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Original Article

Unmasking Inflammatory Bowel Disease in Nigeria: A Multicenter Cross-sectional Analysis of Clinico-pathological and Endoscopic Findings

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Abstract

Background and objectives: Inflammatory bowel disease (IBD) is a chronic condition with significant health implications worldwide. In Nigeria, data on its prevalence and characteristics are limited, highlighting the need for comprehensive studies to better understand its epidemiology and clinical features in the region. This study aimed to assess the clinical presentation, endoscopic findings, and management challenges of IBD among patients undergoing colonoscopy in Nigeria.

Methods: Over five years (2019–2024), a multicenter, cross-sectional survey was conducted involving clinicians across Nigeria's six geopolitical zones. It included a retrospective review of records from 18 centers. Data collection was conducted in two phases via Google Forms, focusing on care practices and detailed case information, including demographics, clinical features, histology, and treatment. Data analysis used descriptive statistics and tests for associations, with significance set at $p < 0.05$.

Results: A total of 459 suspected IBD cases (9.7%) were identified among over 4,700 colonoscopies, with histological confirmation in 208 cases (4.4%), indicating the prevalence of IBD in the Nigerian patient population. The most common subtype was ulcerative colitis (53.9%), followed by Crohn's disease (21.0%) and indeterminate colitis (25.0%). Regional variations were observed, with higher diagnosis rates in some zones (North-West: 14.9%; South-East: 1.4%). The predominant clinical feature was rectal bleeding. Endoscopic findings frequently showed pan-colitis (62%), with significant regional differences ($p < 0.001$), and management mainly involved medications such as acetylsalicylic acid derivatives (60.0%), with surgical options rarely employed (0.6%). Challenges included high medication costs and limited availability, which affected nearly half of the patients (49.4%; 46.2%).

Conclusions: IBD, though under-recognized, is present in the Nigerian population, with notable regional variation in prevalence and presentation. The primary clinical features

Keywords: Inflammatory bowel disease; Ulcerative colitis; Crohn's disease; Colonoscopy; Histology; Pancolitis; Anorectal disease; Proctitis; Stricturing; Fistulation.

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align with global patterns, and significant barriers, such as medication costs and availability, hinder effective management. Increasing awareness, improving diagnostic infrastructure, and addressing treatment challenges are essential to enhance care and outcomes for patients with IBD in Nigeria.

Introduction

Inflammatory bowel disease (IBD) is a chronic inflammatory condition affecting the gastrointestinal tract, resulting from a complex interplay between an imbalance in the mucosal inflammatory response, gut microbiota dysbiosis, and a genetically predisposed host. It is characterized by the accumulation of myriad inflammatory mediators.[1]

The main forms of IBD are ulcerative colitis (UC) and Crohn's disease (CD). While UC typically affects the large bowel, CD can involve any section of the gastrointestinal tract.[1,2] Although it can be asymptomatic, manifestations like abdominal pain, diarrhea, rectal bleeding, fever, and weight loss significantly impair quality of life.[1,2] The disease is lifelong, often emerging in children and young adults, with no current cure available. Research indicates bimodal peaks in incidence: the first peak in young adults and the second between 50 and 60 years.[3] Complications include infections, intestinal obstructions, frequent surgeries, and an increased risk of colorectal cancer.[4,5]

Globally, IBD is estimated to affect 6.8 million individuals. In the USA and Europe, over three million people are estimated to have IBD, with prevalence exceeding 0.3% in North America, Oceania, and many European countries.[6] Evidence indicates a changing epidemiology of IBD, with stable or decreasing incidence in North America and Europe, contrasted by rising incidence in newly industrialized countries. Initially considered a disease of Western Europe, its incidence has steadily increased globally,[7] with rapid evolution in both developed and developing nations.[8] This rise correlates with global industrialization and environmental changes.[8,9] The increasing incidence in newly industrialized nations is associated with significant dietary changes, including exposure to processed foods, refined sugars, and dairy, alongside reduced consumption of plant-based fibers.[10] Other environmental factors include smoking (particularly in CD), childhood antibiotic exposure, the use of non-steroidal anti-inflammatory drugs, stress, and the hygiene hypothesis.[11]

Most IBD epidemiology comes from high-income countries, with scarce data from lower socioeconomic regions.[6] Africa has witnessed a rise in IBD cases, though the true burden remains unclear. Nigeria, the most populous country in Africa, lacks comprehensive data. Studies suggest a growing trend, but further research is essential to understand the magnitude and characteristics of IBD in Nigeria.[12] Apart from a few hospital-based studies, there is a significant lack of comprehensive national data on IBD in the country.[13–19] Thus, there is a pressing need for Nigerian data to facilitate a clearer understanding of the disease's characteristics and burden, ultimately enabling improved healthcare policies.

The precise cause of IBD remains incompletely understood. However, evidence suggests the involvement of complex interactions among the host's genetic predisposition, intestinal microbiota, various environmental factors, and the immune system. A large-scale genome-wide association study has identified more than 200 genetic loci associated with IBD, some of which overlap with those linked to other chronic autoimmune diseases. Most loci are shared across diverse ancestral groups, with some notable exceptions. European risk variants, such as nucleotide-binding oligomerization domain 2 (the first identified mutation that mediates the immune response to gut bacteria) and interleukin 23 receptors, are absent in East Asians.[20]

Conventional treatments for IBD primarily focus on symptom control through pharmacotherapy with aminosalicylates, corticosteroids, immunomodulators, and biologics. Additional general measures or surgical resection may also be employed.[21] A review indicated that 5-aminosalicylic acid is more effective than a placebo.[22] Another study found an excellent response to steroids; however, a one-year sustained response was poor.[23] A long-term research on thiopurines in patients with UC reported a seven-year maintenance remission rate of 43.9% and a colectomy-free survival rate of 88%.[24] Biologics have also shown promising efficacy; a combination of vedolizumab and ustekinumab yielded a clinical response rate of 83.9% and a remission rate of 47.0%.[25]

Significant diagnostic challenges persist in low- and middle-income countries, including pathological differentiation from intestinal tuberculosis, ignorance, and poorly trained pathologists.[26] Furthermore, the cost of biologics presents a substantial barrier.[26,27] The limited availability of newer therapeutic agents further restricts access to these effective treatments.[28] Additionally, inadequate specialized care, insufficient endoscopic facilities, and a scarcity of trained gastroenterologists hinder optimal management.[29] Economic constraints and limited health literacy often lead to poor adherence to treatment regimens.[30]

IBD was previously deemed rare in Africa.[12] However, recent evidence has revealed a rising incidence in Nigeria; the likely factors include dietary habits and diagnostic capabilities.[13,31] Despite this trend, there remains a paucity of data regarding the prevalence, clinical presentation, and management of IBD in Nigeria.[12] Most studies are case reports or single-center experiences, making it challenging to generalize findings and implement effective healthcare policies.[15,16]

A multicenter study will provide a comprehensive and representative understanding of IBD in Nigeria.[12] This research will help identify gaps in diagnosis and management, providing essential data for policymakers, healthcare providers, and stakeholders. The resulting data will be crucial for understanding the resources necessary to enhance IBD care, including early detection strategies, treatment accessibility, and specialized healthcare training.

This research aimed to assess the prevalence and clinical presentation of IBD in various parts of Nigeria and to explore the challenges in treating IBD in different healthcare settings. The results will help guide future research and shape policies for IBD care in Nigeria.

Materials and methods

Study design

The study was a cross-sectional survey conducted among clinicians performing gastrointestinal endoscopy across six zones of Nigeria from July 2019 to June 2024. It was a descriptive study that retrospectively examined the clinical records of patients with colonoscopic features of IBD. All clinicians performing gastrointestinal endoscopy in Nigeria's six geopolitical regions were contacted to participate in the study. Thus, all Nigerian clinicians (endoscopists) who volunteered to participate were included.

Study locations

This is a multicenter study comprising 18 centers across the six geopolitical zones of Nigeria.

Study samples and diagnostic criteria

We included all patients with colonoscopy results indicating IBD, such as mucosal inflammation or ulceration. To distinguish IBD from intestinal tuberculosis, we used a systematic approach: analyzing tissue samples for caseating granulomas, staining for Mycobacterium tuberculosis (Ziehl-Neelsen), chest X-rays, and molecular tests like GeneXpert when available. This method helped reduce missed tuberculosis cases and confirm the accuracy of the suspected IBD diagnoses.

Definition of terms

1. Pan-colitis: Presence of inflammation beyond the splenic flexure;
2. Left-sided colitis: Presence of inflammation in the descending or sigmoid colon;
3. Anorectal disease: Presence of inflammation in the rectum and/or anal canal.
4. Montreal classification for CD[32]:

- Location
  - L1: Ileal;
  - L2: Colonic;
  - L3: Ileocolonic;
  - L4: Isolated upper disease.
- Behavior
  - B1: Non-stricturing, non-penetrating;
  - B2: Stricturing;
  - B3: Penetrating;
  - P: Perianal disease;

5. Montreal classification of the extent of UC[32]:
   - E1: Ulcerative proctitis
   - E2: Left-sided UC (distal UC)
   - E3: Extensive UC (pancolitis)

Study protocol

The study utilized a structured Google Form designed in two phases, with all questions made compulsory to ensure complete data collection and minimize missing data. This mandatory format prevented participants from skipping questions, promoting thorough responses.

Phase 1: This 10-question phase collected center-level information, including the respondent's specialty, center name, region of practice, total number of colonoscopies performed, number of suspected IBD cases, confirmed IBD cases, and the distribution of histological variants.

Phase 2: This 30-question phase focused on individual IBD cases, covering patient demographics, study center, endoscopist's specialty, clinical presentation, lesion sites during endoscopy, histological findings, Montreal classification (location, extent, behavior), treatments administered, and challenges faced during management.

The questionnaire utilized drop-down menus and multiple-choice options to streamline responses, with open-ended questions for age and the name of the endoscopy center to allow precise data entry. The demographic subsection inquired about basic details such as age, gender, and practice region.

Data collection procedure

Data were gathered through an anonymous, self-administered questionnaire distributed via doctors' forums and social media groups. Only interested endoscopists received detailed briefings about the study. Following pilot testing for clarity by the primary authors, the final forms were shared across various online platforms for comprehensive and uniform data collection.

Ethical considerations

Approval was obtained from the Federal Teaching Hospital, Katsina Health Research Ethical Review Committee (HREC), with approval numbers as follows: FTHKTNHREC.REG.24/06/22C/199; ADM/DSCST/HREC/APP/7102; NHREC/08/10-2015; UATH/HREC/PR/591.

Statistical analysis

Variables were entered into Excel, checked for completeness, and coded according to a developed guide. Analysis was performed using SPSS (version 27). Descriptive statistics summarized demographic and clinical characteristics: continuous variables were reported as means and standard deviations, while categorical variables were presented as frequencies and percentages. Missing data, assumed to be missing at random, were handled through multiple imputations; variables with over 20% missing data were excluded unless clinically relevant. Associations between categorical variables were assessed using Chi-square or Fisher's exact tests, with a significance threshold of $p < 0.05$. For multivariate analysis, logistic regression models analyzed the relationships between histological variants, regions, and age groups, with covariates selected based on clinical relevance and bivariate findings. Multicollinearity was checked using variance inflation factors.

Results

Survey overview

This multicenter study involved 18 endoscopists, predominantly gastroenterologists (94.4%), representing all six geopolitical zones of Nigeria. Over five years (July 2019 to June 2024), a total of 4,715 colonoscopies were performed across the participating centers, with an average of 262 procedures per center.

IBD national prevalence

Among these cases, 459 were suspected of having IBD, accounting for a prevalence of 9.7% based on endoscopic diagnosis. Of the suspected cases, 208 (45.3%) were confirmed to have IBD, indicating a histological IBD prevalence of 4.4%. The confirmed cases consisted of 112 with UC (53.9%), 44 with CD (21%), and 52 with indeterminate colitis (25%).

Nigerian IBD regional prevalence

The regional prevalence of IBD identified through endoscopy across Nigeria's six geopolitical zones was as follows: North-Central (6.8%), North-East (10.7%), North-West (14.9%), South-East (1.4%), South-South (11.9%), and South-West (13.9%).

Demographic characteristics of Nigerian IBD cases

A total of 158 individual IBD cases were documented, with an age range of four to 93 years and a mean age of 38.9 ± 16.7 years. There was a notable male preponderance, accounting for 87 cases (55.1%). Most cases originated from the South-Western region, with the highest number reported in 2024 (49 cases, 31%). Table 1 summarizes the socio-demographic characteristics of the IBD cases.

Table 1. Socio-demographic characteristics of inflammatory bowel disease cases

Socio-demographic characteristics	Frequency	Percentage
Age group (years)		
1–17	13	8.2
18–29	34	21.5
30–39	41	25.9
40–49	30	19
50–59	20	12.7
≥69	20	12.7
Regional location		
North-Central	17	10.8
North-East	11	7.0
North-West	47	29.8
South-East	14	8.9
South-West	69	43.7
Year of procedure		
2019	17	10.8
2020	15	9.5
2021	21	13.3
2022	21	13.3
2023	35	22.2
2024	49	31

Clinical presentations of IBD cases

The most prevalent clinical presentation among the study subjects was rectal bleeding, reported in 97 cases (61.4%). Other clinical features are illustrated in Figure 1. Additional symptoms included fever, joint pain, fatigue, and mouth ulcers, classified as "other". In terms of extraintestinal manifestations, musculoskeletal symptoms were the most frequently reported. Additional extraintestinal features are detailed in Table 2.

Endoscopic findings of IBD cases

The most common endoscopic site of colonic inflammation was identified as pan-colitis, occurring in 98 cases (62%), followed by left colitis in 37 cases (23.4%). Anorectal involvement was noted in 16 cases (10.1%), while ileal involvement was observed in 14 cases (8.9%). Additional findings included hemorrhoids, strictures, fistulas, ulcers, and diverticula. Notably, approximately 13.3% (21 cases) also exhibited evidence of upper gastrointestinal involvement.

Histological confirmation

Among the 158 cases with suspected IBD identified during endoscopy, 141 cases (89.2%) had confirmed histological evidence of IBD, while the remaining 17 cases (10.8%) lacked available histological records. Furthermore, ulcers were reported in 60 cases (92.3%) of UC, while five cases (13.5%) of CD showed evidence of strictures, and eight cases (21.6%) had fistulas.

A statistically significant association was observed between endoscopic findings and regional location ($p < 0.001$). Regional differences were also evident across histological IBD variants and their classification by disease location and behavior (Tables 3 and 4). Multinomial logistic regression analysis (Table 5), with indeterminate colitis as the baseline, showed that weight loss strongly predicted CD (odds ratio (OR) = 5.77, $p = 0.003$), and the North-Central region showed increased odds for CD (OR = 11.13, $p = 0.042$). For UC, diarrhea and weight loss were significant predictors (ORs approximately 4–5, $p < 0.01$), and patients from the North-Central, North-West, and South-East regions had higher odds. Age was not a significant factor. These findings highlight the influence of regional and clinical factors on the histological diagnosis of IBD.

Acetylsalicylic acid derivatives were the most commonly used treatment agents, administered to 94 patients (60%). Only one patient (0.6%) underwent surgery. Antimicrobials and probiotics were among the other medications used in the management of IBD cases. Figure 2 illustrates the various treatment regimens employed for IBD management in Nigeria.

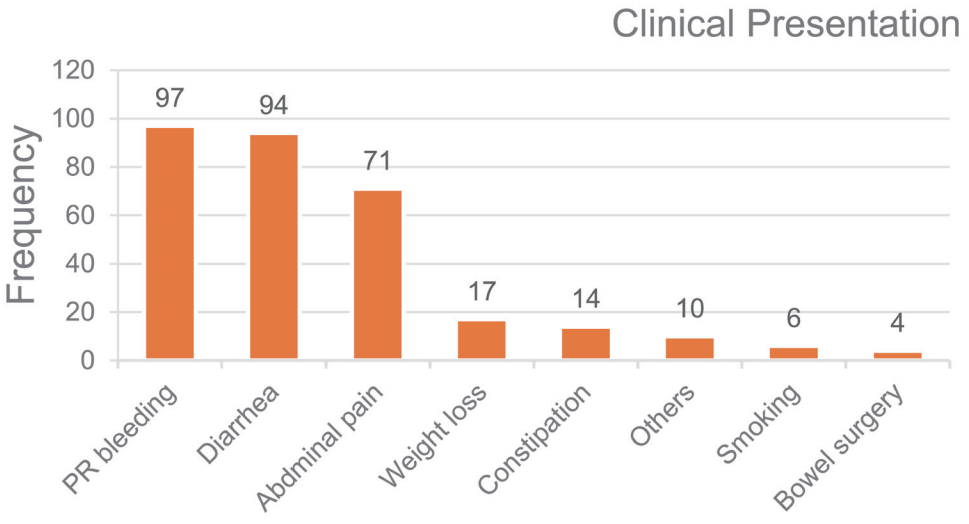

Fig. 1. Clinical presentation of inflammatory bowel disease cases. PR, per rectal.

Table 2. EIM among the cases

EIM	Specific EIM	Frequency	Percentage
Eye (n = 9)	Uveitis	6	66.7
	Episcleritis	3	33.3
Skin (n = 12)	Aphthous ulcer	5	41.7
	Dermatitis herpetiform	2	16.7
	Alopecia	2	16.7
	Pyoderma gangrenosum	1	8.3
	Body rashes	1	8.3
Hepatobiliary (n = 3)	PSC	2	66.7
	AIH	1	33.3
Musculoskeletal (n = 23)	Arthritis	21	91.3
	Ankylosing spondylitis	1	4.4
	Synovitis	1	4.4
Others (n = 3)	Polymyalgia rheumatica	2	66.7
	Sjogren's syndrome	1	33.3

AIH, autoimmune hepatitis; EIM, extraintestinal manifestation; PSC, primary sclerosing cholangitis.

Complications among IBD cases

The complications reported among IBD cases included fistulation (10 cases, 6.3%), severe bleeding (six cases, 3.8%), and intestinal obstruction (two cases, 1.3%).

Challenges encountered in IBD care

The most significant challenge in IBD management was the cost of evaluation and medications, affecting 78 patients (49.4%). Other challenges included the non-availability of drugs (73 cases, 46.2%), concerns about the reliability of histological diagnoses (37 cases, 23.4%), and a lack of response to available treatments (24 cases, 15.2%). Additionally, many IBD cases (58 patients, 36.7%) had incomplete or unavailable records regarding these complications and challenges.

Discussion

The Nigerian IBD Survey reveals that, although IBD (comprising CD and UC) was historically considered rare in Africa,[12] recent evidence indicates a rising incidence in Nigeria.[13,31] This trend is likely driven by environmental factors, dietary habits, and improved diagnostic capabilities. The multicenter survey provides valuable insights into the disease's prevalence, clinical presentation, and management across Nigeria's diverse geopolitical zones. Notably, IBD was identified in 4.4% of patients undergoing colonoscopy, highlighting its emerging significance within the Nigerian healthcare landscape.

However, reliance on voluntary clinician participation introduces inherent selection bias, particularly concerning underreporting from rural or under-resourced areas where endoscopic services are

Table 3. Detailed characteristics of confirmed IBD cases

Characteristics of IBD cases	Sub-types	Frequency	Percentage	*p*-value
Histological diagnosis	Ulcerative colitis	65	41.1	***
	Crohn's disease	37	23.4	
	Indeterminate colitis	39	24.7	
	No record	17	10.8	
Montreal classification of extent of ulcerative colitis (n = 65)	Extensive colitis	35	53.9	$p < 0.001$*
	Left colitis	24	36.9	
	Proctitis	2	3.1	
Montreal disease location of Crohn's disease	Colonic (L3)	25	67.6	$p < 0.001$*
(n = 37)	Ilio-colonic (L2)	12	32.4	
Montreal disease behavior of Crohn's disease	Inflammatory (B1)	26	70.3	$p < 0.001$*
(n = 37)	Stricturing (B2)	5	13.5	
	Internal penetrating (B3)	6	16.2	

*Statistically significant. IBD, inflammatory bowel disease.

Table 4. Relationships between IBD histological variants and age groups/regional locations

	Histological variants			*p*-value
	Ulcerative colitis	Crohn's disease	Indeterminate colitis	
Regional location				
North-Central	9	5	3	$p < 0.001$*
North-East	7	4	0	
North-West	23	9	10	
South-East	5	2	0	
South-West	21	17	26	
Age group				
1–17	6	4	3	$p = 0.507$
18–29	11	14	4	
30–39	18	8	11	
40–49	13	6	6	
50–59	8	3	6	
≥60	10	2	6	

IBD, inflammatory bowel disease. * Statistically Significant

limited or absent. In Nigeria, advanced endoscopic facilities are primarily concentrated in urban centers, which have better infrastructure and trained personnel. As a result, the 18 centers, spanning all zones, reflect urban and semi-urban settings. This could lead to an overestimation of prevalence, as urban populations tend to have higher reported rates due to better access and awareness. In contrast, rural populations are underrepresented because of limited diagnostic capacity and healthcare-seeking behaviors influenced by geographic, socioeconomic, and cultural factors.

While expanding coverage across regions enhances regional diversity, the findings may not fully capture the national epidemiology, particularly the experiences of populations in rural areas. Future efforts should incorporate outreach to remote healthcare facilities and community-based surveys to obtain a more com-

Table 5. Multinomial logistic regression predicting histological diagnosis

Disease category	Histological diagnosis	Regression coefficient	Std. error	*P* value	OR	95% CI	
						OR Lower Bound	Upper Bound
	Age	−0.278	0.190	0.142	0.757	0.522	1.098
	Diarrhea	−0.029	0.564	0.959	0.971	0.322	2.932
	Weight Loss	1.752	0.599	0.003	5.768	1.783	18.656
Crohn's disease	North-Central	2.410	1.183	0.042	11.131	1.096	113.022
	North-East	1.129	1.228	0.358	3.093	0.278	34.354
	North-West	0.661	0.626	0.291	1.936	0.568	6.602
	South-East	1.832	1.337	0.170	6.246	0.455	85.756
	South-West	Ref	Ref	Ref	Ref	Ref	
	Age	0.055	0.158	0.726	1.057	0.775	1.441
	Diarrhea	1.388	0.535	0.009	4.007	1.405	11.432
	Weight Loss	1.605	0.552	0.004	4.979	1.689	14.678
Ulcerative colitis	North-Central	2.437	1.136	0.032	11.443	1.234	106.123
	North-East	1.212	1.164	0.298	3.360	0.343	32.866
	North-West	1.541	0.535	0.004	4.670	1.637	13.324
	South-East	2.679	1.209	0.027	14.572	1.364	155.722
	South-West	Ref	Ref	Ref	Ref	Ref	

Reference category: indeterminate colitis. CI, confidence interval; OR, odds ratio.

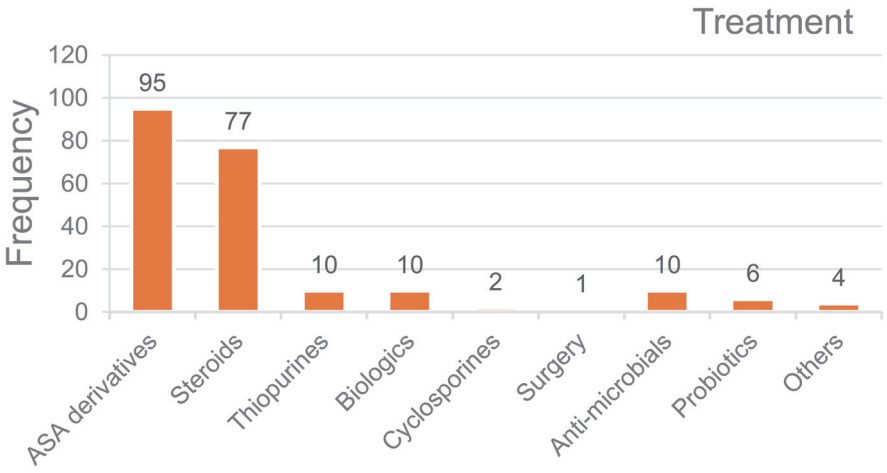

Fig. 2. Treatment administered to individual inflammatory bowel disease cases. Others: Methotrexate, Ursodeoxycholic acid, Hematinic, Proton pump inhibitors and antacids. ASA, 5-aminosalicylic acid.

prehensive understanding of IBD's true burden across Nigeria, especially among underserved populations with limited access to specialized gastroenterological services.

The survey revealed a national IBD prevalence of 4.4% among patients undergoing colonoscopy, with UC (53.9%) being the most common, followed by CD (21%) and indeterminate colitis (25%) (Table 3). Regional variability was observed, with the North-West (14.9%) and South-West (13.9%) reporting higher prevalence than the South-East (1.4%). These findings should be interpreted cautiously due to potential sampling bias. The North-West contributed disproportionately more cases (47/158), likely benefiting from superior healthcare infrastructure, electronic medical records systems, and collaborative networks that enhance documentation and case reporting. Conversely, under-resourced regions such as the South-East probably underreport cases due to limited diagnostic capacity, infrastructural deficits, disparities in healthcare access, environmental exposures, diet, and infection rates. Similar regional patterns have been observed in Nigeria previously,[13,33] although data from other sub-Saharan African countries remain limited, often restricted to case reports or single-center studies.[34,35] Compared to Europe, where prevalence ranges from 150 to 200 per 100,000 (e.g., Germany, Sweden),[36–39] Nigerian figures are significantly lower, reflecting differences in genetics, environment, and healthcare infrastructure. These disparities underscore the urgent need for comprehensive nationwide surveillance to better define IBD epidemiology in Nigeria.

In this survey, 62% of IBD patients presented with pancolitis, a figure consistent with other African cohorts, such as South Africa (50–70%),[40] Egypt, and Morocco, where extensive disease is common, likely due to shared genetic and environmental factors.[41] The high prevalence of pancolitis may result from delayed presentation, driven by limited healthcare access and awareness,[28] as well as genetic predispositions and immune regulation.[42] Environmental factors, including infections and diet, may also contribute.[42] Overall, African populations tend to present with more extensive disease at diagnosis compared to Western countries, emphasizing the need for early detection, improved access to endoscopy, and public health initiatives aimed at reducing late-stage presentation and disease severity.[31]

In addition to geographical challenges, diagnostic limitations significantly impact epidemiological data. Only 45.3% of suspected cases received histological confirmation, raising concerns about diagnostic accuracy and potential misclassification. Resource constraints, including limited access to specialized gastrointestinal pathologists and variability in histopathological expertise across centers, hinder diagnosis. Furthermore, the absence of standardized validation protocols, such as multi-pathologist reviews, inter-rater agreement assessments, or adherence to European Crohn's and Colitis Organisation guidelines, compromises diagnostic consistency, especially for complex cases like indeterminate colitis, which constituted 25% of diagnoses. Implementing structured protocols, including double-blind reviews, consensus meetings, and standardized reporting templates, along with capacity-building and training, would enhance diagnostic reliability. Such improvements are crucial for effectively adapting international guidelines in resource-limited settings, ensuring more accurate epidemiological estimates and better-informed patient management strategies.

Demographically, the data reflect a notable male preponderance and a mean age of 38.9 years among individuals diagnosed with IBD (Table 1). This age distribution aligns with studies from other African nations, where IBD typically presents at a younger age compared to Europe and North America, where diagnoses often occur in later adulthood.[34,41,43] For example, a study from South Africa reported a mean age of diagnosis at 36 years, with fewer cases of late-onset Crohn's disease.[44] In Europe and North America, the mean age of IBD diagnosis typically ranges from 30 to 40 years, though there is an increasing trend in diagnoses among individuals over 50 years.[43,45] Notably, there has been a progressive rise in IBD cases from 2019 to 2024, particularly in the South-West region, with figures peaking in 2024. This trend indicates the need for targeted healthcare interventions and heightened awareness campaigns to address IBD in this demographic.

The most prevalent clinical symptom in the study was rectal bleeding, reported in over 61% of cases, alongside other symptoms such as fever, joint pain, and fatigue (Fig. 1). This constellation of symptoms aligns with known manifestations of IBD, which often leads to delays in diagnosis due to overlap with other gastrointestinal disorders. Moreover, the high incidence of extraintestinal manifestations, particularly musculoskeletal symptoms, emphasizes the need for a multidisciplinary approach to managing IBD, involving specialties such as gastroenterology, rheumatology, and ophthalmology (Table 2).

The prevalence of rectal bleeding and musculoskeletal symp-

toms as the modal primary and extraintestinal presentations is consistent with findings from previous studies across Africa and Europe, where gastrointestinal and musculoskeletal symptoms predominate.[46,47] In contrast, European studies report a wider array of extraintestinal manifestations, such as arthritis and uveitis, occurring in 20–30% of cases. The stark contrast in the prevalence of these symptoms suggests differences in dietary habits and healthcare infrastructure, which may contribute to the more comprehensive management of IBD in developed countries.[48–50]

The treatment approaches for IBD in Nigeria predominantly rely on conservative management, with acetylsalicylic acid derivatives (around 60%) being the most prescribed medications. This contrasts sharply with practices in Europe and North America, where biologics and immunosuppressants are more commonly used, and surgical intervention rates can exceed 20% for CD.[51,52] This reliance on aspirin-based therapies reflects systemic limitations, notably the absence of affordable, locally accessible 5-aminosalicylic acid agents and the high costs associated with biologics and advanced treatments.[53] Consequently, many patients face barriers due to medication costs, and moderate-to-severe cases often go untreated with optimal therapies, leading to higher disease progression, complications, and decreased quality of life. These disparities underscore the urgent need for health policy interventions, such as subsidization programs and local procurement initiatives, alongside the development of context-specific treatment guidelines suited to Nigeria's resource constraints.[53]

Furthermore, the remarkably low reported rate of surgical intervention (0.6%) raises questions about whether this figure accurately reflects management practices or results from systemic underutilization and underreporting. Factors such as referral patterns, conservative care, limited availability of specialized gastrointestinal surgeons, infrastructural deficiencies (e.g., lack of equipped operating theaters), and financial barriers may all contribute to this discrepancy. Additionally, inadequate documentation, especially in centers without electronic medical records, may further obscure true surgical rates. Without detailed data on referral pathways, surgical capacity, and healthcare infrastructure, the low intervention rate might be misinterpreted as optimal management or disease rarity. In reality, systemic limitations likely restrict access to and proper reporting of surgical care.[53] Addressing these issues requires strengthening surgical infrastructure, improving multidisciplinary collaboration, and establishing clear referral networks to ensure surgical options are accessible and properly documented.

These interconnected challenges highlight crucial gaps in Nigeria's IBD management system, emphasizing the need for policy reforms, infrastructural development, and capacity building to enhance care delivery and bring practices closer to international standards while considering local resource limitations.

The survey also reveals considerable challenges in managing IBD, particularly the high cost of evaluation and medications, which affected nearly half of the patients surveyed (49.4%). This financial burden is compounded by the lack of availability of necessary medications and concerns regarding the reliability of histological diagnoses (46.2% and 23.4%, respectively). Such barriers necessitate systemic changes to improve access to care, including the establishment of subsidized healthcare programs and improved pharmacological availability in local healthcare systems.[54–56] The treatment barriers faced by patients are echoed in numerous studies across Sub-Saharan Africa. This economic burden is significantly lower in developed regions, where healthcare systems often provide support structures for managing chronic conditions.[57]

The study's findings on IBD prevalence in Nigeria, showing a 4.4% national prevalence with UC as the most common subtype, provide valuable insights but are limited by several methodological and infrastructural challenges inherent in a multi-center, cross-sectional design. Variability in participating centers, including differences in diagnostic capacity, clinician expertise, and resource availability, may introduce selection bias and affect data consistency. The reliance on retrospective data and endoscopic findings, with only 45.3% of cases histologically confirmed, further constrains diagnostic accuracy and may lead to underestimation, especially in rural or resource-limited areas lacking specialized pathology services. Additionally, infrastructural limitations, such as the widespread absence of electronic medical records, hamper comprehensive and reliable data collection, contributing to a reported 36.7% rate of incomplete or missing data despite efforts like validation protocols and regular reviews. Most centers lack standardized digital documentation, which impedes data quality and consistency.

Moving forward, establishing centralized electronic health records and standardized diagnostic protocols, including strict histological validation aligned with guidelines such as European Crohn's and Colitis Organisation, is essential to enhance data accuracy, facilitate more representative epidemiological assessments, and improve management strategies for IBD across Nigeria. To address these disparities, the Nigerian healthcare system must develop strategies that effectively meet these needs, including promoting awareness about IBD among healthcare providers and patients, enhancing diagnostic capabilities, and improving treatment accessibility. A multi-faceted approach, including enhanced awareness, better diagnostics and treatment availability, and localized research efforts, is essential to understanding IBD's complex epidemiology in Africa. Continued research and the establishment of specialized IBD clinics could further support these efforts, ultimately enhancing patient outcomes and quality of life for those affected by this chronic condition. By focusing on these multifaceted aspects, stakeholders can contribute to a more robust healthcare framework that adequately addresses IBD.

Conclusions

The findings of this multicenter survey illuminate the pressing issues surrounding IBD in Nigeria, drawing attention to its prevalence, complex clinical presentations, and significant management challenges. The data reveal critical similarities and differences compared to findings in West Africa, other regions of Africa, Europe, Asia, and the Americas. The lower prevalence in Nigeria and other African studies reflects unique genetic and environmental factors influencing IBD development. Demographic trends indicate a younger population affected by IBD in Nigeria, consistent with regional observations. However, disparities in clinical presentations, treatment modalities, and barriers to care highlight broader challenges within the Nigerian healthcare system that warrant urgent attention.

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Conflict of interest

There is no conflict of interest to declare.

Author contributions

YM contributed to manuscript concept, drafted, reviewed, edited the manuscript and served as guarantors; all authors contributed to data acquisition, drafting and editing the manuscript. They also read the manuscript and approved the final draft.

Ethical statement

This study was conducted in accordance with the ethical standards of the Helsinki Declaration (as revised in 2024). Approval was obtained from the Federal Teaching Hospital, Katsina Health Research Ethical Review Committee (HREC), with the following approval numbers: FTHKTNHREC.REG.24/06/22C/199; ADM/DSCST/HREC/APP/7102; NHREC/08/10-2015; UATH/HREC/PR/591. The requirement for individual consent for this retrospective analysis was waived.

Data sharing statement

The dataset used in support of the findings of this study are included within the article.

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