



# Colorectal Cancer Knowledge and Awareness Among University Students in a Caribbean Territory: a Cross-sectional Study

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## Abstract

**Introduction** The burden of colorectal cancer (CRC) has been on the rise globally over the last decade. Several studies point to the fact that there is a lack of knowledge and awareness for CRC which may be attributed to the increase in the burden over time. Therefore, we aimed to assess the level and predictors for knowledge of CRC and its risk factors.

**Methods** This study was a cross-sectional study conducted on the student population of the University of the West Indies, St. Augustine Campus, Trinidad. We assessed CRC knowledge using scales examining their level of knowledge for CRC and its risk factors. Lifestyle behaviors (smoking, physical activity, dietary behaviors, and alcohol consumption) and perceived risk for developing CRC were also collected using a standard survey. Predictors for CRC knowledge were assessed using forward stepwise linear and logistic regression models.

**Results** The overall CRC knowledge was 54.740% ± 19.721%. Poor knowledge levels were seen among 36.23% while satisfactory/good knowledge was seen among 63.77%. Predictors of poor CRC knowledge were males (OR = 1.559;  $p = 0.003$ ), frequent/excessive alcoholic drinkers (OR = 1.924;  $p = 0.029$ ), and low physical activity (OR = 1.331;  $p = 0.042$ ). Predictors of satisfactory/good CRC knowledge were those with higher scores for the prudent dietary pattern (OR = 0.893;  $p = 0.016$ ), and compared with those who reported no risk, participants reporting low risk had an increased likelihood of obtaining good CRC knowledge scores (OR = 0.526;  $p < 0.001$ ) and high risk (0.310;  $p < 0.001$ ).

**Conclusion** The level of awareness/knowledge on CRC and its risk factors is low. Improvement of CRC awareness and healthy lifestyle campaigns among young adults is needed for the Caribbean region.

**Keywords** Colorectal cancer · Risk factors · Knowledge · Caribbean · University students

## Introduction

The global incidence of colorectal cancer has been estimated to increase twofold by the year 2025 [1–3]. Currently, in the Caribbean, colorectal cancer (CRC) remains the third most common type of cancer among both men and women [1, 4]. It was reported specifically in the country of Trinidad and Tobago that CRC remains as the most prevalent and incidental cancer among both genders. A report from the Trinidad and Tobago Cancer Registry reported that the incidence rate for colon cancer among the country's population was 10.3 per 100,000 [5]. As a result of this rising burden, preventive strategies are paramount in reducing the number of new cases in

Trinidad and Tobago and the wider world. Such strategies include reducing the prevalence and incidence of risk factors associated with the disease. The World Cancer Research Fund (WCRF) has identified the following risk factors: genetic predisposition; diabetes; increasing age (non-modifiable) and diets low in fruits and vegetables and high in red meat, processed meat, and fat; body fatness; physical inactivity; smoking; and excessive alcohol intake (modifiable) [6]. There has been substantial evidence linking these behaviors to the rise of the incidence of the disease [7]. However, there has still yet to be any distinction on how these factors single or combined result in the development of the disease.

Studies have shown that individuals with limited/low levels of health literacy have lower knowledge levels of CRC [8]. Research conducted in several Western and Asian populations have found that there was poor awareness and knowledge of risk factors as it related to colon/bowel/rectum cancer among adults in the general population which have been suggested to lead to reduced or poorer uptake of CRC screening tests in the

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future [9–11]. The use of public campaigns in these populations to increase this deficit has yielded promising results but has not had a significant impact on the overall cancer knowledge of the general population [12].

Generally, awareness and knowledge of colorectal cancer and its risk factors in the Caribbean specifically in Trinidad and Tobago remain relatively poor. Cancer societies throughout the Caribbean region have mainly focused their public awareness campaigns on sex-specific cancers such as breast, cervical, and prostate cancer. As a result of the significant rises in the incidence of this CRC globally and in the Caribbean region, it is essentially important to sensitize the general population of the burden of the disease and its risk factors. Furthermore, the knowledge level of these risk factors is of utmost importance because exposure to such information can assist in reducing the prevalence and incidence of the modifiable risk factors. Little is known about the knowledge and awareness level of CRC among university students in the Caribbean. Although university students are relatively young in age, this population may be amenable to unhealthy risk behaviors for the future with the implementation of effective health awareness campaigns. Therefore, the main purpose of this study was to assess the level and predictors of awareness and knowledge among university students residing in the Caribbean island of Trinidad and Tobago.

## Methods

### Research Design and Procedure

This study employed a cross-sectional design using a non-probability convenience sample of 1100 students including both undergraduate and postgraduate students attending the University of the West Indies, St. Augustine Campus, Trinidad. The purpose of the study was explained to each of the participants, and only those students who gave oral and written consent were enrolled in this study. CRC screening is not offered at the university level; therefore, prior knowledge of CRC based on screening behavior should not confound knowledge of CRC among study participants. Overall, there was a response rate of 96%.

The university encompasses seven faculties which were Food and Agriculture, Science and Technology, Social Sciences, Engineering, Medical Sciences, Law and Humanities, and Education. Students from all faculties were sourced and invited to participate in the study. Prior to data collection, verbal consent was sought from each study participant. Following this, a structured paper-based survey was administered. The study protocol was granted ethical approval by the ethics review board of the Faculty of Medical Sciences, The University of the West Indies, St. Augustine, Trinidad.

### Research Instrument

The survey was developed to assess knowledge of CRC and lifestyle behaviors associated with an increased risk for CRC. The survey was pretested prior to administration into the field; after such, it was amended based on feedback obtained. The survey consisted of three sections: (1) demographics, (2) lifestyle CRC risk factor assessment, and (3) knowledge of CRC and its risk factors.

1. **Demographics:** The survey collected information relating to the participant's gender, age, ethnicity, knowledge of someone who had/has CRC, and student status level. Additionally, family history of cancer was included in this section with participants being asked, "Does anyone in your family have/had any of the following types of cancers?" Options which were provided were breast, prostate, colon, cervical, and lung cancer.
2. **Lifestyle CRC risk factor assessment:** Risk assessment took the form of two sections. The first section sought to obtain information on the regularity of smoking, exposure to secondhand smoke, alcohol consumption, and physical activity levels. The second section took the form of a food frequency questionnaire adapted from a modified version of the "Block Questionnaire" including culturally relevant food items for university students in Trinidad [13, 14]. Usual portion sizes for each food item were assessed using the following options: "1 serving," "2–3 servings," and "≥ 4 servings." This was used to collect dietary data on fruits, vegetables, fiber, fat, garlic and onion, red meat, processed meat, fried hot appetizers, dairy products, and French fries consumption.
3. **Knowledge of CRC and its risk factors:** CRC knowledge was based on the responses given to three questions. Each response was given a requisite score which was tallied to determine CRC knowledge. The first question stated, "How much do you know about colorectal cancer?" A response of fair amount was given a score of 2; a little, a score of 1; and none, a score of 0. The second question asked was "Which group of individuals do you think is at greatest risk for developing colorectal cancer?" Only a correct response of both males and females was given a score of 1; all other responses were given a score of 0. The question was in the form of a statement which said, "Vegetarians are at a lesser risk than non-vegetarian individuals of developing colorectal cancer." Only the correct response of disagreeing was given a score of 1 while all other responses were given a score of 0. In determining the level of knowledge for risk factors associated with CRC, 14 risk factors were given using a Likert scale of "strongly disagree," "disagree," "undecided," "agree," and "strongly agree." Responses to agree or strongly agree were given a score of 1. The internal consistency

of this scale was assessed during preliminary analysis and was found to have a good internal consistency (Cronbach's alpha = 0.8367). An overall knowledge and awareness score was computed by summing all score from all questions in the section, following which, a percentage of the overall score was computed for improved interpretability.

## Statistical Analysis

Data from participants' responses were encoded and analyzed using STATA 13.1 (StataCorp, College Station, TX). The internal consistency for the CRC knowledge scale was assessed using Cronbach's alpha statistics. Normality for continuous data was assessed using Shapiro-Wilk's tests which found the data to be not normally distributed; therefore, non-parametric analysis was used to test for differences and associations. Descriptive analysis was used to describe continuous variables using means (standard deviations) and categorical variables using percentages. The Mann-Whitney *U* and chi-square tests were used to identify significant differences among gender groups. Dietary patterns were assessed using principal component analysis (PCA). This technique is a common data reduction technique which aggregates intakes of food items into components which represent broad dietary patterns. Orthogonal transformation using varimax rotation was used for greater interpretability of components. Components with eigenvalues > 1.5, component variance of > 5.0%, and component interpretability were retained. Factor loadings of > 0.3 were used to describe components. Three dietary patterns were identified after PCA which were Western (intakes high in fried foods, meats, and sweet items), prudent (intakes high in fruits and vegetables), and dairy (intakes high in dairy items) patterns. High component scores were representative of greater adherence to the dietary pattern. Knowledge scores were converted to percentage scores by taking the knowledge score obtained divided by the total knowledge score multiplied by 100. Percentages of knowledge scores were dichotomized into two categories: poor knowledge (< 50% percentage knowledge score) and knowledgeable ( $\geq$  50% percentage knowledge score); these were known as the CRC knowledge categories. Forward stepwise multiple linear regression and logistic regression models were constructed with CRC knowledge as the outcome variable, adjusting for potential predictors and confounders (socio-demographics, family history of cancer, lifestyle behaviors, and perception of risk for developing CRC). Predictors with a *p* value of < 0.200 were added to the final model. Additionally, sex-specific interaction and collinearity were assessed for all regression analyses. A two-sided *p* value of < 0.05 was regarded as statistically significant for all analyses.

## Results

A total of 1056 students participated in the study with a greater majority of female students (69.79%) taking part as opposed to their male counterparts (30.21%). The socio-demographic and lifestyle characteristics of the study population by sex are shown in Table 1. Statistically, significant sex differences were observed for the level of study ( $p = 0.006$ ), smoking status ( $p < 0.001$ ), physical activity level ( $p < 0.001$ ), red meat intake ( $p < 0.001$ ), processed meat intake ( $p = 0.047$ ), and fat intake ( $p = 0.035$ ). Furthermore, participants were asked to rate their perceived risk for developing CRC which yielded 17.57% indicating no risk, 72.49% indicating low risk, and 9.93% indicating a high risk for developing the disease. However, no significant associations or differences were observed with the perceived risk of developing CRC and sex.

The assessment participants' CRC knowledge of the disease and its risk factors is presented in Table 2. Overall, for the knowledge specific to CRC, 24.62% correctly answered the question "How much do you know about colon or rectal cancer?"; 55.85% correctly answered the question "Which group of individuals do you think is at highest risk of developing colorectal cancer?"; and 22.10% correctly answered the question "Vegetarians are at a lesser risk than non-vegetarian individuals of developing colorectal cancer." On the other hand, 78% of the study population had some level of awareness of CRC. In particular, for the risk factors for CRC, family history of colon cancer (74.88%), frequent low fiber intake (69.50%), low vegetable intake (69.05%), low fruit intake (68.74%), and frequent high dietary fat intake (67.69%) of participants either agreed or strongly agreed that these were risk factors for CRC. Furthermore, the overall knowledge score was found to be  $10.4007 \pm 3.747$ , which translated to an average percentage knowledge score of  $54.740\% \pm 19.721\%$ . Poor knowledge was seen among 36.23% while satisfactory/good knowledge was seen among 63.77%.

The multiple linear regression models of the predictors of percentage knowledge scores for CRC are seen in Table 3. The final model after the forward stepwise regression saw the addition of the predictor sex, prudent dietary pattern scores, physical activity status, alcohol intake, smoking status, and perceived risk for developing CRC. This model was statistically significant ( $p < 0.001$ ), with adjusted  $R^2 = 6.64\%$  and root mean squared error = 19.074. Statistically significant predictors were males ( $\beta = -4.5624$ ;  $p = 0.001$ ) and low physical activity levels ( $\beta = -3.274$ ;  $p = 0.008$ ). Additionally, higher prudent dietary scores were seen to increase CRC knowledge scores ( $\beta = 1.286$ ;  $p < 0.001$ ). For perception of CRC risk compared with those who reported no risk, participants reporting low risk had higher scores ( $\beta = 8.205$ ;  $p < 0.001$ ) and high risk ( $\beta = 12.952$ ;  $p < 0.001$ ). The multiple logistic regression model of the predictors for poor CRC knowledge after the forward stepwise approach can be seen in Table 4.

**Table 1** Socio-demographic and lifestyle characteristics of the study population

Characteristics		Gender (%)		<i>p</i> value
		Female <i>n</i> = 737	Male <i>n</i> = 319	
Age groups	< 24 years	86.02	87.15	0.070
	25–40 years	11.13	12.23	
	> 40 years	2.85	0.63	
Ethnicity groups	Indo-Trinidadian	45.59	48.28	0.226
	Afro-Trinidadian	23.61	18.81	
	Mixed	30.80	32.92	
Level of study	Undergraduate	95.79	99.06	0.006**
	Postgraduate	4.21	0.94	
Smoking	Non-smoker	90.50	77.04	< 0.001***
	Smoker	9.50	22.96	
Alcohol intake	Non/occasional drinker	95.52	93.10	0.105
	Frequent/excessive drinker	4.48	6.90	
Physical activity	Less than 3 days of activity per week	33.80	50.20	< 0.001***
	More than 3 days of activity per week	66.20	49.80	
Fruit intake	> 2 more daily servings	20.90	24.14	0.242
	< 2 more daily servings	79.10	75.86	
Vegetable intake	> 3 more daily servings	8.82	7.21	0.385
	< 3 more daily servings	91.18	92.79	
Fiber intake	Low risk	5.16	3.13	0.148
	High risk	94.84	96.87	
Red meat intake	Low risk	88.47	79.00	< 0.001***
	High risk	11.53	21.00	
Processed meat intake	Low risk	65.94	59.56	0.047*
	High risk	34.06	40.44	
Fat intake	Low risk	34.19	27.59	0.035*
	High risk	65.81	72.41	

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

This model was statistically significant ( $p < 0.001$ ), with pseudo  $R^2 = 4.51\%$ . Predictors of poor CRC knowledge were males (OR = 1.559;  $p = 0.003$ ), frequent/excessive alcoholic drinkers (OR = 1.924;  $p = 0.029$ ), and low physical activity (OR = 1.331;  $p = 0.042$ ). Predictors of satisfactory/good CRC knowledge were those with higher scores for the prudent dietary pattern (OR = 0.893;  $p = 0.016$ ), and compared with those who reported no risk, participants reporting low risk had an increased likelihood of obtaining good CRC knowledge scores (OR = 0.526;  $p = < 0.001$ ) and high risk (OR = 0.310;  $p = < 0.001$ ).

## Discussion

There is a great need and understanding for CRC and its risk factors among the general population. This will help shape and improve public health policy by implementing actions which target prevention, early diagnosis, and treatments for improved survival of the disease. There has been little to no published data discussing CRC awareness or knowledge in

afro/multiethnic Caribbean populations in particular in the Caribbean region.

The present study aimed at assessing the knowledge level of CRC and its risk factors among a Caribbean university student population. The results obtained showed that there is a great lack of awareness and knowledge of CRC and its risk factors (36.23%). However, our study showed an improved knowledge level as compared with studies conducted in the United Arab Emirates which reported a poor knowledge level of 59.4% and in Malaysia which reported a poor knowledge level of 38% [9, 10]. On the other hand, our study had a slightly higher poor knowledge level as compared with the findings of Mhaidat and colleagues who reported a level of 36.1% [15].

Over 78% of the participants perceived themselves to have some knowledge of colorectal cancer. The question asked was “Which group do you think is at highest risk for developing colorectal cancer?” Only 55% of the population gave the correct response which was “Both Males and Females.” These findings indicate that more than half of the study population knew which group was at greatest risk; this differed slightly from the qualitative findings found by Beeker et al. which

**Table 2** Colorectal cancer and risk factor knowledge assessment

Questions	Correct %				
How much do you know about colon or rectal cancer?	24.62%				
Which group of individuals do you think is at highest risk of developing colorectal cancer?	55.85%				
"Vegetarians are at a lesser risk than non-vegetarian individuals of developing colorectal cancer"	22.10%				
Risk Factors	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Family history of colon cancer	2.76%	7.33%	15.03%	54.61%	20.27%
Not being physically active	2.00%	11.13%	26.93%	49.86%	10.09%
Diabetes	2.87%	15.50%	47.37%	29.38%	4.88%
Frequent alcohol intake	2.10%	9.71%	29.52%	48.57%	10.10%
Frequent high fat intake	1.63%	6.12%	24.57%	51.72%	15.97%
Increasing age	2.01%	9.18%	23.52%	52.96%	12.33%
Frequent low fiber intake	0.95%	4.67%	24.88%	45.57%	23.93%
Being overweight	1.52%	6.95%	26.93%	47.10%	17.51%
Smoking	1.52%	9.52%	28.00%	43.05%	17.90%
High frequent intake of red meat	1.14%	7.99%	36.25%	36.16%	18.46%
High frequent intake of processed meat	0.95%	5.61%	32.60%	42.59%	18.25%
Low vegetable intake (≤ 2 servings)	1.71%	5.90%	23.33%	48.00%	21.05%
Low fruit intake (≤ 2 servings)	1.62%	7.05%	22.59%	48.24%	20.50%
Frequent high levels of stress	1.62%	10.08%	37.07%	34.22%	17.02%
Knowledge Scores Characteristics					
Overall Score <sup>a</sup>	10.4007 ± 3.747				
Percentage Score <sup>a</sup>	54.740 ± 19.721				
Percentage Score Category					
<50%	36.23%				
≥ 50%	63.77%				

How much do you know about colon or rectal cancer?—Correct answer [Very much]

Which group of individuals do you think is at highest risk of developing colorectal cancer?—Correct answer [Both male and female]

"Vegetarians are at a lesser risk than non-vegetarian individuals of developing colorectal cancer"—Correct answer [Disagree]

<sup>a</sup> Means ± standard deviation

indicated that the majority of respondents were uncertain to which gender was at greatest risk [16]. However, as compared with the findings of Tseng and colleagues, 93.5% of the population were aware that both men and women were at risk for colorectal cancer [17]. This type of cancer affects both men and women equally as supported from research studies conducted in developed study settings [3, 4, 18]. For the statement "Vegetarians are at lower risk of developing colorectal cancer than non-vegetarians," 22.4% of the population gave the correct response which was "Disagree," which was supported by the findings of Key and colleagues [19]. However, the majority of participants were unsure whether this statement was true or false.

There were a total of 14 risk factors which were all associated with the development of colorectal cancer. Over 74% of

the sample population agreed that a family history of colorectal cancer leads to the development of the disease. These findings were consistent with the findings of Cullinen and colleagues where subjects cited a family history of colorectal cancer as the main contributing factor to the development of the disease [20]. Additionally, the research conducted by Agho and colleagues found that 86% of the population identified a family history of colorectal cancer as one of the main risk factors for developing colorectal cancer. Among the modifiable risk factors, low fiber intake was the highest reported risk factor which respondents felt increases one's risk [21]. This was followed by high processed meat intake, low vegetable intake, high fat intake, increasing age, frequent high levels of stress, high red meat intake, physical inactivity, frequent alcohol consumption, chronic smoking, and low fruit

**Table 3** Multivariable linear regression model of predictors of percentage CRC knowledge scores among the study population

Characteristics	$\beta$	95% CI ( $\beta$ )	<i>p</i> value
Gender			
Female	Reference		
Male	-4.562	(-7.292, -1.833)	0.001**
Perception of developing CRC			
No risk	Reference		
Low risk	8.205	(4.647, 11.764)	<0.001***
High risk	12.952	(8.047, 17.857)	<0.001***
Alcohol intake			
Non/occasional drinker	Reference		
Frequent/excessive drinker	-5.382	(-11.148, 0.384)	0.067
Physical activity level			
More than 3 days of activity per week	Reference		
Less than 3 days of activity per week	-3.274	(-5.684, -0.863)	0.008**
Smoking status			
Non-smoker	Reference		
Smoker	-2.778	(-6.303, 0.748)	0.122
Prudent dietary pattern score	1.286	(0.592, 1.979)	<0.001***

\**p* < 0.05; \*\**p* < 0.01; \*\*\**p* < 0.001

CI confidence interval, CRC colorectal cancer

intake (68.3%, 67.9%, 67.1%, 64.2%, 63.6%, 60.3%, 59.5%, 58.5%, 54.5%, and 50.8% respectively). The least agreed risk factor was that of diabetes where only 33.9% of the population were able to correctly identify this risk factor. These findings

were vastly different from the finding of Robb et al. where the majority of respondents identified smoking and physical inactivity as the main risk factors for the development of colorectal cancer [12]. However, these results were similar to that found

**Table 4** Multivariable logistic regression model of predictors of poor CRC knowledge among the study population

Characteristics	OR	95% CI (OR)	<i>p</i> value
Gender			
Female	Reference		
Male	1.559	1.166, 2.085	0.003**
Prudent dietary pattern score	0.893	0.814, 0.979	0.016*
Dairy dietary pattern score	0.920	0.847, 1.000	0.050
Alcohol intake			
Non/occasional drinker	Reference		
Frequent/excessive drinker	1.924	1.069, 3.465	0.029*
Physical activity level			
More than 3 days of activity per week	Reference		
Less than 3 days of activity per week	1.331	1.010, 1.755	0.042*
Smoking status			
Non-smoker	Reference		
Smoker	1.329	0.911, 1.937	0.140
Perception of developing CRC			
No risk	Reference		
Low risk	0.526	0.375, 0.738	<0.001***
High risk	0.310	0.179, 0.535	<0.001***

\**p* < 0.05; \*\**p* < 0.01; \*\*\**p* < 0.001

CI confidence interval, CRC colorectal cancer, OR odds ratio

in diverse populations, whereby participants identified smoking and diet as the main risk factors for colorectal cancer; the top four modifiable risk factors identified by participants in this present study were all diet related [22, 23]. The findings of Sessa and colleagues differed from the current study where physical inactivity and high-fat diets were identified as the main contributing risk factors for the development colorectal cancer as opposed to the current study which identified family history and low fiber diets as the main factors students believed were the main risk factors of colorectal cancer [24].

In the present study, the overall colorectal cancer knowledge level of the study population was found to be generally poor as depicted from the percentage mean knowledge score of 54%. This may have resulted due to the fact that there are not much awareness programs and educational material focusing on colorectal cancer and its risk factors which are implemented at a tertiary education level in the Caribbean. Although Wardle and colleagues used a different method for computing a knowledge score for bowel cancer, only five of the risk factors were used in this study. The present study observed a greater knowledge study to that previously mentioned [25]. Additionally, females were seen to have a greater knowledge level for CRC and its risk factors compared with males which was similar to studies examining similar phenomena which found that females were able to identify more risk factors than males [25]. On the other hand, the findings from this study were different from the findings from Akhtar and colleagues which found that there were no gender differences with respect to the knowledge of the risk factors for colorectal cancer [22].

Our findings suggest the main predictors for poor knowledge could be attributed to engaging in unhealthy lifestyles such as frequent/excessive alcohol consumption, low physical activity levels, and being of the male gender as compared with their female counterparts. Furthermore, substantial knowledge of CRC and its risk factors was seen among participants who engaged in the prudent dietary lifestyle and perceived some level of risk for developing CRC in the future. These findings were consistent with the findings found by Al-Sharbatti and colleagues who sought to assess knowledge regarding CRC and to identify predictors among adults in the United Arab Emirates. The findings suggested that being male and having lower educational levels were predictive of poor knowledge scores as these pertained to CRC and its risk factors [9]. Similarly, the findings were found in a survey conducted by Power and colleagues where females were seen to have significantly higher knowledge levels of signs and symptoms for CRC as compared with males [26]. These findings suggest the need for cancer-specific educational tools to increase awareness about CRC by creating messages targeting males to improve their knowledge on the risk factors and by debunking any fallacies related to the disease. Age was not included in the final model as it was not a significant predictor as was seen

from our univariate models which was also seen in a study by Khayyat and Ibrahim who found that age was also not a significant predictor for CRC knowledge [27].

There are several strengths to our study. This has been the first study to report on CRC awareness and knowledge in Trinidad and Tobago that comprises a multiethnic population, unique to the Caribbean region. Additionally, this area of research has been understudied in the Caribbean and in low-income settings. However, knowledge among breast and prostate cancer in other Caribbean territories has been reported to be low to moderate [28–30]. This may be a result due to the high investment and popularity of breast and prostate cancer marketing campaigns in the region. The present study is not without its limitations. The survey tool used was not a standardized questionnaire; thereby, international comparison of our findings using different survey tools may pose some level of difficulty. Secondly, the study population was that of the university student population; although this may pose as a young adult population, the education level is higher to that of the general adult population; therefore, the poor knowledge level for CRC may be higher for the entirety of the population as a whole. Therefore, the results obtained should be interpreted with some level of caution. The use of non-probability sampling hindered giving each participant from the target population an equal chance of being selected for the study; hence, this was evidence of a selection bias.

## Conclusion

The level of awareness and knowledge on CRC and its risk factors is low with which being male and engaging in unhealthy lifestyle behaviors are predictors for poor CRC knowledge. There is a need to improve CRC awareness and healthy lifestyle campaigns among young adults especially those not attending tertiary education institutes. It is important to encourage health professionals to disseminate healthy lifestyle and cancer prevention knowledge effectively and appropriately to the general population. Additional studies are needed for other types of cancer in the Caribbean region targeting the general adult population. This helps add more evidence which will help facilitate a better understanding of the level of CRC and cancer awareness within the region.

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**Compliance with Ethical Standards** The study protocol was approved by the Ethics Committee of the University of the West Indies, St. Augustine Campus, Trinidad.

**Conflict of Interest** The authors declare that they have no conflict of interest.

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