.

Remarkably, the at-risk group in our population demonstrated slightly better knowledge than those in the general public (mean score 5.3, as compared to 4.5; p-value = 0.04) and may reflect some degree of exposure to the health care provider or personal concern for their health. This corroborates the findings of Parker et al[21] who observed that patients with chronic diseases or in a family history demonstrate slightly higher proactive attitude of health information seeking. But the difference was not much, suggesting that risk status alone cannot ensure adequate awareness especially in the absence of regular nursing patient's education.

There are some limitations to the current study, which needs to be acknowledged. First, the results may not be applicable to the entire population of Pakistan, particularly in rural or underdeveloped areas, because this study was conducted at a single centre. Second, the convenience sampling might lead to selection bias as persons visiting a surgical department might have different levels of health awareness and access to information as compared to the general population. Third, some participants may have over reported the information, and the use of self-reported data may have introduced recollection or social desirability bias. To validate and expand upon these findings, future research should involve larger, multi centre studies with diverse populations and preferably randomized controlled trials or longitudinal cohort designs to better assess the impact of educational interventions on colorectal cancer awareness and outcomes.

CONCLUSION

This study found relatively low awareness of colorectal cancer symptoms and risk factors in both general population and at risk population in Peshawar, Pakistan. Individuals with identifiable risk factors had a slightly better knowledge, but a general low awareness of the disease was observed, particularly with regard to symptoms, such as rectal bleeding, and modifiable factors, such as obesity and smoking. Factors associated with better knowledge were higher education, urban residence as well as very few references to health professionals as a source of information.

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RECOMMENDATIONS

Further randomized, multi-center studies with extended follow-up are recommended to validate and generalize these findings.

Author's Contribution:

Concept & Design or acquisition of analysis or interpretation of data:	Tilal Ahmed Raza, Farrukh Ozair Shah
Drafting or Revising Critically:	Tilal Ahmed Raza, Hajra Imtiaz
Final Approval of version:	All the above authors
Agreement to accountable for all aspects of work:	All the above authors

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