

# Awareness and Risk Factors of Colorectal POLYPS of Selected Adults in Imo State Nigeria

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## ABSTRACT

### Background

One of the greatest health issues in the world is colorectal cancer. It was formerly believed that this illness only affected residents of industrialized nations; however, recent research has shown a growing prevalence in underdeveloped nations. The majority of individuals in Nigeria report their cases at a stage when curative resection is not feasible; hence, increasing understanding and awareness of early symptoms as well as early detection techniques and screening tools have been highlighted as crucial for greater success.

### Aim

This study elucidated the awareness, knowledge, and risk factors of colorectal POLYPS among studied adults aged 40–65 years of age in Imo State, Nigeria.

### Methods

The sample of the study comprised a thousand (1000) adults drawn through a multistage sampling selection method and included urban and rural dwellers in selected communities in Imo State, Nigeria. A pre-tested, semi-structured questionnaire was the main instrument of data collection for awareness, knowledge, and risk factors for colorectal POLYPS. Statistical Package for Social Sciences (SPSS) Version 17 was used for analysis.

### Results

Findings showed that more than half of the respondents (62.5%) were aware of colorectal POLYPS; however, factors such as lack of funds (34.8%), inaccessibility to screening services (24.0%), absence of screening facilities (24.5%), and passive behavior towards screening service providers (31.8%) in healthcare centers affected regular screening among participants. Respondents possessed good knowledge of colorectal POLYPS, although there is a need for thorough sensitization on the risk factors of colorectal POLYPS, especially lifestyle behaviors. People who smoked more cigarettes per day were found to be more likely to develop colorectal POLYPS (AHR 1.878; 95% CI 1.018–3.463;  $P = 0.044$ ) than those who smoked less (AHR 1.811; 95% CI 1.003–3.270;  $P = 0.049$ ). The study found that subjects with both smoking and drinking habits had a significantly higher risk for colorectal POLYPS (AHR 2.073; 95% CI 1.196–3.593;  $P = 0.009$ ) than non-smokers and those who drank fewer alcoholic drinks.

### Conclusion

Relevant educational and screening interventions are required to promote early detection and management of colorectal POLYPS among adults in Imo State, Nigeria.

**Keywords:** colorectal carcinoma, screening, knowledge, risk factors, adults, Nigeria

## INTRODUCTION

Colorectal POLYPS are the major cause of colon cancer morbidity and mortality throughout the world (IARC 2002). Undetected colorectal POLYPS constitute a major public health concern globally, with an estimated 1.2 million new cases, almost 8% becoming malignant, and over 630,000 deaths per year (CDC, 2019). Throughout the world, there has been growing evidence that, not only is the incidence of colorectal POLYPS changing, but distribution patterns also seem to be changing (Kamangar *et al.*, 2006; Jemal *et al.*, 2011; Singh *et al.*, 2010). Statistics in Sub-Saharan Africa show that colorectal POLYPS, which are malignant, have become a major source of morbidity and mortality (Kamangar *et al.*, 2006). Recent studies showed that the incidence of malignant colorectal POLYPS is increasing in sub-Saharan Africa, especially in urban centers (Jemal *et al.*, 2020; Ries *et al.*, 2018; Ferlay *et al.*, 2010).

Nigeria and Ghana are perfect examples of how colorectal cancer in West Africa has a distinctive pattern with a young age of onset and predominantly tumors (Dakubo et al., 2010; Irabor and Adedeji, 2009).

In Nigeria, Ibadan recorded an 81% increase in the incidence of pre-cancerous colorectal POLYPS over a period of two decades (Iliyasu, Ladipo, Akang, Adebamowo, Ajao, and Aghadiuno, 1996), accounting for approximately 10%–50% of all gastrointestinal (GIT) malignancies. This has been shown to result in poor outcomes in treatment for colorectal cancers. According to Chalya *et al.* (2018), late presentation is partly due to a lack of local data on the current trends of colorectal cancer and community unawareness of the importance of early reporting to the hospital for early diagnosis and treatment. Furthermore, colorectal cancer and its management can have an adverse effect on the population's social functioning, including work and productive life. Patients with colorectal cancer, both stoma and non-stoma patients, are troubled by frequent or irregular bowel movements, diarrhea, flatulence, and fatigue and often have to follow dietary restrictions (Arndt *et al.*, 2014).

Nigerians continue to lose their lives to CRC each year because screening and diagnosis are delayed. The diagnosis was made in response to individuals' recurrent complaints of stomach discomfort and rectal bleeding who had not undergone screening. Such instances supported the necessity for routine and early screening, as advised. The public who came for screening was, however, fully informed about colorectal POLYPS and the value of early screening. Casual interaction with the public about polyp screenings showed their worries included the absence of insurance or insufficient insurance coverage, as well as earlier negative incidents that could lead patients to mistrust medical services. Many also spoke of encountering logistical difficulties, such as poor transportation, cultural differences, poor communication with healthcare professionals, and limited awareness of health care issues. It is due to the magnitude of these problems that this study was undertaken to elucidate the awareness and risk factors of colorectal POLYPS among adults aged 40–65 years of age in Imo State, Nigeria.

## METHODS

### Research Design/Techniques

A descriptive cross-sectional study design was adopted to assess the awareness, knowledge, and risk factors of colorectal POLYPS among adults aged 40–65 years of age in Imo State, Nigeria. The population of the study included 1,000 people drawn through a multistage random sampling technique with no initial diagnosis of colorectal cancer within the study area. The population of the study excluded adults with mental disorders and hearing impairments who were not able to provide informed consent for the study, as well as feeble elderly patients.

A stratified sampling method was used to select the three senatorial zones of Imo State based on population. A simple random sampling method was used to select three (3) local government areas (LGAs), each from each of the three (3) zones in Imo State (Owerri, Okigwe, and Orlu). This was done via balloting.

The researchers further enlisted all the communities in the selected LGAs on a different ballot paper and randomly selected two communities out of them, precisely one from the urban and one from the rural areas. This was done to ensure that every community had an equal chance of being selected. Next, the villages in each community were listed, and balloting was done for a probability method of selection giving an equal chance of being selected from the selected villages. Five (5) villages were selected via simple random sampling in each of the selected communities. This resulted in a total of 10 villages in each LGA.

A list of the streets and households in the villages was obtained by the researchers, and a systematic random sampling method was employed in the selection of the streets and households where the study subjects were domiciled. This was done at an interval of two (2) for every household and street. This was done to ensure that every street and household had an equal chance of being selected.

Following community entry and informed consent, purposive sampling was used to select the target population, which was adults from 40 to 65 years of age. Health education on colon cancer was used as an incentive. The study instruments for the participants in the study were distributed proportionately based on the number of villages, streets, and communities in the study.

### Instrument for Data Collection

Data on the awareness, knowledge, and risk factors of colorectal POLYPS were assessed using a structured, pre-tested, and standardized questionnaire. The reliability was ascertained by calculating a Chronbach's alpha reliability coefficient after pre-testing the data collection instrument on a few samples from similar settings. Based on standardized items, the instrument was found to be reliable, with coefficients of 0.60 and 0.70.

**Method of Analysis**

Descriptive statistics were used to analyze the data obtained from the questionnaires. Data entry and analysis were done using the Statistical Package for Social Science (SPSS) version 23.0. Descriptive statistics were used to present the data in the form of pie charts, tables, and percentages. Also, the inferential data was analyzed using Chi Square and ANOVA to test the hypothesis.

**Ethical Considerations/Informed Consent**

A letter of introduction and ethical clearance were obtained from the Department of Public Health's Ethical Clearance Committee before the research was conducted. Also, the anonymity of the respondents was assured. Additionally, the Ethical Committee of the chosen communities reviewed and approved this study's ethical issues while maintaining the confidentiality of the data they provided. During the screening interview, people were asked for their informed consent to fill out the questionnaire's information, and the "no-risk" implication of voluntary participation and the guarantee of anonymity were clarified.

**RESULTS**

**Socio-Demographic Characteristics of respondents**

The study results showed in Table 1 below illustrated that 59.1% (591) of the respondents were aged 51-60 years, the mean age (SD) of the adults was  $52 \pm 1.34$  and over half of the respondents were female (57.4%). Also, 49.9% (499) of the respondents had attained secondary education levels, and 42.0% (419) had tertiary education. Also, 33.9% (339) of the adults were artisans, 26.2% (262) were jobless, 16.7% (167) farmers and 23.2% (232) were civil servants. Majority of the respondents were Christians 73.9 (739), 18.5% (186) Muslims, and over 40% (401) of the respondents earned above 20,000 monthly. From the study results 64.9% (650) the adults resided in the rural parts of the state, while 35.0% (350) were urban.

Table 1: Socio-Demographic Characteristics of Respondents

Characteristics	Frequency (n=1000)	Percentage (%)
<b>Age</b>		
40-50	368	36.8
51-60	591	59.1
61-70	41	4.1
<b>Total</b>	<b>1000</b>	<b>100</b>
<b>Mean age (S.D)</b>	52yrs( $\pm 1.34$ )	
<b>Gender</b>		
Male	425	42.5
Female	575	57.5
<b>Total</b>	<b>1000</b>	<b>100</b>
<b>Education</b>		
Primary	64	6.4
Secondary	499	49.9
Tertiary	419	42.0
No formal Education	17	1.7
<b>Total</b>	<b>1000</b>	<b>100</b>
<b>Occupation</b>		
Farming	167	16.7

Artisans	339	33.9
Jobless	262	26.2
Civil servant	232	23.2
<b>Total</b>	<b>1000</b>	<b>100</b>
<b>Religion</b>		
Christianity	729	72.9
Islam	186	18.6
Traditional	29	2.9
Others	56	5.6
<b>Total</b>	<b>1000</b>	<b>100</b>
<b>Monthly income in Naira (₦)</b>		
0 - 5,000	314	31.4
6,000 -15,000	135	13.5
16,000 - 20,000	150	15.0
20,000+	401	40.1
<b>Total</b>	<b>1000</b>	<b>100</b>
<b>Place of Residence</b>		
Urban	350	35.0
Rural	650	65.0
<b>Total</b>	<b>1000</b>	<b>100</b>

#### Level of Awareness and Attitude towards Colorectal Polyp among Respondents

Of the 1000 participants interviewed, 626 (62.6%) have heard about colorectal POLYPS while 374 (37.4%) have not (Fig. 1). From this study results further showed that 52.1% (326) of the study subjects had not gone for polyp screening and 34.3% (103) of the respondents screened for polyp, did the screening just once and 31.5% (95) have been doing it once in every three months. Constraints for 52.1% (326) of the respondents who did not screen included lack of funds, 16.3% (144), while 11.4% (80) reported unavailability of the screening services. Again, 24.0% (78) reported screening was not accessible to all and 16.5% (54) faulted proximity to the screening Centre. 44.4% (278) of the respondents replied “yes” when they were asked if colorectal polyp lead to colorectal cancer, and 21.1% (132) had no idea. Concerning the number of available screening centers in the respondents’ locality, 36.1% (226) reported one (1) screening center, and only 5.8% (37) reported four (4) and above. 31.8% (173) mentioned that the screening centers available to them were passive, 28.6% (155) reported ‘very active’, 23.5% (127) active, and 16.0% (87) very passive. When the respondents were asked if any members of their families had been diagnosed of a bleeding polyp at an earlier period, 65.4% (409) reported “No”.

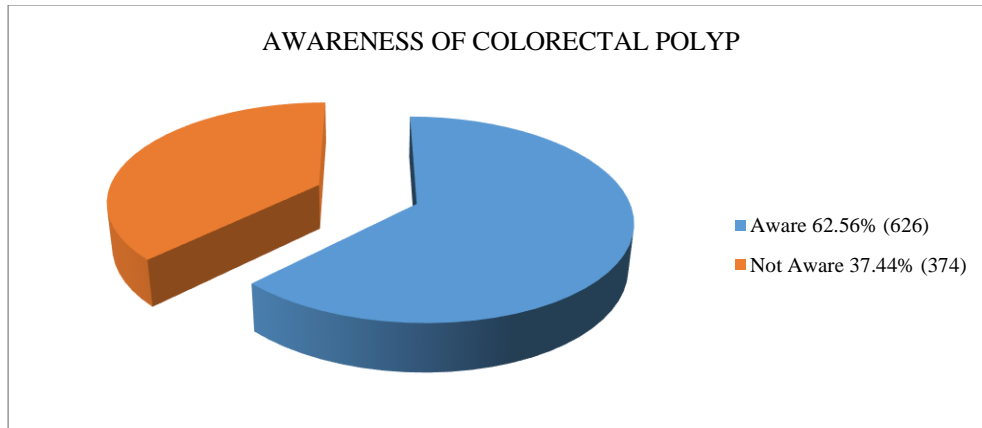


Fig.1: Awareness of Colorectal POLYPS

Table 2: Attitude towards Colorectal Polyp among the Studied Group

Variables	Frequency (n=1000)	Percentage (%)
<b>Have you gone for screening for polyp before?</b>		
Yes	300	30.0
No	700	70.0
<b>Total</b>	<b>1000</b>	<b>100</b>
<b>If Yes, how often have you been screened</b>		
Yearly	103	34.3
Six monthly	60	20.0
Three monthly	137	45.7
<b>Total</b>	<b>300</b>	<b>100</b>
<b>If No ,what is the constraint</b>		
Lack of funds	114	16.3
Proximity to the screening Centre	54	7.7
Not accessible to us	78	11.1
Screening not available at all	80	11.4
Lack of interest	374	53..4
<b>Total</b>	<b>700</b>	<b>100</b>
<b>For the 626 interviewees who have heard about POLYPS, does Colorectal polyp lead to colorectal cancer?</b>		
Yes	278	44.5
No	215	34.4
No Idea	132	21.1
<b>Total</b>	<b>626</b>	<b>100</b>

<b>For the 626 participants who have heard about POLYPS how many health/screening centers are there in your locality?</b>		
None	84	13.4
1	226	36.1
2	171	27.3
3	108	17.3
4 and above	37	5.9
<b>Total</b>	<b>626</b>	<b>100</b>
<b>For the 542 participants with screening centres in their area, how effective are the health/screening centers?</b>		
Active	127	23.51
Very active	155	28.63
Passive	173	31.85
Very Passive	87	16.02
<b>Total</b>	<b>542</b>	<b>100</b>
<b>Has any member of your family been diagnosed of a bleeding polyp before?</b>		
Yes	58	9.34
No	409	65.40
No Idea	158	25.26
<b>Total</b>	<b>626</b>	<b>100</b>

### Risk Factors of Colorectal polyp

Of the total number interviewed, 32.2% (322) reported they exercised once every 2-3 days, 29.7% (297) replied “daily”, and 20.8% (208) rarely exercised. From the study results, 40.8% (408) of the respondents denied having fewer carbohydrates but more of proteins and fiber in their meals, 20.6% (206) affirmed, and 38.7% (387) did not have an idea of the protein and fiber content of their meals. 43.7% (437) of the adults consumed alcoholic beverages 2-3 times in a week, 34.5% (345) once every week, and 67.4% (674) of the respondents mentioned they did not smoke nor did they reside with a smoker. Many respondents agreed to occurrences of inflammatory bowel disease like Ulcer among themselves and/or their family members 60.0% (600), however, over half (55.1%) denied suffering from any type of cancer in the past.

A good number of the adults did not consume red meat (43.5%), while 32.1% (321) said “very often did”. From the study results, 53.8% (538) of the adults in this survey also agreed they regularly sat at a place due to some constraints, and half of them opined “Above 2 and less than 5” when they were asked how many glasses of water they took in a day. Majority (82.7%) of the respondents did not take junk food, and about half (50.5%) reportedly weighed 40-60 kilograms. Reported history of elevated blood sugar and hypertension were common among the respondents (76.7%), and less than 25% of the adults had pile or anal surgery in the past (22.5%). When the respondents were asked how often they took fruits, 48.3% (483) said “very often”. 68.0% (680) of the participants agreed upon the question concerning previous ulcer diagnosis among them or their family members although 57.1% (571) replied otherwise when asked concerning gastrointestinal issues.

Results further showed that 32.6% of the respondents smoke or consistently stay with a smoker while 67.4% of the adults do not smoke or stay with a smoker Fig. 2)..

Table 3 Risk Factors of Colorectal POLYPS

<b>Variables</b>	<b>Frequency (n=1000)</b>	<b>Percentage (%)</b>
<b>How often do you do exercise?</b>		
Daily	297	29.7
2-3 days	322	32.2
Weekly	147	14.7
Monthly	26	2.6
Rarely	208	20.8
<b>Total</b>	<b>1000</b>	<b>100</b>
<b>Does your meal contain less carbohydrates but more of fiber and protein?</b>		
Yes	206	20.6
No	408	40.8
No Idea	387	38.7
<b>Total</b>	<b>1000</b>	<b>100</b>
<b>How often do you take Alcohol?</b>		
Daily	62	6.23
2-3 times a week	437	43.75
Weekly	345	34.47
Biweekly/Monthly	156	15.56
<b>Total</b>	<b>1000</b>	<b>100</b>
<b>Do you smoke or consistently stay with a smoker?</b>		
Yes	326	32.6
No	674	67.4
<b>Total</b>	<b>1000</b>	<b>100</b>
<b>Have you or any member of your family had Inflammatory bowel disease like Ulcer in the past?</b>		
Yes	600	60.0
No	400	40.0
<b>Total</b>	<b>1000</b>	<b>100</b>
<b>Have you or any member of your family suffered from any type of cancer in the past?</b>		
Yes	151	15.1
No	551	55.1
No Idea	298	29.8

<b>Total</b>	<b>1000</b>	<b>100</b>
<b>How often do you take red meat?</b>		
Very often	321	32.1
Sometimes	244	24.4
Not at all	435	43.5
<b>Total</b>	<b>1000</b>	<b>100</b>
<b>Do you regularly sit at a place due to some constraints?</b>		
Yes	538	53.8
No	462	46.2
<b>Total</b>	<b>1000</b>	<b>100</b>
<b>How many glasses of water do you take in a day?</b>		
2glasses	342	34.2
Above2 and less than5	510	51.0
6glasses and above	148	14.8
<b>Total</b>	<b>1000</b>	<b>100</b>
<b>Do you take junk food frequently?</b>		
Yes	173	17.3
No	827	82.7
<b>Total</b>	<b>1000</b>	<b>100</b>
<b>How many kilograms do you weigh on a scale?</b>		
40 -60kg	505	50.5
61--70kg	261	26.1
71- 90kg	199	19.9
91 and above	35	3.5
<b>Total</b>	<b>1000</b>	<b>100</b>
<b>Do you have a history of elevated blood sugar and hypertension?</b>		
Yes	767	76.7
No	233	23.3
<b>Total</b>	<b>1000</b>	<b>100</b>
<b>Have you had pile or anal surgery in the past?</b>		
Yes	225	22.5
No	775	77.5
<b>Total</b>	<b>1000</b>	<b>100</b>
<b>How often do you take fruits?</b>		



Very often	483	48.3
Not quite often	407	40.7
Not at all	110	11.0
<b>Total</b>	<b>1000</b>	<b>100</b>
<b>Have you been diagnosed of ulcer or any member of your family in the past?</b>		
Yes	680	68.0
No	320	32.0
<b>Total</b>	<b>1000</b>	<b>100</b>
<b>Have you had any upper gastrointestinal issues or any member of your family in the past?</b>		
Yes	429	42.9
No	571	57.1
<b>Total</b>	<b>1000</b>	<b>100</b>

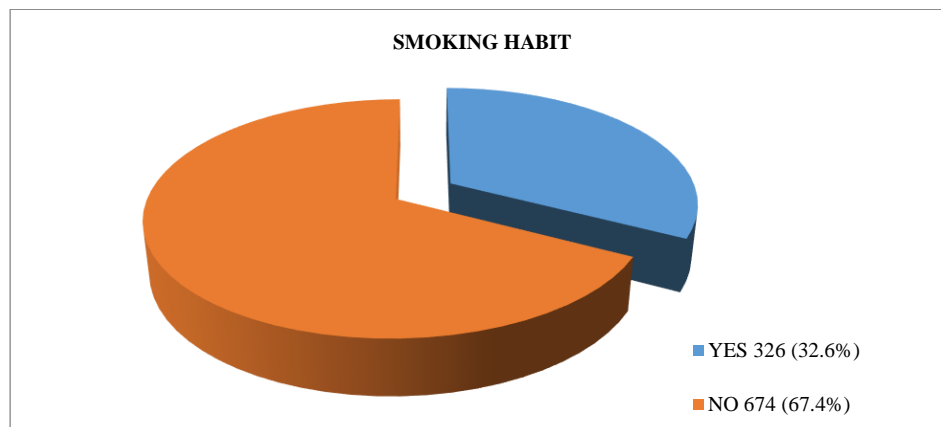


Figure 2: Smoking Habit

## DISCUSSION

This study evaluated the awareness and risk factors of colorectal POLYPS among adults aged 40 to 65 years in Imo State, Nigeria. Several risk factors have been identified for the development of colorectal POLYPS, including age, family history, and certain lifestyle factors such as smoking and diet. A study published 2016 by Anjum et al. looked at the prevalence of colorectal POLYPS in a sample of adults who underwent colonoscopy. The study also found that older age and a family history of colorectal cancer were associated with an increased risk of colorectal POLYPS. Another study by Bressler *et al.* (2018) investigated the risk factors for colorectal adenomas among adults. The study found that older age, male gender, and a family history of colorectal cancer were associated with an increased risk of colorectal adenomas. Additionally, the study found that certain lifestyle factors, such as smoking and physical inactivity, were also associated with an increased risk of colorectal adenomas.

Findings from this study posited that, based on the level of awareness of colorectal POLYPS among the respondents, 62.5% affirmed knowledge of the condition, although 52.1% of them never went for polyp screening. However, a similar study conducted in Lagos by Adesanya and da Rocha-Afodu (2020) revealed sub-optimal awareness and knowledge levels of colorectal POLYPS, which is consistent with the good knowledge observed among some participants in many studies (Irabor *et al.*, 2020; Renehan *et al.*, 2018; Giovannucci, 2021). Low knowledge and awareness among respondents could be due to an inadequate awareness campaign by health workers, especially those in the field of public health. Less than 50% of those who had had screening (34.3%) affirmed that they had been screened for POLYPS once a year. This is in contrast with the findings of Arndt *et al.* (2014), who discovered that

the majority of respondents were screened once a year. The most common constraint reported in this study was a lack of funds, followed by a lack of screening services and their inaccessibility. Proximity to a screening center, lack of funds, and the unavailability of screening services were mentioned as constraints in a study by Giovannucci (2021). About 44.4% of the respondents in this study correctly affirmed that colorectal POLYPS lead to colorectal cancer, paralleling the findings of Odukoya and Fayemi (2019), who found participants to be more knowledgeable of colorectal cancer. An inadequate number of polyp screening centers has been reported in a number of studies (Giovannucci, 2021; Arndt *et al.*, 2004), which is symmetrical to this study's finding of a single screening mentioned by most participants. The passive behavior of healthcare workers in the centers was reported by 31.8% of the respondents. This is in contrast to the findings of Ibrahim *et al.* (2011).

Concerning risk factors for colorectal POLYPS among respondents, 32.2% of the respondents in this study reportedly exercised once every 2-3 days, and a little less than half of the interviewees consumed alcoholic beverages 2-3 times in a week. Smoking is a well-known modifiable risk factor for colorectal POLYPS and CRC (Iabor *et al.*, 2020; Renehan *et al.*, 2018). The study found that regular cigarette smoking is an independent risk factor for the presence and development of colorectal POLYPS. Previous studies have revealed dose-response relations among the daily number of cigarettes smoked, the duration of smoking, the pack-years of smoking, and the risk for colorectal POLYPS (Jemal *et al.*, 2020; Ries *et al.*, 2018; Ferlay *et al.*, 2010; Arndt *et al.*, 2014). The association was robust in all kinds of POLYPS (sessile serrated POLYPS, conventional adenomas, and hyperplastic POLYPS). People who live a healthy lifestyle, including nonsmokers, have a lower risk of all stages of colorectal carcinogenesis (hyperplastic POLYPS, non-advanced adenomas, and advanced CRN). Previous studies revealed some potential mechanisms for the association between smoking, colorectal POLYPS, and CRN, such as the reduced methylation of relevant genes, genetic variants in carcinogen-metabolizing enzymes, the polymorphisms in the DNA repair genes EXO1 and ATM, the mutations in mismatch repair enzymes, and XPC polymorphisms, etc. (Chao *et al.*, 2005; Arndt *et al.*, 2014). In a word, tobacco contains many carcinogens that are thought to cause no less than irreversible genetic damage to the colorectal mucosa, initiating the formation of colorectal POLYPS (Giovannucci, 2021; Arndt *et al.*, 2014). Lack of exercise and alcohol use have been reported as significant risk factors in a previous study by Ferlay *et al.* (2010). This highlights the lack of thorough knowledge on the risk factors associated with colorectal POLYPS among the respondents. 67.3% of the respondents mentioned they did not smoke or reside with a smoker. This could be due to personal choices and may not necessarily have any association with awareness of polyp risk factors. Carcinogens from cigarette smoke are absorbed into the blood stream and are known to cause malignancies in organs not in direct contact with smoke.

## CONCLUSION

Evidence from this study establishes that although a number of participants demonstrated considerably good knowledge of colorectal POLYPS, several others are deficient in essential information, which is revealed in their poor awareness of risk factors for colorectal POLYPS. Lack of funds, unavailability of the screening services, inaccessibility of the services, and proximity to the screening center evidently affected polyp screening uptake among the respondents.

The study recommends the following: that individuals with increased risk may warrant an adjustment of surveillance recommendations to identify lesions early, before malignant transformation occurs. Furthermore, education regarding the importance of surveillance and access to colon cancer screening may vary among both racial groups and genders. There may not be one best screening algorithm, but optimal strategies will need to be defined for different population subgroups. The current capacity of those performing screening colonoscopies is exceeded by demand. Screening recommendations depend on data from epidemiologic studies; thus, incorporating specific risk factors may help triage patients for colorectal screening.

## Competing Interests

Authors have declared that they have no competing interests

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Not Applicable

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