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Exploring Colorectal Cancer Awareness, Risk Factors and Screening Challenges: A cross-sectional Study in Sri Lanka

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Abstract

Background: Colorectal Cancer ranked among the top five major cancer incidences with an age-standardized incidence rate of 10.2 per 100,000 population as of 2019 in Sri Lanka. Colorectal Cancer is a significant health concern in Sri Lanka, and still, there is insufficient evidence related to awareness of signs and symptoms and risk factors in the general population.
Objective: This study aimed to assess awareness regarding colorectal Cancer, its early signs and symptoms, early screening methods, and perceived barriers among the general population in Sri Lanka.
Methodology: A cross-sectional survey-based study was administered in Sri Lanka from June 2024 to December 2024. A total of 385 participants were included comprised of majority of females 218 and 167 male participants selected by using a convenience sampling technique. Descriptive statistics and Pearson correlation analysis was utilized to examine the relationship between the study variables.
Results: Pearson correlation showed statistically significant results between the awareness of signs and risk factors ($r = 0.485<0.01$), recognition of symptoms and knowledge of screening procedures ($r = 0.513$), and awareness of symptoms and perceived barriers ($r = 0.422$). 66.0% participants were aware of symptoms of CRC. Overall, participants aged between 26 and 45 years showed general moderate to high awareness of colorectal Cancer.
Conclusion: There was an average to moderate awareness about colorectal Cancer in Sri Lanka. In addition, a significant portion of the population, especially young adults and elderly people, has limited knowledge regarding the higher prevalence rate of colorectal Cancer. The study recommends conducting future research to enhance the awareness and knowledge of changing patterns of colorectal Cancer in Sri Lanka.

Keyword: Colorectal Neoplasms, Health Knowledge, Attitudes, Practice, Risk Factors, Mass Screening.

Introduction

Colorectal Cancer (CRC), also known as bowel cancer, colon or rectal cancer, typically grows as small benign growths (polyps) that gradually turn into cancerous if not treated in the pre-mature stage (Barani et al., 2021). The detectable traits of CRC are blood in stool, changes in bowel habits, abdominal pain, sudden weight loss, and fatigue. CRC is represented as a significant and growing public health challenge in Sri Lanka (Samarakoon et al., 2018). CRC is the third most common cancer type and the second most reported Cancer, which causes death globally. The most recent report showed that there were about 1.9 million new cases reported, and more than 900,000 deaths have been declared due to the highest prevalence rate of colorectal Cancer worldwide (Cancer, 2025).

Cancer is recognized as one of the most common public health issues in Sri Lanka which is still increasing with the passage of time (Wijeratne et al., 2022). The World Cancer Research Fund has reported in 2023 that approximately 33,243 new Cancer cases were reported with an age-standardized rate (ASR) of 106.9 per 100,000 population. The rising burden of Cancer is a serious concern for Sri Lanka (Gunasekera et al., 2018). Cancer prevalence in Sri Lanka doubled over the last 25 years and this is the major reason of the increment in the number of cancer deaths (Jayarajah & Abeygunasekera, 2021). Cancer is now the second most frequent cause of hospital death, responsible for 14% of all hospital deaths in Sri Lanka. It is noteworthy that the rate of CRC increased between 2.9/100000 and 6.08/100000 from 2001 to 2010 in Sri Lanka. Also, the epidemiological reports show an unprecedented rise in CRC over the last two decades (Rawla et al., 2019). Although global prevalence of CRC is listed as the third most frequent Cancer, which is nearly equal in both males

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and females (Jayarajah et al., 2020).

The Sri Lankan cancer system is taking major initiatives to provide universal free cancer care, which can be accessed in regional cancer treatment units (Jayarajah & Abeygunasekera, 2021). The pluralistic healthcare system of Sri Lanka has the majority (95%) of the patients who seek treatments through the allopathic healthcare providers, which is acknowledged by Ayurvedic and complementary medicines (Weerasinghe & Fernando, 2011). Although the cancer care pathways have been expanded in the past few decades, the cancer care system of Sri Lanka is still facing challenges due to several reasons, such as inadequate machines, untrained staff, and inadequate radiation therapy facilities in Sri Lanka (Gunasekera et al., 2018; Wijeratne et al., 2022).

Wijeratne et al. described the CRC characteristics and patient patterns in Sri Lanka within the age group of age > 18 years diagnosed during 2016 to 2025, from the National Cancer Institute's Sri Lanka cancer registry (Wijeratne et al., 2022). There are limited published studies that have shown the awareness level related to colorectal Cancer in Sri Lanka. Most of the studies tend to demonstrate the incidence trends, prevalence in males and females, and utilization of different treatments to treat CRC. This study aimed to assess the awareness of colorectal cancer signs, symptoms, risk factors, and early screening, as well as to evaluate perceived barriers to CRC screening among the general population in Sri Lanka.

Literature Review

Epidemiology and Incidence Trends of Colorectal Cancer

The incidence trend of CRC has experienced a rise in Asia region also over the last 20 years, which has not only affected developed but also developing countries in the region (Onyoh et al., 2019). Similarly, In Sri Lanka, which has been impacted by the high incidence of CRC over a span of time in the recent past and became the fifth most frequent Cancer reported in Sri Lanka (Jayarajah et al., 2020). The rising trends in Cancer incidence in Sri Lanka have also impacted the population very immensely which not only contributes to the increasing new incidence cases of CRC but also has huge financial, social, and emotional impacts on household environments and health care systems (Chandrasinghe et al., 2022). As per Joseph et al. (2019), it was found that there were around 3000 new cases of CRC reported every year in Sri Lanka with male and female patients (Joseph et al., 2019). This rising burden impacted different determinants such as lifestyles, aging population, demographics, and cost of living (Samarakoon et al., 2018). The robust public health care network of Sri Lanka has improved with the help of universal health care across the country. Sri Lanka has achieved impressive progress in curbing the rising burden of Cancer by a robust public healthcare system and universal health coverage (Vidanapathirana et al., 2021). Interventions such as improved prevention, early detection, and improved screening programs (e.g., HPV vaccination coverage of more than 90%) were implemented by the Sri Lankan government to treat CRC. Along with this, improved clinical management, including the commissioning of new radiotherapy machines and the development of national treatment guidelines, has together contained the anticipated exponential rise in cancer cases and enhanced health outcomes (Jayarajah & Abeygunasekera, 2021).

Risk Factors for Colorectal Cancer

The high risks of CRC are most likely due to the impact of several acquired lifestyle and environmental factors that have contributed in the rise (Chandrasinghe et al., 2022). However, only 5% to 10% of instances of CRC are caused by known inherited disorders, such as Lynch syndrome, MYH-associated polyposis (MAP), and Peutz-Jeghers syndrome (Kim & Bodmer, 2021). In addition, dietary factors such as high consumption of processed and frozen meat with low consumption of good fibers have increased the risk factors of CRC (Samarakoon et al., 2018; Tuan & Chen, 2016). Lifestyle patterns including high caloric energy consumption, poor sleeping habits, low physical activity, tobacco consumption, obesity and excessive alcohol consumption can be a major causative factor in the development of CRC symptoms. Surprisingly, in Sri Lanka, the common dietary patterns seen in both urban and rural populations have been changing during the past few decades increase (Jayarajah et al., 2020). In addition, smoking and alcohol consumption have been recognized as key etiologies of CRC in urban Sri Lankan populations in both sexes (Rawla et al., 2019). Recent studies have shown that other modifiable factors such as physical inactivity, obesity, diabetes mellitus, and metabolic syndromes are major causes of CRC in the Sri Lankan scenario (Jayawardena et al., 2021).

Treatment Challenges and Financial Barriers

In Sri Lanka, the conventional diagnostic procedure adopted in Sri Lanka used for the treatment of CRC were surgery, chemotherapy, and radiotherapy. These

treatments are provided to the patients as per their medical requirement and the genetic stages of the individual tumour. Colonoscopy with biopsy is the most common practised method for the early and accurate diagnosis, supported by imaging techniques like CT scan, MRI, and carcinoembryonic antigen (CEA) level estimates. The methods supported the staging of the disease and planning the treatment of cancer more precisely with minimum damage (Samarakoon et al., 2018). The growing and ageing population in Sri Lanka, and the increasing incidence of colorectal cancer in the ageing population, is projected to cause a high rate of CRC in the next few decades (Weerasinghe & Fernando, 2011).

Radiotherapy facilities are available in a small number of hospitals, causing long waiting periods and consequently having a negative impact on the accessibility of both urban and rural patients to timely treatment (Jayarajah & Abeygunasekera, 2021). Moreover, the limitations of the current healthcare infrastructure and resources, particularly in rural settings, significantly impede early detection and specialized oncology care. The identified systemic challenges are contributing factors to underachieving treatment performance and survival rates in CRC patients (Barragan-Carrillo et al., 2025). Moreover, funding constraints limit the availability of newer forms of treatment i.e. precision and targeted therapies which, despite their potential, have not shown any significant gains in terms of CRC in the Sri Lankan setting. To overcome the challenges, Sri Lanka needs one radiotherapy machine per million inhabitants, so it needs 10-12 more machines to overcome the Colorectal cancer burden (Ramanathan et al., 2022).

Materials and Methods

Study Design and Setting

A cross-sectional research design was used to conduct this study in Sri Lanka between June 2024 and December 2024 using a self-administered questionnaire. The study objectives were addressed by using a population based survey based on structured questionnaire 37 items, establishing the correlation between the variables.

Study Population and Sample Size

The study population included 385 participants selected with the help of convenience sampling from the general population of Sri Lanka aged between 18 and 56+ years.

Study Setting and Period

This study was conducted among all the regions of Sri Lanka, including Sri Lankan and non Sri Lankan residents between the ages of 18 and 56+ years old. The data was collected during the time period of June 2024 to December 2024.

Data Collection

A validated survey questionnaire using Google Form was distributed through the social media platform, which was available in English and the Sri Lanka language. As per the confidentiality protocols, the participation remained anonymous, and all personal information was kept confidential. Data were collected using a structured questionnaire divided into five modules covering all the essential items of the research. Demographics (9 items), awareness of signs and symptoms of CRC (10 items), and awareness of risk factors associated with CRC (9 items). Additionally, attitude and behaviour towards early screening (6 items) and perceived barriers (11 items) associated with the screening procedure of CRC. The demographic module consisted of gender, age ranges, highest educational attainment, monthly income, area of residence, and family history of CRC.

Inclusion and Exclusion Criteria

The study inclusion criteria comprised male and female participants from Sri Lanka within the predetermined age intervals defined as 18 to 56+ years. Participants who were willing and able to provide informed consent and respond to the questionnaire were included. The study was conducted at a specific location (Sri Lanka) for a defined duration (6 months). Responses were gathered, and investigations were performed during the data collection.

Individuals below 18 years were excluded from the study, as the main focus was on young adults and the elderly population. The participants who were too ill or cognitively unable to understand or complete the questionnaire which was excluded to ensure the reliability and validity of the collected data. Additionally, patients who were previously diagnosed with colorectal Cancer were excluded to focus exclusively on the awareness and perceptions of the general population.

Ethical Approval

The study was approved by the Local Research Ethics Committee of the Hospital, Sri Lanka. All data was

collected for research purposes only. Additionally, written informed consent was collected from all participants prior to the data collection. The confidentiality of the data was intentionally maintained. All personal demographic information was kept confidential and secure during data collection.

Statistical Analysis

Statistical analysis was done using Statistical Package for the Social Sciences (SPSS) version 20.0. The descriptive statistics that provide percentages and frequencies were used to determine demographics and response to questions by the respondents. The level of statistical significance was 0.01 for Pearson correlation. Pearson correlation was also used to determine the linear relationships between the key variables, which are awareness of symptoms, awareness of risk factors, screening behavior, and perceived screening barriers for CRC.

Results

The research aimed to assess the recognition of CRC traits and symptoms, and risk factors of colorectal cancer, as well as early screening behaviours, and assess the perceived barriers to CRC screening among the general population of Sri Lanka. The results indicated that awareness of colorectal cancer was high among the general population and greatly affected the perceived barriers, such that a rise in the level of awareness was associated with a reduction in the screening barriers. The results further highlighted the need to raise awareness and knowledge of colorectal cancer in order to enable early detection, improve screening behaviour, and thus reduce the burden of colorectal cancer in Sri Lanka through early diagnosis and treatment.

Table 1 shows the demographic information of the respondents. The study sample included (56.6%) females and (43.4%) male participants. The majority of participants were within the 26–35 (27.0%) and 36-45 (26.8%) age groups. Additionally, Sri Lankan nationals accounted for 97.1% of the sample. In terms of marital status, a significant portion of the participants were single (67.8%), followed by those who were married (26.0%). Regarding educational attainment, the largest group had completed secondary education (40.3%), with subsequent groups holding a bachelor's degree (25.2%) and diploma qualifications (15.3%). The occupational status represented nearly half of the respondents (45.5%). While (12.7%) were students, and an equivalent percentage were self-employed. The analysis of monthly household income indicated that the largest group earned between LKR 50,001 and 100,000 (35.3%), followed by those earning LKR 25,000 to 50,000 (30.1%), and (24.4%) earned above LKR 100,000, reflecting a relatively diverse economic background. Geographically, the majority of participants resided in semi-urban areas (42.9%), followed by urban residents (35.1%) and rural residents (22.1%).

Awareness of Signs and Symptoms of Colorectal Cancer

Participants' awareness of signs and symptoms of colorectal Cancer is captured in Table 2. An average familiarity level with colorectal Cancer was shown, with (66.0%) of the participants indicating that they have heard about CRC before. Despite this knowledge, the degree of familiarity of respondents with the prevalence of CRC in Sri Lanka is low (35.8%), as only a small proportion of respondents seem to know adequately that it is a widespread illness locally. Awareness of important clinical symptoms is also evaluated, and only 60% reported blood in the stool, abdominal pain, fatigue, sudden weight loss and discomfort in the anal area. In comparison, the milder indicator of lack of bowel emptying is recognized by only 56.4% of the respondents. Such results justify the need for special tutorial educational programs on the community improvement of awareness and early diagnostics in Sri Lanka.

Risk Factors for Colorectal Cancer

Table 3 represents the respondents' perceptions of colorectal Cancer related to risk factors. The results showed general moderate to high awareness among the participants aged between 26 and 45 years. The key risk factors, such as diets low in fiber and fruits/vegetables, were reported as (69.4%) and (64.7%). However, regular consumption of red or processed meats (56.4%) and eating processed foods low in fiber (56.6%) were recorded. Medical conditions like long-term bowel diseases (65.2%) and diabetes (63.1%) are also widely recognized, along with behavioral factors like smoking (68.3%). However, awareness regarding alcohol consumption as a CRC risk is notably lower and divided, with just 36.1% acknowledging it, while nearly two-thirds either disagreed or were unsure. These findings reflected a substantial but incomplete understanding of CRC risk factors among Sri Lankans, consistent with local epidemiology in Sri Lanka.

Table 1. Demographics of Participants

Characteristic	Category	Frequency	Percent
Gender	Male	167	43.4
	Female	218	56.6
Age	18-25	59	15.3
	26-35	104	27.0
	36-45	103	26.8
	45-55	64	16.6
	56+	55	14.3
Nationality	Sri Lankan	374	97.1
	Others	11	2.9
Marital Status	Single	261	67.8
	Married	100	26.0
	Divorced	18	4.7
	Widowed	6	1.6
Highest Education Qualification	No formal education	15	3.9
	Primary	20	5.2
	Secondary	155	40.3
	Diploma	59	15.3
	Bachelor	97	25.2
	Post graduate	39	10.1
Occupational Status	Students	49	12.7
	Employed	175	45.5
	Self employed	49	12.7
	Unemployed	50	13.0
	Retired	62	16.1
Income Status	< LKR 25,000	39	10.1
	LKR 25,000–50,000	116	30.1
	LKR 50,001–100,000	136	35.3
	> LKR 100,000	94	24.4
Area of Residence	Urban	135	35.1
	Semi urban	165	42.9
	Rural	85	22.1
Do you have a first-degree relative with colorectal Cancer?	Yes	92	23.9
	No	293	76.1

Table 2: Knowledge of Colorectal Cancer Signs and Symptoms

Questions	Category	Frequency	Percent (%)
Have you ever heard of colorectal Cancer before?	Yes	254	66.0
	No	101	26.2
	Not Sure	30	7.8

Cont. Table 2

Questions	Category	Frequency	Percent (%)
Have you ever heard that colorectal Cancer is common in Sri Lanka?	Yes	138	35.8
	No	113	29.4
	Not Sure	134	34.8
Have you ever heard that the presence of blood in stool may be a sign of colorectal Cancer?	Yes	248	64.4
	No	95	24.7
	Not Sure	42	10.9
Have you ever heard that Persistent changes in bowel habits, such as constipation or diarrhea, may indicate colorectal Cancer?	Yes	238	61.8
	No	92	23.9
	Not Sure	55	14.3
Have you ever heard that Unexplained weight loss might be linked to colorectal Cancer?	Yes	252	65.5
	No	95	24.7
	Not Sure	38	9.9
Have you ever heard that Ongoing abdominal pain or cramping can be a symptom of colorectal Cancer?	Yes	239	62.1
	No	91	23.6
	Not Sure	55	14.3
Have you ever heard that fatigue or signs of anemia may suggest colorectal Cancer?	Yes	254	66.0
	No	94	24.4
	Not Sure	37	9.6
Have you ever heard that pain or discomfort around the anal region may be a sign of colorectal Cancer?	Yes	234	60.8
	No	100	26.0
	Not Sure	51	13.2
Have you ever heard that the sensation of incomplete bowel emptying after defecation may be related to colorectal Cancer?	Yes	217	56.4
	No	118	30.6
	Not Sure	50	13.0
Have you ever heard that the Detection of a lump or swelling in the abdominal area may be associated with colorectal Cancer?	Yes	232	60.3
	No	98	25.5
	Not Sure	55	14.3

Table 3: Risk Factors for Colorectal Cancer

Questions	Category	Frequency	Percent (%)
Do you think that the Regular intake of red or processed meat increases the risk of CRC cancer?	Yes	217	56.4
	No	97	25.2
	Not Sure	71	18.4
Do you think that eating fewer than five servings of fruits and vegetables per day increases the risk of colorectal Cancer?	Yes	249	64.7
	No	91	23.6
	Not Sure	45	11.7
Do you think eating a diet low in fiber (such as fruits, vegetables, and whole grains) increases the risk of colorectal Cancer?	Yes	267	69.4
	No	92	23.9
	Not Sure	26	6.8

Cont. Table 3

Questions	Category	Frequency	Percent (%)
Do you think eating a diet high in processed foods and low in fiber increases the risk of colorectal Cancer?	Yes	218	56.6
	No	90	23.4
	Not Sure	77	20.0
Do you think having long-term bowel conditions like ulcerative colitis or Crohn's disease increases the risk of colorectal Cancer?	Yes	251	65.2
	No	87	22.6
	Not Sure	47	12.2
Do you think having diabetes (high blood sugar) increases the risk of colorectal Cancer?	Yes	243	63.1
	No	105	27.3
	Not Sure	37	9.6
Do you think regularly drinking alcohol increases the risk of colorectal Cancer?	Yes	139	36.1
	No	125	32.5
	Not Sure	121	31.4
Do you think smoking cigarettes or using tobacco increases the risk of colorectal Cancer?	Yes	263	68.3
	No	95	24.7
	Not Sure	27	7.0

Table 4: Screening and Early Detection

Questions	Category	Frequency	Percent (%)
Have you ever heard about colorectal cancer screening tests?	Yes	238	61.8
	No	111	28.8
	Not Sure	36	9.4
Are you aware that a colonoscopy is a method used for colorectal cancer screening?	Yes	251	65.2
	No	102	26.5
	Not Sure	32	8.3
Are you familiar with sigmoidoscopy as a screening option for colorectal Cancer?	Yes	232	60.3
	No	103	26.8
	Not Sure	50	13.0
Do you know about the Fecal Occult Blood Test (FOBT) as a screening tool?	Yes	233	60.5
	No	98	25.5
	Not Sure	54	14.0
Do you think that people without symptoms should also be screened for colorectal Cancer?	Yes	234	60.8
	No	103	26.8
	Not Sure	48	12.5
Do you believe that early detection through screening can help improve treatment outcomes?	Yes	231	60.0
	No	117	30.4
	Not Sure	37	9.6

Awareness and Attitudes Toward Screening and Early Detection

Table 4 shows the awareness and attitude towards the CRC screening and early detection in a mixed pattern.

About 61.8% of the participants reported that they had heard about information regarding colorectal cancer screening tests, while 29% reported that they had not, and 9.4% were not sure, reflecting a high proportion with basic lack of awareness. Awareness regarding the specific screening tests differed slightly but remained at 60-65%, with 65.2% knowing colonoscopy is a screening option, 60.3% knowing sigmoidoscopy, and 60.5% knowing the Fecal Occult Blood Test (FOBT). However, 60.8% agreed that asymptomatic individuals should also be screened for CRC. Further, 60.0% believed that early detection through screening can significantly improve the prognosis

Table 5: Barriers

Questions	Category	Frequency	Percent (%)
I feel at risk of colorectal Cancer even if I don't have symptoms.	Yes	216	56.1
	No	112	29.1
	Not Sure	57	14.8
I am concerned about my risks even if I don't have a family history of Cancer	Yes	252	65.5
	No	102	26.5
	Not Sure	31	8.1
I have enough time for health screening despite a busy schedule.	Yes	268	69.6
	No	77	20.0
	Not Sure	40	10.4
I feel comfortable about receiving a potential cancer diagnosis	Yes	261	67.8
	No	95	24.7
	Not Sure	29	7.5
I am not embarrassed about participating in a screening	Yes	138	35.8
	No	124	32.2
	Not Sure	123	31.9
The screening center is easily accessible from where I live	Yes	221	57.4
	No	119	30.9
	Not Sure	45	11.7
I am comfortable that screening is truly effective in detecting Cancer easily	Yes	239	62.1
	No	103	26.8
	Not Sure	43	11.2
The screening procedure seems comfortable to me	Yes	249	64.7
	No	100	26.0
	Not Sure	36	9.4
I find the idea of undergoing a screening test reassuring	Yes	244	63.4
	No	102	26.5
	Not Sure	39	10.1
I regularly receive reminders or advice to undergo screening	Yes	228	59.2
	No	93	24.2
	Not Sure	64	16.6
I believe a healthy lifestyle can protect me from Cancer	Yes	243	63.1
	No	100	26.0
	Not Sure	42	10.9

of the treatment. These insights have shown some level of awareness related to early detection and screening. However, about one-quarter to one-third of the respondents disagreed or even reflected uncertainty regarding the key points, reflecting existing gaps in knowledge and beliefs regarding CRC screening.

Barriers to Early Screening for Colorectal Cancer

Table 5 shows several notable barriers that occurred in the early screening for colorectal Cancer. Notably, (56.1%) of the respondents feel themselves at risk of CRC even without symptoms due to the high prevalence rate of CRC in Sri Lanka. But, still a larger number (65.5%) are concerned about their risk without a family history of Cancer, reflecting widespread awareness of personal risk beyond patently obvious risk factors. For practicalities, the majority (69.6%) report having sufficient time for screening despite hectic lives, and (67.8%) would be comfortable receiving a possible cancer diagnosis. This attitude reflected a generally positive behavior towards monitoring and diagnosis for health. However, only 35.8% reported no embarrassment about screening, while 32.2% were not comfortable, and 31.9% were unsure about early screening, which showed strong psychosocial barriers in terms of stigma or discomfort. Additionally, the accessibility is moderately positive, with (57.4%) reporting that the screening centre is readily accessible from their residence, though almost (31%) disagree, citing organizational difficulties for a large minority. Confidence in the effectiveness of screening is moderately high, with (62.1%) reporting that screening can efficiently diagnose Cancer, and (64.7%) would find the process of screening comfortable, which is consistent with (63.4%) who would find the notion of screening reassuring. Furthermore, (59.2%) reported receiving regular reminders or advice to screen regularly, though (24.2%) did not, reflecting communication or outreach gaps. In addition, the majority (63.1%) reported that a healthy lifestyle can prevent Cancer.

Correlation Analysis

Table 6 presents the Pearson correlation results. Significant positive correlations were observed between awareness of symptoms and awareness of risk factors ($r = 0.485$, $p < 0.001$), awareness of symptoms and knowledge of screening procedures ($r = 0.513$), and awareness of symptoms and perceived barriers ($r = 0.422$). Likewise, awareness of risk factors indicated a strong positive correlation with knowledge of screening procedures ($r = 0.740$) and perceived barriers ($r = 0.856$), indicating a strong association between the understanding of risk, available screening procedures, and the identification of barriers and challenges. Additionally, knowledge of screening procedures was positively correlated with perceived barriers ($r = 0.777$).

Table 6: Correlation

Correlations					
		Symptoms	Risks	Screening	Barriers
Symptoms	Pearson Correlation	1	.485**	.513**	.422**
	Sig. (2-tailed)		.000	.000	.000
	N	385	385	385	385
Risks	Pearson Correlation	.485**	1	.740**	.856**
	Sig. (2-tailed)	.000		.000	.000
	N	385	385	385	385
Screening	Pearson Correlation	.513**	.740**	1	.777**
	Sig. (2-tailed)	.000	.000		.000
	N	385	385	385	385
Barriers	Pearson Correlation	.422**	.856**	.777**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	385	385	385	385
**. Correlation is significant at the 0.01 level (2-tailed).					

Discussion

This study represents one of the earliest investigations to systematically assess the awareness, prevalence, and symptomatology of colorectal Cancer within the general Sri Lankan population aged 18 to over 56 years. These demographics were historically underrepresented in the Sri Lankan context of research despite the region's reported high incidence trends and burden of CRC over the past decades. Through the use of a structured 37-item questionnaire, the research examined the awareness levels, risk factors, attitudes, and behaviors towards screening and perceived barriers of colorectal Cancer.

The result of the frequency distribution analysis showed that participants aged between 25 and 46 years old exhibited higher understanding about signs and symptoms and risk factors of CRC than young adults. Wijeratne et al. (2022) conducted a study in which the majority of the participants were between the ages of 60 and 69 years because Sri Lanka has the fastest growing rate of colorectal Cancer among the elderly population, which also highlighted the need to increase the treatment services (Wijeratne et al., 2022).

Chandrasinghe et al. conducted a study in which a total of 723 patients were treated at the University Surgical Unit in North Colombo during the time period between 1995 and 2020 (Chandrasinghe et al., 2022).

Moreover, the incidence trends of CRC increase with age, and the majority of the cases were diagnosed between 50 and 70 years old (Kariyawasam et al., 2022). Chandrasinghe et al. showed that 679 patients with colorectal Cancer were included over an 18-year period, resulting in 21–24% patients being diagnosed at age 50 or younger. The present study also observed no notable link between the significant variation that occurred in the prevalence rate of CRC and gender. Although the prevalence rate of CRC in Sri Lanka has shifted due to changes in epidemiological patterns, it is also affected by the fast-changing socioeconomic demographic parameters (Chandrasinghe et al., 2017). However, in the broader Sri Lankan context, challenges such as limited screening programs, poor health literacy, and healthcare access disparities, especially in rural areas, affect early diagnosis and awareness across all ages (Wijeratne et al., 2022).

Awareness of risk factors showed moderate to high awareness among participants aged 25 to 46 years, who were more aware of the risk factors that caused CRC. Several risk factors, such as diets low in fiber and fruits/vegetables (69.4%) and (64.7%), regular consumption of red or processed meats (56.4%), eating processed foods low in fiber (56.6%), long -term bowel diseases (65.2%), diabetes (63.1%) were widely recognized, along with behavioral factors like smoking (68.3%). These findings showed a notable relation to the findings of research conducted in Sri lanka. The study results highlight that a significant number of the adult population are well educated about the prevalence of CRC as compared to the young (18-25 years) and elderly population (46-56+).

Attitude and behavioural perceptions were assessed by inquiring about the knowledge and importance of early detection and screening of CRC through different treatment procedures. Upon investigation, only 61.8% of the participants reported that they had heard about information regarding CRC screening tests. According to Bretthauer, the early detection of colorectal Cancer is associated with better survival rates (Bretthauer, 2011). While 29% were unaware of the screening procedures, and 9.4% were not sure. These results reflected a high proportion with a lack of basic awareness and knowledge among the general population of Sri Lanka regarding the top third most prevalent Cancer in the region. This indicated that the prior screening, detection, and treatment of CRC offered a better survival at an early stage (Bretthauer, 2011).

Correlation analysis revealed that there was a positive and significant relationship between awareness of symptoms and risk factors, also, there is a gap between the awareness of early screening detection and perceived challenges and barriers faced by the general population. This indicated that individuals who have more knowledge of symptoms are more likely to be well-informed about risk factors, screening procedures, and barriers. Therefore, the enhanced knowledge is associated with an enhanced identification of potential screening and prevention barriers of CRC.

Compared to the previous studies conducted in a similar region, this study provides a major gain in the knowledge of awareness of CRC among the general population of Sri Lanka. Samarakoon et al. conducted a case-control study and discussed the factors that determined the behavioural, familial, and comorbid illness risk factors of colorectal cancer CRC among adults in Sri Lanka. In contrast, the study included the cases of CRC that were histologically confirmed (diagnosed within six months of the study), aged > 30 years. Similar results have found that smoking, alcohol consumption, and obesity are considered major behavioral risk factors that also cause many other gastrointestinal diseases (Samarakoon et al., 2018). Overall, the findings

reflected that people showed moderate to high awareness and willingness to undergo colorectal cancer screening and prevention.

The lack of knowledge and information about the advanced screening technologies, such as colonoscopy or flexible sigmoidoscopy, among the population is largely due to the unavailability and lack of accessibility to the general population. Additionally, the absence of trained healthcare professionals, technologists, and caregivers reflects deficiencies in both the screening infrastructure and provider training (Abdelmaksoud Abdelmonsef Ahmed et al., 2025).

Conclusion

This study revealed significant findings by establishing the understanding and level of awareness regarding several determinants responsible for the high prevalence of CRC in Sri Lanka. The results showed that there were significant differences in awareness and understanding between adults, young adults, and the elderly population of Sri Lanka. They had better and updated information regarding the high prevalence of CRC in Sri Lanka and it associated factors such as dietary habits, lifestyle, and genetics. Also, the study respondents showed a greater identification of key risk factors, such as the early signs of the disease and the importance of early detection and screening. The knowledge enabled them to identify barriers to screening and had a better-educated and proactive attitude towards the prevention of CRC in upcoming time period.

Strengths and Limitations

The results added significant value to the knowledge base in the context of Sri Lanka. While further highlighting the need for future research in a similar Sri Lankan region is recommended. This study presented a comprehensive review of the general population of Sri Lanka regarding their knowledge, attitudes, and perceived barriers to CRC, which offers baseline data for future investigations. The limitations were due to the utilization of self-reported survey-based research that may be subject to recall bias and lack reliability. In addition, the study only focused on the knowledge and awareness-based perceptions of CRC of the general population of Sri Lanka, neglecting other genetic predispositions that contribute to the higher-than-expected CRC incidence among younger Sri Lankans.

Future Recommendations

Future studies need to move beyond cross-sectional research designs to longitudinal or mixed-method approaches for thorough data collection from the general Sri Lankan population regarding the high prevalence rate of CRC. It is also recommended that factors like genetic and hereditary factors, comorbid conditions, and other environmental and epidemiological factors be critically evaluated. Furthermore, it is imperative that governmental bodies and relevant stakeholders prioritize the formulation and enforcement of comprehensive policies and standardized protocols to enhance the implementation of effective CRC prevention and safety measures.

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