Insights into the Epidemiology and Clinical Features of Inflammatory Bowel Disease

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Abstract

Background: Inflammatory bowel disease (IBD) is a chronic inflammatory disorder of the gastrointestinal tract and includes ulcerative colitis (UC) and Crohn's disease (CD). They mainly affect young populations, altering their quality of life and increasing morbidity, compared to the general population. Objective: provide a comprehensive understanding of the global patterns, underlying causes, and clinical manifestations of Inflammatory Bowel Disease (IBD), including Crohn's disease (CD) and ulcerative colitis (UC). The article explores the geographical distribution, environmental and genetic factors contributing to IBD, common clinical presentations, advancements in diagnostic techniques, therapeutic approaches, and their impact on patients' quality of life and healthcare systems. Methods: This retrospective cohort study was conducted at the IBD clinic of Zagazig University hospitals from June 2019 to July 2024 on adult patients with ulcerative colitis and Chron's diseases diagnosed by colonoscopy and pathological examination. We studied the sociodemographic, clinical characteristics, type of therapy, and outcome. Results: This study included 208 ulcerative colitis (UC) and 22 Crohn's disease (CD) patients. UC was more common in females (64.4%) with a mean age of 34.45 years, predominantly from rural areas (85.6%), and mostly non-smokers (84.6%). Common symptoms included bleeding per rectum (99%), diarrhea (97.1%), and abdominal pain (92.3%), while extraintestinal manifestations and surgical history were rare. In CD, patients had a mean age of 34.09 years, with 86.4% under 40 at disease onset and a higher surgical history (81.8%). Common procedures included appendicectomy and cholecystectomy. Extraintestinal manifestations were more frequent (22.7%), and abdominal pain (100%) and diarrhea (90.9%) were the most common symptoms. Both diseases showed a delay in diagnosis and significant impacts on quality of life and daily functioning. Conclusion: ulcerative colitis was more prevalent in females, predominantly affecting rural residents and non-smokers. Extraintestinal manifestations and surgical histories were uncommon. In Crohn's disease, higher rates of surgical interventions and extraintestinal manifestations were recorded.

Keywords: Epidemiology, Clinical Features, Inflammatory Bowel Disease

Introduction

Inflammatory Bowel Disease (IBD) encompasses two major chronic gastrointestinal disorders: Crohn's disease (CD) and ulcerative colitis (UC). Both conditions are characterized by chronic

inflammation of the gastrointestinal tract, significantly impacting patients' quality of life [1]. Globally, the incidence and prevalence of IBD have been increasing, particularly in regions undergoing rapid industrialization and urbanization [2]. This phenomenon highlights the potential role of environmental factors in disease pathogenesis, including diet, sanitation, and antibiotic use [3]. Furthermore, genetic susceptibility and immune system dysregulation are critical contributors to disease development and progression [4].

Epidemiological studies have revealed significant geographical variation in the distribution of IBD. Historically, the highest prevalence rates were observed in Western Europe and North America [5]. However, recent data suggest a rising incidence in previously low-prevalence regions, such as Asia, Africa, and South America [6]. These changes are thought to reflect the adoption of a Westernized lifestyle and dietary habits [7]. The rising global burden of IBD emphasizes the need for region-specific public health strategies to address these emerging trends [8].

The clinical presentation of IBD is heterogeneous, with varying symptoms depending on the disease subtype, location, and severity. Common symptoms include diarrhea, abdominal pain, rectal bleeding, and weight loss [9]. In CD, inflammation can affect any part of the gastrointestinal tract, often leading to strictures, fistulas, and abscesses [10]. In contrast, UC primarily affects the colon and rectum, with continuous mucosal inflammation [11]. Extraintestinal manifestations, such as arthritis, uveitis, and erythema nodosum, are also frequently observed, further complicating disease management [12].

The pathogenesis of IBD involves a complex interplay between genetic, environmental, and immune-related factors. Genome-wide association studies (GWAS) have identified multiple susceptibility loci linked to IBD, including genes related to immune system function and epithelial barrier integrity. For example, mutations in the NOD2 gene are strongly associated with Crohn's disease, whereas variations in the HLA region are more commonly linked to ulcerative colitis. Despite these findings, genetic predisposition alone cannot fully explain the rising incidence of IBD, underscoring the importance of environmental triggers [13].

Dietary factors are increasingly recognized as key contributors to IBD pathogenesis. High intake of processed foods, saturated fats, and refined sugars has been associated with an increased risk of IBD. Conversely, diets rich in fruits, vegetables, and dietary fiber may offer protective effects. Emerging evidence also suggests that alterations in gut microbiota, termed dysbiosis, play a crucial role in disease development. Imbalances in gut microbial composition can disrupt intestinal homeostasis and trigger inflammatory responses [14].

Advances in diagnostic techniques have significantly improved the early detection and monitoring of IBD. Colonoscopy with histological examination remains the gold standard for diagnosis. In addition, non-invasive biomarkers such as fecal calprotectin and C-reactive protein (CRP) are widely used for disease monitoring and assessing treatment response. Cross-sectional imaging modalities, including magnetic resonance enterography (MRE) and computed tomography enterography (CTE), have also enhanced the assessment of disease extent and complications [15].

The management of IBD has evolved with the introduction of biologic and targeted synthetic therapies. Tumor necrosis factor-alpha (TNF-α) inhibitors, such as infliximab and adalimumab, have revolutionized the treatment landscape by inducing and maintaining remission in patients with moderate-to-severe disease. More recently, therapies targeting interleukins (e.g., ustekinumab) and integrins (e.g., vedolizumab) have shown promising results. Despite these advancements, treatment resistance and loss of response remain significant challenges [15], IBD represents a significant global health challenge with increasing incidence and complex clinical

presentations. Advances in understanding disease pathogenesis, diagnostic modalities, and therapeutic options have improved patient outcomes. However, ongoing research is needed to address remaining gaps in knowledge, optimize treatment strategies, and reduce the burden of IBD worldwide [15].

This study aimed to provide a comprehensive understanding of the global patterns, underlying causes, and clinical manifestations of Inflammatory Bowel Disease (IBD), including Crohn's disease (CD) and ulcerative colitis (UC). The article seeks to explore the geographical distribution, environmental and genetic factors contributing to IBD, common clinical presentations, advancements in diagnostic techniques, therapeutic approaches, and their impact on patients' quality of life and healthcare systems.

Patients and Methods

A retrospective cohort study was conducted from June 2019 to July 2024 at the Inflammatory Bowel Disease (IBD) outpatient clinic of the Internal Medicine Department at Zagazig University Hospital. The study aimed to evaluate patients diagnosed with IBD using clinical, laboratory, radiological, and histopathological evidence. Eligible participants included male and female patients aged 18 years or older who received treatment according to established guidelines, adhered to outpatient care protocols, and agreed to follow-up for one year. Informed consent was obtained from all participants.

Patients were excluded if their medical records lacked sufficient data, if they were non-adherent to treatment, if they had switched between treatment regimens, or if they had inadequate follow-up or supporting laboratory and endoscopic findings. Patients under the age of 18 were also excluded from the study. A total sample of 230 patients who met the inclusion criteria were enrolled over the study period.

All patients underwent a comprehensive clinical history evaluation, including personal history (age, residence, occupation, and smoking habits), medical history (comorbidities such as diabetes, cardiovascular diseases, tuberculosis, and hepatic disorders), surgical history (bowel resection, stricturoplasty, ileostomy), and family history (IBD, colorectal cancer, TB). A detailed general examination was performed, focusing on vital signs, abdominal distension, tenderness, altered bowel sounds, hepatomegaly, and perianal abnormalities such as fissures and abscesses.

Endoscopic assessment, including colonoscopy and sigmoidoscopy with histopathological examination, served as the gold standard for diagnosis. Findings such as ulcers, inflammation, bleeding, and stenosis were recorded, with biopsies taken from the colon and terminal ileum. Upper endoscopy was performed in cases of upper gastrointestinal symptoms, such as nausea, vomiting, or epigastric pain. Routine laboratory investigations included a complete blood count (CBC), liver function tests, C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), and fecal calprotectin levels.

Patient evaluation followed a structured timeline. At baseline (Week 0), the extent, classification, and activity of the disease were assessed using clinical, biochemical, endoscopic, and radiological evaluations. Routine follow-ups were conducted every six months (Weeks 24 and 48), focusing on clinical assessments (Partial Mayo Index for ulcerative colitis and Harvey-Bradshaw Index for Crohn's disease), laboratory assays (CRP and fecal calprotectin levels), and endoscopic evaluations with histopathological biopsies. Disease activity was scored using the Mayo Score for ulcerative colitis and the Simple Endoscopic Severity Index for Crohn's disease (SESI-CD).

The study monitored treatment response based on the STRIDE-II recommendations. Clinical remission was defined as the resolution of abdominal pain and diarrhea for a minimum of three months during active disease. Endoscopic remission was characterized by the resolution of ulceration during ileo-colonoscopy, assessed at 6- to 9-month intervals. Biomarker normalization, including CRP and fecal calprotectin levels, was also used as an indicator of therapeutic success.

This study provided a comprehensive evaluation of IBD patients through detailed clinical history, physical examination, laboratory testing, endoscopic evaluation, and standardized follow-up protocols. The structured monitoring approach allowed for consistent assessment of disease activity, treatment response, and patient outcomes over time.

Statistical Analysis

Data collected throughout history, along with basic clinical examinations, laboratory investigations, and outcome measures, were coded, entered, and analyzed using Microsoft Excel software. The data were then imported into the Statistical Package for the Social Sciences (SPSS version 20.0) for further analysis.

For the analysis, qualitative data were represented as numbers and percentages, while quantitative data were expressed as mean ± standard deviation (SD). We use Kolmogorov–Smirnov test to assess parametric and nonparametric variables. The following statistical tests were used to assess differences and associations: the Chi-square test (X^2) for qualitative variables, t-tests or Mann-Whitney tests for quantitative independent groups, Kappa for agreement, and logistic regression for identifying predictors. A p-value of less than 0.05 was considered significant, while a p-value of less than 0.001 was regarded as highly significant.

Results

Ulcerative colitis group

Table 1: Distribution of the studied Ulcerative colitis patients according to demographic data, history, and clinical presentation

	N=208	%
Gender		
Female	134	64.4%
Male	74	35.6%
	Mean ± SD	**Range**
Age (year)	34.45 ± 10.57	15 – 65
	Median (IQR)	**Range**
Disease onset (year)	28.31 ± 9.76	8 – 56
Late diagnosis (months)	16(16 – 192)	4 – 192
Occupation		
Quit	67	32.3%
House wife	100	48%
Worker	41	19.7%
Residence		
Rural	178	85.6%
Urban	30	14.4%
Marital status		
Single	42	20.2%

Married	167	78.8%
Divorced	2	1%
Special habits:		
Non-smoker	176	84.6%
X-smoker	8	3.9%
Smoker	24	11.5%
Contraception	N=134	
Hormonal pills	68	50.7%
IUD	54	40.3%
No	12	9%
Pregnancy	N=124	
After disease	22	17.7%
Before disease	102	82.3%
Pregnancy outcome (after) **Continue** **Aborted**	18/22 4/22	81.8 **%** 18.2 **%**
	N=208	%
Positive family history	12	5.8%
Extraintestinal manifestation Present Iridocyclitis	18	8.7%
Peripheral arthritis	6	2.9%
Rheumatoid arthritis	6	2.9%
TEM	4	1.9%
Absent	2 190	1% 91.3%
Surgical history		
Present	16	7.8%
Hemorrhoidectomy	10	4.8%
Cholecystectomy	2	1%
Open heart surgery	2	1%
Herniotomy	2	1%
Absent	192	92.2%
Colectomy	2	1%
HCV antibody Negative	4	1.9%
Postive	204	98.1%
HBsAg Postive	2	1%
Negative	206	99%
HIV Ab Postive	0	0%
Negative	208	100%
Tuberculin test		

Postive	2	1%
Negative	206	99%
	N=208	%
Chronic disease		
Present	12	5.8%
Diabetes	10	4.8%
Rheumatic heart disease	2	1%
Absent	196	94.2%
Presenting symptoms		
Bleeding per rectum	206	99%
Diarrhea	202	97.1%
Abdominal pain	192	92.3%
Urgency	83	39.9%

The study included 208 patients diagnosed with ulcerative colitis, with a gender distribution of 64.4% females (134 patients) and 35.6% males (74 patients). The mean age was 34.45 ± 10.57 years, with a range from 15 to 65 years. The mean age at disease onset was 28.31 ± 9.76 years, with a range from 8 to 56 years. Late diagnosis occurred at a median of 16 months (IQR: 16 – 192 months), with a range from 4 to 192 months. In terms of occupation, 32.3% were unemployed, 48% were housewives, and 19.7% were workers. Regarding residence, 85.6% lived in rural areas, while 14.4% were from urban areas. Marital status showed that 20.2% were single, 78.8% were married, and 1% were divorced. Smoking habits indicated that 84.6% were non-smokers, 3.9% were ex-smokers, and 11.5% were smokers. Contraceptive use was reported in 134 female patients, with 50.7% using hormonal pills, 40.3% using IUDs, and 9% using no contraception. Among 124 pregnant women, 17.7% conceived before the disease onset, while 82.3% conceived after the disease onset. Pregnancy outcomes showed that 81.8% of pregnancies continued, while 18.2% resulted in abortion. (Table 1)

The past medical history of the 208 ulcerative colitis patients showed that 5.8% (12 patients) had a positive family history. Extraintestinal manifestations were observed in 8.7% of the patients, with 2.9% having iridocyclitis, 2.9% having peripheral arthritis, 1.9% having rheumatoid arthritis, and 1% having toxic epidermal necrolysis (TEM), while 91.3% had no extraintestinal manifestations. Surgical history was reported in 7.8% of patients, including hemorrhoidectomy (4.8%), cholecystectomy (1%), open heart surgery (1%), and herniotomy (1%), with 92.2% having no surgical history. Colectomy was performed in 1% (2 patients). Regarding viral infections, 1.9% were positive for HCV antibodies, 1% were positive for HBsAg, and no patients tested positive for HIV antibodies. Tuberculin test results showed 1% positive and 99% negative results (Table 1)

The distribution of chronic diseases among the 208 ulcerative colitis patients revealed that 5.8% (12 patients) had diabetes, 4.8% (10 patients) had rheumatic heart disease, and 1% (2 patients) had other chronic conditions, while 94.2% had no chronic disease. Regarding clinical presentation, 99% of patients presented with bleeding per rectum, 97.1% had diarrhea, 92.3% experienced abdominal pain, and 39.9% had urgency. (Table 1)

Crohn's disease patients

Table 2: Distribution of the studied Crohn's disease patients according to demographic data, history, and clinical presentation

	N=22	%
Gender		
Female	6	27.3%
Male	16	72.7%
	Mean ± SD	**Range**
Age (year)	34.09 ± 10.99	15 – 62
	Median (IQR)	**Range**
Disease onset		
A1<40	19	86.4 **%**
A2>40	3	13.6%
Late diagnosis (months)	48(24 – 204)	2 – 960
Occupation		
Housewife	6	27.3
Not working	3	13.6%
Quit work	6	27.3%
Worker	7	31.8%
Residence		
Rural	19	86.4%
Urban	3	13.6%
Marital status		
Single	15	68.2%
Married	7	31.8%
Special habits:		
Non-smoker	15	68.2%
Smoker	7	31.8%
Contraception	N=6	
IUD	3	50%
Hormonal pills	1	16.7%
No	2	33.3%
Pregnancy	N=4	
Before disease	3	75%
After disease	1	25%
Outcome of pregnancy (after disease) Continue		
	1/1	100%
	N=22	%
Positive family history	0	0%
Extraintestinal manifestation		

Present		
Rheumatoid arthritis	5	22.7%
TEM	2	4.5%
Alopecia	2	9.1%
Absent	1	4.5%
	17	77.3%
Surgical history		
Present	18	81.8%
Appendicectomy	6	27.3%
Cholecystectomy	2	9.1%
Anal fissure-otomy	1	4.5%
Hemicolectomy	1	4.5%
Hemorrhoidectomy	1	4.5%
Operated intestinal obstruction	3	13.6%
Partial colectomy	2	9.1%
Operated perforated viscus	2	9.1%
Absent	4	18.2%
HCV antibody		
Positive	1	4.5%
Negative	21	95.5%
HBsAg	N=22	
Negative	22	100%
HIV Ab (negative)	22/22	100%
Tuberculin test		
Positive, treated	2	9.1%
Negative	20	90.9%
	N=22	%
Choronic illness		
Present	2	9%
Diabetes	1	4.5%
Hypertention	1	4.5%
Absent	20	91%
Presenting symptoms		
Abdominal pain	22	100%
Diarrhea	20	90.9%
Bleeding per rectum	19	86.4%
Urgency	12	54.5%

For the Crohn's disease cases. The mean age was 34.09 ± 10.99 years, with a range from 15 to 62 years. Disease onset occurred in 86.4% (19 patients) before the age of 40, while 13.6% (3 patients) had onset after 40. The median duration of late diagnosis was 48 months (IQR 24–204), ranging from 2 to 960 months. Regarding occupation, 27.3% (6 patients) were housewives,

13.6% (3 patients) were not working, 27.3% (6 patients) had quit work, and 31.8% (7 patients) were employed. Most patients (86.4%, 19 patients) resided in rural areas, while 13.6% (3 patients) lived in urban areas. Marital status showed that 68.2% (15 patients) were married and 31.8% (7 patients) were single. In terms of smoking habits, 68.2% (15 patients) were non-smokers, and 31.8% (7 patients) were smokers. Contraceptive use was reported by 50% (3 patients) with IUDs, 16.7% (1 patient) with hormonal pills, and 33.3% (2 patients) had no contraception. Among patients who had pregnancies, 75% (3 patients) had them before disease onset, while 25% (1 patient) had them after. The outcome of pregnancy after the disease was successful in 100% (1 patient). (Table 2)

History in Crohn's disease patients (N=22) showed that none had a positive family history. Extraintestinal manifestations were present in 22.7% (5 patients), including rheumatoid arthritis (4.5%, 1 patient), TEM (9.1%, 2 patients), and alopecia (4.5%, 1 patient), while 77.3% (17 patients) had no such manifestations. Surgical history included 81.8% (18 patients) who had undergone surgery, with common procedures being appendicectomy (27.3%, 6 patients), cholecystectomy (9.1%, 2 patients), anal fissure-otomy (4.5%, 1 patient), hemicolectomy (4.5%, 1 patient), and hemorrhoidectomy (4.5%, 1 patient). Additional surgeries included 13.6% (3 patients) with operated intestinal obstruction, 9.1% (2 patients) who had partial colectomy, and 9.1% (2 patients) with operated perforated viscus, while 18.2% (4 patients) had no surgical history. HCV antibody was positive in 4.5% (1 patient) and negative in 95.5% (21 patients), while all patients were negative for HBsAg (100%) and HIV antibodies (100%). The tuberculin test was positive and treated in 9.1% (2 patients), and negative in 90.9% (20 patients). (Table 2)

The distribution of Crohn's disease patients (N=22) according to chronic illness and clinical presentation showed that 9% (2 patients) had diabetes, 4.5% (1 patient) had hypertension, and 91% (20 patients) had no chronic illness. All patients (100%) presented with abdominal pain, while 90.9% (20 patients) experienced diarrhea, 86.4% (19 patients) had bleeding per rectum, and 54.5% (12 patients) reported urgency (Table 2)

Discussion

Inflammatory bowel disease (IBD), including ulcerative colitis (UC) and Crohn's disease (CD), is a chronic and recurrent inflammatory disease that mainly relates to the intestinal tract [16].

Patients with ulcerative colitis usually present with diarrhea, which may be associated with blood. Bowel movements are frequent and small in volume due to rectal inflammation. Associated symptoms include colicky abdominal pain, urgency, tenesmus, and incontinence [17].

Crohn's disease (CD) is a chronic inflammatory disease of the gastrointestinal tract characterized by alternating periods of remission and relapse. Patients with CD experience a variety of symptoms that may include localized abdominal pain, chronic diarrhea, weight loss, fatigue, anxiety, and depression [18].

The exact cause of IBD remains indistinct, but it is generally accepted that its etiopathology is multifactorial, involving genetic predisposition, mucosal barrier dysfunction, disturbances in the gastrointestinal microbiota, dysregulated immune responses, and environmental, and lifestyle factors [19,20].

The disease is a worldwide concern, but the incidence is highest in the United States, Sweden, and the United Kingdom. IBD has a growing incidence in the Middle East and North Africa; however, a lack of an accurate registry and epidemiological cohort studies are still obstacles to evaluating the current situation. UC is more common than CD in various parts of the world. In Egypt, few data regarding the epidemiology of IBD are available; however, some studies suggest

the relative incidence ratio of UC and CD is 6:1 [21].

The current study included 208 ulcerative colitis patients (64.4% female, 35.6% male). Female predominance may relate to hormonal influences like contraceptive use, which affects gut immunity. The present study was in line with several studies [16,22,23] that reported the same findings.

The mean age of patients was 34.45 ± 10.57 years with mean disease onset at 28.31 ± 9.76 years. The present study was in line with Cai et al. [16] who reported that the median age of cases was 44 years. Additionally, Banerjee et al. [24] reported that the peak age of onset was in the third decade, with a low proportion of elderly-onset IBD (5% age > 60) and familial IBD (5%).

The median diagnostic delay was 16 months. Diagnostic delays may stem from symptom overlap and limited healthcare access. This was in line with other studies [25,26].

Most patients were from rural areas (85.6%). This did not coincide with other studies like Benchimol et al. [27], who reported that the incidence of IBD per 100,000 was 33.16% in urban residents and 30.72% in rural residents, suggesting environmental triggers such as sanitation or diet impact the microbiota. Similar findings were observed in studies by Ananthakrishnan et al. [28] and Zuo et al. [29]. The urban population in Egypt has been almost stable since 2010 and represents 42.8% of the Egyptian population [30]; however, the lifestyle in rural areas has been urbanized, and this change should be studied selectively.

In the current study, 15.4% of patients were smoking, without any correlation between smoking habits and the occurrence or severity of UC because most of our patients in this study did not have a history of smoking at the time of diagnosis. Additionally, there was no correlation between smoking and the occurrence of extra-intestinal manifestations.

In agreement with our study, Abdallah et al. [31] reported that there was no correlation between smoking and the occurrence of UC. Although most literature points towards a strong protective role for smoking in UC, similar to our findings, there are a few studies that have also reported no associations between adult smoking and UC [32]. This suggests there is still a need to explore this association further, perhaps using objective smoking exposure measures.

In the current work, pregnancy occurred in 124 patients, with 17.7% of pregnancies occurring after disease onset, successful delivery achieved in 81.8%, and abortion in 18.2%. In agreement with the current work, Schulze et al. [33] reported that active disease during pregnancy increases the risk of preterm birth and low birth weight. The ideal time to plan pregnancy when you have IBD is during a remission phase of at least 3–6 months without the use of steroids.

In this study, occupationally, 32.3% had quit work, 48% were housewives, and 19.7% were workers. In line with our findings, Ramos et al. [34] showed that one-third of IBD patients present some degree of disability, with the degree of disability increasing in patients with long-standing disease. They studied 214 IBD patients, of whom 73% were actively employed, 4.1% received a work-disability pension, 5.5% were unemployed, and 3.8% had retired prematurely.

In the current study, among the 208 patients, 5.8% had a positive family history. In agreement with the current study, Momtaz and Fayed [35] estimated that the prevalence of family history in UC patients was 8%. In disagreement, Childers et al. [36] estimated a prevalence of 12%. This discrepancy may stem from underdiagnosis due to low awareness, misdiagnosis with infectious diarrhea, and limited access to diagnostic tools in rural health centers.

Extraintestinal manifestations were observed in 8.7% of cases, including iridocyclitis (2.9%), peripheral arthritis (2.9%), rheumatoid arthritis (1.9%), and TEM (1%). In alignment with our study, Momtaz and Fayed [35] found that 2.4% had episcleritis and iridocyclitis, 1.9% had ankylosing spondylitis, and 3% had erythema nodosum. Corica and Romano [37] reported that

extraintestinal manifestations in IBD vary between 6% and 46%.

The most common presenting symptoms in the current work included bleeding per rectum (99%), diarrhea (97.1%), abdominal pain (92.3%), and urgency (39.9%). These findings align with Yuko et al. [38], who reported predominant manifestations of UC as diarrhea, rectal bleeding, and mucous discharge. Feuerstein and Cheifetz [39] demonstrated similar findings, with common symptoms being bloody diarrhea, abdominal pain, urgency, and tenesmus. Momtaz and Fayed [35] also reported frequent symptoms, including diarrhea with blood or pus, fever, anemia, weight loss, and cramping.

In a group of 22 Crohn's disease patients, 72.7% were male, with a mean age of 34.09 years. Our study aligns with Simian et al. [40], who reported 58% of patients being male with a median diagnosis age of 29 years. Elbadry et al. [41] reported a mean onset age of 34 years, consistent with global data from North America and Western Europe [41–43].

In the current study, most patients (86.4%) were from rural areas. This finding contrasts with Benchimol et al. [44], who reported higher incidence rates in urban settings (33.16%) compared to rural areas (30.72%). Similar findings were noted by Ananthakrishnan et al. [45] and Zuo et al. [46]. These differences may arise from increased urbanization in rural areas.

In the current study, 31.8% of patients were smokers. Supporting our findings, Esmat et al. [47] reported that smokers are two to five times more likely to develop Crohn's disease, with heavy smokers experiencing more severe disease progression.

Occupationally, 27.3% of patients had quit work. Ramos et al. [34] reported that disability rates were higher in CD patients (4.6%) and that the rate of IBD patients receiving disability pensions (5.4%) was twice the general population rate (2.7%).

Contraceptive use was common, with 50% using IUDs and 16.7% using hormonal pills. In disagreement, Khalili et al. [48] reported an increased risk of CD with oral contraceptive use.

Pregnancy occurred in four cases, three before disease onset and one after disease onset, continuing to full term. Schulze et al. [33] reported increased risks of preterm birth and low birth weight during active disease, with optimal pregnancy planning during remission. Differences may stem from our small sample size.

The mean delay in diagnosis in our study was 48 months. Kuna [49] reported delays of 18–24 months, with some cases extending to several years. Li et al. [50] emphasized the diagnostic challenges due to symptom overlap with functional digestive disorders.

Extraintestinal manifestations in CD cases were present in 22.7% of patients, including rheumatoid arthritis and alopecia (4.5%) and TEM (9.1%). These findings align with Corica and Romano [37], who reported a prevalence range of 6–46%. However, El-Atrebi et al. [51] noted peripheral arthropathy as the most common extraintestinal manifestation (70%), with axial arthropathy being less common (6%).

In the current study, 27.3% of patients had undergone an appendectomy. Kaplan et al. [52] found a significantly elevated risk of CD following appendectomy, particularly within the first-year post-operation, with the risk declining after five years.

Common symptoms of CD included abdominal pain (100%), diarrhea (90.9%), bleeding per rectum (86.4%), and urgency (54.5%). Veauthier and Hornecker [53] similarly reported diarrhea, abdominal pain, rectal bleeding, fever, weight loss, and fatigue as common symptoms.

Conclusion

In this study, ulcerative colitis was more prevalent in females, with a mean age of 34.45 years, predominantly affecting rural residents and non-smokers. Extraintestinal manifestations and

surgical histories were uncommon while bleeding per rectum and diarrhea were the most frequent symptoms. In Crohn's disease, patients had a mean age of 34.09 years, with higher rates of surgical interventions and extraintestinal manifestations, and abdominal pain was the most consistent clinical presentation

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