Clinical Presentation of Irritable Bowel Syndrome and Related Quality of Life among Cameroonian Medical Students: A Cross-Sectional Descriptive Study

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Abstract

Background: Irritable Bowel Syndrome (IBS) is a functional gastrointestinal disorder characterized by chronic abdominal pain and altered bowel habits without structural abnormalities. Though non-lethal, it significantly affects the quality of life of sufferers. In Sub-Saharan Africa, data on IBS are limited.

Objective: Describe the clinical presentation of IBS and the quality of life among medical students in our country.

Methods: A descriptive cross-sectional study was conducted in two medical schools. Stratified sampling was employed for a total of 260 students recruited. Data gathered included sociodemographic details, Rome IV diagnostic criteria, Bristol stool scale, gastrointestinal symptoms, and quality of life items. Statistical analysis was done using IBM SPSS version 26.

Results: Out of the 260 students, the prevalence of presumed IBS was 11.2%. IBS-C was most common (41.4%), followed by IBS-D (31%), IBS-M (20.7%), and unclassified (6.9%). IBS-C was significantly associated with females, irregular meals, and morning predominance of pain. The triad of defecation-related abdominal pain, altered stool consistency, and altered stool frequency was present in 68.9% of cases. Most cases reported diffuse (62.1%), persistent (34.5%) abdominal pain with mixed triggers and relieving factors. Quality of life was altered in 58.6% of cases, with 10.3% experiencing severe impairment.

Conclusion: Presumed IBS among medical students in our study was non-negligible, with a predominance of IBS-C. Clinical profile was dominated by diffuse, persistent abdominal pain with multiple triggers. Quality of life was altered in most students.

Keywords: IBS subtypes, clinical profile, quality of life, medical students, Cameroon

Introduction

Irritable Bowel Syndrome is a chronic gastrointestinal condition marked by abdominal pain associated with changes in bowel habits and occurring without identifiable structural abnormalities (Podolsky et al, 2016). Prevalence rates in the community varies between 10-25% (Card et al, 2014). The pooled estimate in a meta-analysis reported an international prevalence of 11.2% (95% confidence interval, 9.8–12.8), with variation by geographic region (Card et al, 2014). Although IBS is not life-threatening, its impact on quality of life is remarkable (Mimiesse et al, 2017). In Sub-

Saharan Africa, data on IBS are scarce. This study aimed to fill this gap by investigating IBS among students of two medical schools.

Material and Methods
Study design and setting
The study was a Cross-sectional descriptive study conducted in the two medical schools implanted in our city.

Study population
The study population was that of students registered in Medicine programs of either of the two medical schools.

Sample Size calculation and sampling
A stratified random sampling technique was used for a minimum sample size of 247 students. To obtain the number of students to be included in each of the 2 medical schools, simple proportions were used. For the 2025-2026 academic year, approximately 1133 students were enrolled in the Medicine program, 293 in medical school A and 840 in medical school B, representing respectively 26% and 74% of the total number of students registered in the Medicine program. Applying those proportions to the requested sample size, 68 students in medical school A and 192 students in medical school B were to be recruited.

Stratification was done with regard to the level of studies. On average, there were 50 students in each level at medical school A and 140 at medical school B; and again, using simple proportions, 11 students per level of study at medical school A and 32 students per level of study at medical school B were recruited irrespective of their gender.

Study procedure:
In each level of study from year 2 to year 7, medical students were randomly selected until the desired number per level was reached. Written consent was obtained from each selected student. Data collection was done using a questionnaire and conducted in 02 phases: an out-hospital screening phase with a self-reported questionnaire and an In-hospital confirmation and examination phase for those who reported abdominal pain evolving for at least 6 months.

Statistical analysis:
Statistical Package for Social Sciences' (IBM- SPSS) version 26 was used for data analysis. Quantitative and normally distributed variables were described as means, median ± Standard deviation from the mean, and range. Qualitative variables were presented as frequencies and percentages. Chi-

square or Fisher's exact test were ran to search for association between 2 categorical dichotomous variables depending on expected and observed numbers in each category of variables; *Independent sample t-test* and *Mann-Whitney U test* were ran to search of association between dichotomous categorical variables and continuous normally distributed variables and between dichotomous categorical variables and non-normally distributed continuous variables respectively; *One-way ANOVA* and *Kruskal-Wallis H test* were also ran for search of association between polychotomous categorical variables and continuous normally distributed variables and between polychotomous categorical variables and non-normally distributed continuous variables respectively. Associations were considered statistically significant when the condition *P-value was <0.05*.

Ethical considerations:

The ethical clearance N°0441/UY1/FMSB/VDRC/DAASR/CSD/emr was obtained from the Ethical Review Board of the University of Yaoundé 1 (Cameroon). Permission to have access to the various medical schools was requested and obtained from their respective administrations. Consent was obtained from the participants after detailed information on the study was provided.

Confidentiality was assured by anonymization of data collection tools and their storage in a secure environment; in addition, electronic data was password-secured in a computer.

Results
Socio-demographics parameters

The study included 260 participants, predominantly female (63.1%), as supported by a M:F ratio of 0.58 with a mean age of 22.1 ± 2.1 years. Most participants were affiliated with medical school B (67.3%), and the majority (33.5%) originated from the Centre region (Table 1).

Table 1: Sociodemographic profile of the study population

Sociodemographic parameters of study population	Frequency (n)	Percentage (%)
Gender		
Female	164	63.1
Male	96	36.9
M:F ratio	0.58	
Age (year)		
Mean age	22.1± 2.1	
Range	18-30	
School		
Medical school A	68	26.2
Medical school B	192	73.8

Prevalence and subtypes of presumed IBS

Out of 260 students screened, 29 fulfilled the Rome IV criteria for the diagnosis of IBS. Making a prevalence of IBS 11.2%. The prevalence in females was 12.2% and 9.4% for males. There was no significant association between IBS and Gender (*P-value 0.486*). IBS-C was the most common subtype of IBS, representing 41.4% of all cases, followed by IBS-D (31%). There was a statistically significant association between IBS subtype and gender. IBS-C was associated with female gender, while IBS-D was associated with the male gender (Table 2).

Table 2: Distribution of IBS cases

Parameters	Frequency (n)	Percentage (%)
Number of IBS cases	29	11.2%
Gender of IBS cases		
Female	20	63.1
Male	9	36.9
M:F ratio	0.45	
Age (year) of IBS cases		
Mean age	22.2 years ± 1.8	
Range	18-25	
Body Mass index of IBS cases		
Underweight	1	3.4
Normal weight	22	75.9
Overweight	4	13.8
Obesity	2	6.9

Socio-demographic and anthropometric parameters of IBS cases

The average age of students affected by IBS is 22.2 years ± 1.786 with a range varying from 18 years to 25 years. Female predominance (63.1%) was reported. Most cases originated from the Centre (44.8%) and the West (31%) regions, and the majority of cases (75.9%) had a normal BMI (Table 2).

Symptom combination at diagnosis

The predominant symptom combination was that of "abdominal pain related to defecation, modification of stool consistency, and modification of stool frequency" reported by 68.9%. The second most reported symptom combination was that of "abdominal pain + Modification of stool consistency + modification of stool frequency" found in 20.7% of cases. (Table 3).

Table 3: IBS symptom combinations at diagnosis

IBS symptoms combination	Frequency	Percentage (%)
Abdominal pain related to defecation + modification of stool consistency	1	3.5
Abdominal pain related to defecation + modification of stool frequency	2	6.9
Abdominal pain + Modification of stool consistency + modification of stool frequency	6	20.7
Abdominal pain related to defecation + modification of stool consistency + modification of stool frequency	20	68.9
Total	**29**	**100.0**

Symptoms Characterization
a. Abdominal pains characteristics
Diffuse Pain was the most reported, affecting 62.1% of patients. Several types of pain were reported, including spasms, torsion, burns, pricks, and tension. Almost 35% of IBS cases reported a mixed type of pain; Spasm and tension were both second in the ranking. Pain was permanent (occurring throughout the day) in most cases (34.5%).

Pain triggers included: consumption of spicy food, fatty meals and beans, stressful situations, and strong emotions. Sixty-nine (69%) of the population reported having the triplet stress/spicy meals/strong emotions as a pain trigger (mixed).

Most patients (58.6%) reported a combination of relieving factors, especially among IBS-C and IBS-D subtypes. Almost a quarter (24.1%) of IBS cases found relief from passing gas.

b. Characteristics of diarrhoea
Two-thirds of patients (66.7%) reported a morning predominance of diarrhoea. Almost 89 % of patients experienced diarrhoea that was triggered by food intake. Faecal urgency was present in one-third of cases. The presence of undigested food particles was noted by 22.2% of patients. Most patients reported moderate stool quantity, with only a minority passing an abundant stool quantity.

c. Characteristics of constipation
Most patients who reported constipation had a non-daily bowel movement, with only one-third reporting daily stools. More than ninety (91.7%) of patients reported straining during defecation, all (100%) experienced incomplete emptying and 41.7% reported the need for digital manoeuvres for relief.

Factors associated with IBS subtypes
Gender, meal pattern and timing of pain were found to be related to IBS subtypes (Table 4).

Gender distribution showed a predominance of IBS-C among female participants (91.7%), with a statistically significant difference and moderate effect size (p = 0.021, Cramer's V = 0.412). Meal pattern was also strongly associated with IBS subtypes (p = 0.013, Cramer's V = 0.519), as all participants with regular meal patterns were in the "Non-IBS-C subtype group, while those with irregular patterns were in the IBS-C subtype group. Timing of abdominal pain also demonstrated a significant relationship with IBS subtypes (p = 0.011, Cramer's V = 0.508); Morning pain was more reported by IBS-C cases (Table 4).

Table 4: factors related to IBS subtypes

	IBS-C	Non-IBS C	Total	P-value	Cramer's V	LLR
Gender						
Female	11	1	12			
Male	9	8	17	**0.021**	0.412	5.53
Meal pattern						
Irregular	12	9	21			
Regular	0	8	8	**0.013**	0.519	10.6
Timing of pain						
Morning	6	1	7			
Others	6	16	22	**0.011**	0.508	7.8

Quality of Life scores

Mean score for overall QoL in students with IBS was 79.71 ±13.112 [42-100]. Quality of life scores were slightly higher in males (mean = 82.80) than in females (mean = 78.32). Most IBS cases (58.6%) had altered QoL. 27.8% experienced moderate impairment, and 10.3% had significantly reduced QoL. No association was found between QoL and gender (Table 5). Constipation-predominant IBS patients reported the highest QoL scores (85.39). Mixed subtype had the lowest QoL scores (68.57), with the highest variability (SD = 19.425), There was no statistically significant difference in QoL scores across IBS subtypes (Table 5).

Table 5: QoL score in IBS cases

	Absolute count	Percentage (%)	P-value
QoL score			
Female	78.3 ±14.6	-	
Male	82.8 ± 8.7	-	*0.417*
Overall	**79.7 ± 13.1**	-	
QoL class			
Normal (score =100)	1	3.4	
Altered (80 ≤ score<100)	17	58.6	
Not significantly altered 65 ≤ score <80)	8	27.8	
Significantly altered (score < 65)	3	10.3	

Discussion

This study reveals a notable prevalence of IBS among medical students in the two medical schools, aligning with global estimates. The predominance of IBS-C and its association with female gender is consistent with existing literature. The symptom profile, marked by diffuse and persistent pain with multiple triggers and multiple relieving factors, reflects the complex nature of IBS.

The reported prevalence of IBS of 11.2% almost aligns with the global estimates in the general population, closely approaching what was reported in Bangangté and in 03 studies in Benin (Card et al, 2014; Eloumou Bagnaka et al, 2025; Saké et al, 2023; Kpossou et al, 2025; Sehounou et al, 2018). However, this prevalence contrasts with what has been reported in Yemen, Bangladesh, Saudi Arabia and Egyp,t where they were significantly higher (Diallo et al, 2024; Al-Zahrani et al, 2022; El Sharawy et al, 2022; Das et al, 2024; Mahyoub et al, 2024). This gap could be due to the difference in methodology applied or also to a lack of sensitivity of the Rome criteria in the diagnosis of IBS in our setting.

The predominance of IBS-C among female participants aligns with global epidemiological trends, where female gender has consistently been linked to higher IBS prevalence, particularly the constipation subtype, suggesting that hormonal factors may contribute to gender-specific symptom patterns (Kim et al, 2018; Meleine, 2014). Meal pattern also emerged as a strong predictor of IBS-C, with irregular eating habits significantly associated with this subtype, supporting findings from Benin (Kpossou et al, 2025).

Morning predominant abdominal pain was also significantly associated with IBS-C. This may reflect heightened colonic activity upon waking, influenced by cortisol surges or anticipatory anxiety linked to academic pressures. This pattern has been observed in other populations, and reinforces the postulated link between stress and bowel dysfunction (Stengel et al, 2009; Drossman, 2016; Leigh et al, 2023).

Quality of life assessment showed that 27.8% had moderately reduced QoL, and 10.3% experienced significant impairment. Mimiesse in Gabon reported twice lower percentages in both categories in his study focusing on the general population with IBS (Mimiesse et al, 2017). This higher alteration of QoL in students may be due to a more severe manifestation of the disease in this population or may reflect a low capacity to cope with the disease in our study population. These findings underscore the substantial burden IBS places on students' quality of life. Quality of life scores were slightly higher in males (mean = 82.80) than in females (mean = 78.32), but the difference was not statistically significant (p = 0.417), suggesting that gender may not be a strong determinant of quality of life in

IBS. Although constipation-predominant IBS was associated with better QoL scores, the lack of statistical significance suggests that the subtype alone may not reliably predict quality of life impact. These findings reinforce the need for individualized management strategies.

What this study adds to our knowledge

This study increases data about IBS in sub-Saharan Africa, where data about functional diseases are limited. The new classification of IBS subtypes has been used. There is a good appreciation of the relationship between IBS and QoL.

Limitations

This study, however, presents some limitations. Its cross-sectional design limits causal inference between risk factors and IBS symptoms and subtyping. The self-reporting may have introduced recall bias or underreporting of sensitive symptoms and the single-city focus may not reflect findings in the broader medical student population. The features of diagnosis of IBS are abdominal pain, modification of bowel habits and modification of stool consistency; taking into consideration the African context, where differentials of chronic abdominal pain, such as parasitic intestinal infections and colon tumour, may present in young people, the lack of formal exclusion of these pathologies as well as possible food allergies, also present as limitations. As such, IBS cases identified in this study may be considered as presumed IBS cases.

Conclusion

IBS is a prevalent and impactful condition among medical students in our milieu. The clinical presentation is dominated by diffuse abdominal pain and altered bowel habits, with substantial implications for quality of life. Targeted interventions are warranted to support affected students and reduce academic and health burdens.

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