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# Clinical Characteristics of Hospitalized Patients with Irritable Bowel Syndrome

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## Abstract

**Introduction:** Irritable bowel syndrome (IBS) is the most frequent functional gastrointestinal disorder. However due to poor health-seeking behaviour of the people and difficulties faced by medical professionals to diagnose IBS, it remains an under-diagnosed gastrointestinal disorder. **Objectives:** To study the risk factors, clinical presentation, and management of IBS among in-patients admitted at two tertiary care hospitals in Mangalore. **Methods:** Forty-one patients diagnosed with IBS based on ROME IV criteria between January 2017 to March 2021 were included. A semi-structured proforma was used to collect the required information. **Results:** The mean age at diagnosis among the patients was  $44.6 \pm 17.8$  years. Twenty-four (58.5%) of them were females. Family history of IBS was present among five (12.2%) patients. IBS-M [18 (43.9%)] was the most common type. Alarming signs like blood and mucus in the stools were present each among eight (19.5%) patients. Weight loss was the most common extra-intestinal symptom [nine (21.9%)]. Mental health problems and psychosomatic disorders were present among seven (17.1%) and six (14.6%) patients, respectively. The most common drug used to treat constipation was Ispaghula husk [17 (41.5%)], and to treat diarrhoea was Loperamide [14 (34.1%)]. As many as 15 (36.6%) patients did not improve with treatment. None of the patients were put on non-pharmacological therapies. **Conclusion:** Holistic management of alarming signs such as blood and mucus in the stools and extra-intestinal symptoms like weight loss is required among IBS patients. Various mental health problems and psychosomatic disorders need to be screened and treated as a part of its management. Non-pharmacological therapies need to be also introduced to improve its treatment outcomes.

**Keywords:** Clinical Features, Irritable Bowel Syndrome, Management, Risk Factors



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## Introduction

Irritable bowel syndrome (IBS) is the most frequent functional gastrointestinal disorder (1). Its global prevalence is estimated to be 11.2% [95% CI 9.8%-11.8%] (2). In Asia, its prevalence is estimated to be 17% [95% CI 5%-33%] (2). Various population-based studies in India reported its prevalence to range from 4% to 7.5% (3). In a study done in eight European countries, only 17% patients with IBS had taken medical help for their symptoms (4). Therefore, the magnitude of the people affected could be much more than the reported prevalence in the various geographical areas.

Due to the poor health-seeking behaviour of the community and difficulties faced by medical professionals to diagnose

IBS, it remains an underdiagnosed gastrointestinal disorder (5). It takes as much as four years on an average to arrive at the diagnosis (6). Accessing treatment and support is further hindered among the patients due to the stigma associated with this disease (6).

IBS is associated with reduced work productivity (4), psychological problems (7), increased cost of treatment (7), and poor quality of life (4, 7). Although a multifactorial disorder, the pathophysiology of IBS is complex and incompletely understood (8). Its clinical presentations resemble several gastrointestinal and pelvic system diseases (9). Consequently, it was observed that investigations are extensively used for its diagnosis, including the rarely indicated ones (10). Treatment strategies remain a challenge and vary among treating doctors (8). Thus,

there is a need for a more focused approach to optimize the management of IBS patients (8). Hence, this study was done to observe the risk factors, clinical presentation, and management of IBS among in-patients in south India.

### Materials and Methods

This record-based cross-sectional study was done in April 2021 at a government and private tertiary care hospital affiliated with a private medical college in Mangalore. The institutional ethics committee approved this study. The approval number was IEC KMC MLR 04-2021/162.

Then permission was taken from the medical superintendents of the respective hospitals to go through the medical records of in-patients confirmed with IBS with International Classification of Diseases (ICD) Code K58. Among them, those diagnosed with IBS based on ROME IV criteria between January 2017 to March 2021 were included in this study. Those diagnosed with IBS based on other criteria were excluded. Outpatients with IBS were also excluded from this study as their medical records are given to them and not kept in the medical records department.

A semi-structured proforma was used for data collection. It was content validated with the help of faculty members from the Department of Internal Medicine. The sociodemographic details of the patients, risk factors, clinical presentations, investigations, pharmacological and non-pharmacological treatment given to them were recorded in a semi-structured proforma by the investigators. Psychosomatic disorders were defined as the occurrence of physical symptoms in IBS without sufficient medical explanation. This comprises symptoms like fatigue, insomnia, body ache, dyspnoea, indigestion, peptic ulcer disease, headaches, migraine, erectile dysfunction, and skin rashes (11).

Data were entered and analysed using International Business Machines Corporation (IBM) Statistical Package for Social Sciences (SPSS) for Windows version 25.0, Armonk, New York. Descriptive statistics were presented as frequencies, percentages, mean and standard deviation.

### Results

Forty-one patients were part of this study. Among them, 29 were from the private hospital and 12 from the government hospital. The mean age of the patients was  $48.3 \pm 17.4$  years. The mean age at diagnosis among the patients was  $44.6 \pm 17.8$  years, ranging from 12 to 72 years. Twenty-four (58.5%) patients were females, and 16 (39%) were unskilled workers. The majority [27 (65.9%)] belonged to rural areas (Table 1). A family history of IBS was present among five (12.2%) patients. Co-morbidities were present among 27(65.8%) patients (Table 2).

**Table 1:** Demographic data of patients with irritable bowel syndrome (IBS)

	Frequency	Percentage
<b>Demographics</b> n = 41		
<b>Age at diagnosis (years)</b>		
≤ 20	3	7.3
21-30	3	7.3
31-40	9	22.0
41-50	7	17.1
51-60	6	14.6
61-70	8	19.5
71-80	5	12.2
<b>Gender</b>		
Males	17	41.5
Females	24	58.5
<b>Occupation</b>		
Semi-professionals	8	19.5
Skilled	7	17.1
Semi-skilled	4	9.8
Unskilled	16	39.0
Students	4	9.8
Housewives	2	4.8
<b>Place of residence</b>		
Urban area	14	34.1
Rural area	27	65.9

**Table 2:** Distribution of risk factors of IBS among the patients

	Frequency	Percentage
<b>Risk factors</b> n = 41		
<b>Family history of IBS</b>		
Present	5	12.2
History of smoking	16	39.0
History of alcohol intake	12	29.3
<b>Type of diet</b>		
Mixed pattern	41	100.0
<b>Co-morbidities*</b>		
Diabetes mellitus	7	17.1
Hypertension	7	17.1
Bronchial asthma	3	7.3
Dyslipidaemia	2	4.9
Gall stones	2	4.9
Others**	13	31.7

\*Multiple responses

\*\*Lactose intolerance 1, Chronic Liver Disease 1, Chronic Renal Disease 1, Chronic Obstructive Pulmonary Disease 1, Epilepsy 1, Fibroid Uterus 1, Hypertrophic Cardiomyopathy 1, Hypothyroidism 1, Migraine 1, Renal calculi 1, Wilke's syndrome 1, Common Bile Duct strictures 1, Dysfunctional Uterine Bleeding 1

The different types of IBS identified among the patients were IBS with mixed bowel habits (IBS-M) [18 (43.9%)], IBS with mostly diarrhoea (IBS-D) [14 (34.2%)], IBS with mostly constipation (IBS-C) [six (14.6%)], and IBS-Unclassified

(IBS-U) [three (7.3%)]. Other than the symptoms which are part of the diagnostic criteria for IBS, namely abdominal pain and altered bowel habits, the next most common symptom was reduced appetite [11 (26.8%)] (Table 3).

**Table 3:** Clinical presentation of symptoms and signs of IBS among the patients

Characteristics	Frequency	Percentage
n = 41		
<b>Gastrointestinal symptoms*</b>		
Abdominal pain	41	100.0
Altered bowel habits	41	100.0
Reduced appetite	11	26.8
Vomiting	6	14.6
Belching	5	12.2
Dyspepsia	4	9.8
Nausea	4	9.8
Bloating	3	7.3
Dysphagia	3	7.3
Flatulence	3	7.3
Feeling of incomplete evacuation of stools	3	7.3
Bleeding per rectum	1	2.4
<b>Extra-intestinal symptoms*</b>		
Loss of weight	9	21.9
Cough	6	14.6
Insomnia	6	14.6
Anxiety	5	12.2
Fever	5	12.2
Fibromyalgia	4	9.8
Fatigue	4	9.8
Depression	3	7.3
Dysmenorrhoea (n = 24)	3	12.5
<b>Signs*</b>		
Presence of mucus in stools	8	19.5
Presence of blood in stools	8	19.5
Abdominal distension	4	9.8
Fissure in ano	2	4.9
Icterus	2	4.9
Malena	1	2.4
Conjunctival pallor	1	2.4

\*Multiple responses

The majority of the patients [9(21.9%)] reported the abdominal pain to be of a diffuse type and intermittent periodicity. The abdominal pain was reported to increase with food intake among seven, during night hours among two, and on lying down in one patient. It was reported to decrease with rest in one patient. Weight loss was the most common extra-intestinal symptom, and it was reported among nine (21.9%) IBS patients. The most common signs of IBS were the presence of blood and mucus in the stools, each of which was reported by eight (19.5%) patients (Table 3).

Psychosomatic disorders were present among six (14.6%) patients. This comprised insomnia among six patients, fibromyalgia among four patients, fatigue among four patients, dyspepsia among four patients, and migraine in one patient. Mental health problems were present among seven (17.1%) IBS patients. Among them, four patients had anxiety, two patients had depression and one had both anxiety and depression.

Ultrasonography and colonoscopy were the most common investigations done among IBS patients. Each of these was done among 28 (68.3%) IBS patients. Upper gastrointestinal endoscopy was performed among 11 (26.8%) patients (Table 4).

**Table 4:** Investigations findings among the patients with IBS

Findings on	Frequency	Percentage
n = 41		
<b>Blood investigations</b>		
Increased erythrocyte sedimentation rate	2	4.9
<b>Ultrasound (n = 28) *</b>		
Thickening of transverse colon	3	10.7
Thickening of ileum and caecum	2	7.1
Thickening of ileum and jejunum	1	3.6
Thickening of caecum	1	3.6
Thickening of descending colon	1	3.6
Thickening of rectal wall	1	3.6
Diffuse colitis	1	3.6
<b>Colonoscopy (n = 28)</b>		
Internal haemorrhoids	2	7.1
Rectal polyp	2	7.1
Other types of polyp#	3	10.7
Others**	4	14.3
<b>Upper gastrointestinal endoscopy (n = 11)</b>		
Antral erosions	2	18.2
Pan oesophagitis	1	9.1
Ectopic varices	1	9.1
Duodenal pseudo diverticulum	1	9.1

\*Multiple responses

#Hyperplastic polyp 1, Diminutive polyp 1, Colonic polyp 1

\*\*Crohn's disease 1, Diverticulosis coli 1, Ulcerative colitis 1, Rectal and Sigmoidal hyperaemic changes 1

The most common drug used to treat constipation was lspaghula husk [17 (41.5%)], and to treat diarrhoea was loperamide [14 (34.1%)] among the IBS patients. As many as 15 (36.6%) patients did not improve with treatment (Table 5).

**Table 5:** Management of IBS among the patients

Characteristics	Frequency n = 41	Percentage
<b>Oral medications*</b>		
Antispasmodic drugs**	41	100.0
Proton pump inhibitors#	41	100.0
Laxatives‡	24	58.5
Antibiotics†	17	41.5
Loperamide	14	34.1
Probiotics‡‡	5	12.2
Amitriptyline	2	4.9
Sertraline	1	2.4
<b>Outcome with treatment</b>		
Improved	26	63.4
Did not improve	15	36.6

\*Multiple responses

\*\*Clidinium bromide 15, Clidinium bromide with Chlordiazepoxide with Dicyclomine 9, Dicyclomine 9, Mebeverine with Chlordiazepoxide 5, Fenoverine 3

#Rabeprazole 14, Pantoprazole 14, Esomeprazole 6, Omeprazole 4, Ranitidine 3

‡Isphaghula husk 17, Sodium Phosphate 3, Polyethylene glycol 1, Bisacodyl 1, Lactulose 1, Liquid Paraffin with Magnesium hydroxide 1

†Rifaximin 6, Ornidazole 5, Metronidazole 3, Ceftriaxone 2, Ceftazidime 1

‡‡ Bifidobacteria 4, Lactobacillus 1

## Discussion

This was an epidemiological study among hospitalized IBS patients in various tertiary health care setups in an urban area. The common type of IBS in the present study was mixed variety. In similar studies done at various health centres or hospitals, the most common type of IBS was IBS-D (12-16), or mixed variety (17, 18). In previous studies, the proportion of patients with IBS-C ranged from 2% to 60% (12, 14 -19), IBS-D ranged from 27.4% to 67.6% (12, 14-16, 18, 19), IBS-M ranged from 4.2% to 58.1% (12, 14-19), and IBS-U ranged from 0.9% to 14.8% (16-18).

The most common gastrointestinal symptoms in the present study were abdominal pain and altered bowel habits. In previous facility-based studies, various gastrointestinal symptoms reported were: belching among 54.9% (14), cyclic vomiting syndrome among 15.2% (14), gastro-oesophageal reflux disease among 19.1% (20) and 34% (13), functional dyspepsia among 37.9% (20) and 53.3% (14), bloating among 36% (13) and 77.2% (19), incomplete evacuation of stools among 58% (13), flatulence among 60.4% (19), abdominal distention among 44.2% (16), abdominal pain among 13.4% (21), 52% (13), 53.5% (19) and 64.6% (16), and recurrent anorectal pain among 9.2% IBS patients (14).

The most common gastrointestinal signs in the present study were the presence of blood and mucus in the stools. These alarm signs were present among 19.5% of patients each. In prior studies, haemorrhoids were present among 9.5% (20), and 22.8% (19), while rectal abscess was present among 9.5% (20), and rectal fistula or abscess among

5% (22) IBS patients. These conditions can also result in bleeding per rectum, which was also present in one patient in this study. Bleeding and loss of body fluids in IBS might lead to other co-morbidities like anaemia and electrolyte imbalance, reported respectively among 31.1% and 24.4% IBS patients in a USA based study (22). This USA based study also reported other alarming signs like bowel obstruction and anal stricture among 13.5% and 5.5% IBS patients, respectively (22). The most common extra-intestinal symptom in the present study was weight loss seen in 21.9% IBS patients. This could be again because of diarrhoea and dysentery.

In the present study, psychosomatic disorders were present among 14.6% patients in comparison to 85.9% reported in the Delhi, India based study (14). The most common symptom among psychosomatic disorders was insomnia in the present study compared to fatigue reported in the same study done in Delhi, India (4). Insomnia was present among 14.6% patients in this study and among 23.7% (19) and 38.5% patients (23) in previous studies. As many as 9.8% patients in this study had fatigue compared to that reported among 15.8% to 61% patients in previous studies (13, 14, 16, 19, 20). Fibromyalgia was present among 9.8% patients in this study and 21% (19) and 34.8% (14) patients in prior studies. Other psychosomatic symptoms reported in previous studies were palpitations [54.9% (14)], disturbed sexual function [35.9% (14)], tension headache [18% to 42.1% (13, 14, 19)], migraine [20.7% to 36.7% (14, 19, 20)], and low back pain [21% (13), 42.4% (14)] among IBS patients. The various pain-related complaints might result in larger consumption of painkiller medications among patients, leading to gastrointestinal mucosal damage and worsening of the existing gastrointestinal symptoms (20).

Mental health problems were present among 17.1% patients in this study and 52.7% (20) and 67.1% (12) IBS patients in previous studies. The proportion of patients with anxiety was 12.2% in the present study and from 21.2% to 31.6% (18, 19, 22) patients in prior studies. Depression was present among 7.3% IBS patients in this study and among 2.1% to 47.3% (14, 18, 19, 22) IBS patients in other studies. Other mental health disorders reported in previous studies were stress among 17.6% (20), bipolar disorder among 6% (22), and affective disorders among 40% (24) IBS patients.

This infers that varied psychosomatic and mental health problems are present among IBS patients. A significant amount of direct health care costs goes into managing these non-gastrointestinal complaints (14, 25). Hence, early diagnosis by screening measures and timely management of these conditions, before complications develop, will help to minimize additional treatment expenses among IBS patients.

The present study showed dysmenorrhoea among three out of 24 female patients with IBS. It has been found that the severity of IBS symptoms increases during menstruation (26). Hence, menstrual problems must be

enquired and managed among women patients with IBS. Considering the various alarming signs, extra-intestinal symptoms, mental health problems, psychosomatic disorders, and menstrual disorders among patients in the present study, we infer that management of IBS requires a holistic approach. These, if not identified early and treated, are known to increase the disease severity and worsen the quality of life of IBS patients (14).

However, as a greater proportion of IBS patients in this study presented with alarming signs like passage of blood and mucus in stools compared to mental health disorders or psychosomatic disorders, these alarming signs should be considered as a greater concern in managing IBS patients admitted in various tertiary care setups at this setting.

Ispaghula husk was the most common laxative used to treat constipation in the present study. It was prescribed among 41.5% IBS patients. Similarly in the study done in England, bulk laxatives were the most common laxatives prescribed, and it was used among 8.2% IBS patients (21). A meta-analysis found that psyllium (Ispaghula), a poorly fermented soluble fibre, moderately effectively manages constipation among IBS-C patients. As per National Institute for Health and Care Excellence (NICE) guidelines, people with IBS should increase their dietary intake of oats or Ispaghula powder containing soluble fibres and should not eat bran which is an insoluble fibre (27). However, Ispaghula has associated side effects such as bloating (28). Lactulose was used to treat constipation in one patient in the present study. It can cause bloating and abdominal distension thereby aggravating pain abdomen. NICE guidelines therefore discourage usage of lactulose for treating constipation (27)

The most common drug used to treat diarrhoea in the present study was Loperamide which was prescribed to more than one-third of the patients. As per the NICE guidelines, it is the first choice antitomotility agent for diarrhoea among IBS patients (27). In the study done in England, 5.6% patients were prescribed antitomotility drugs (21). Rifaximin was the next common drug used to treat diarrhoea. It was prescribed among 14.6% patients in this study. This antibiotic is given to IBS-D patients with refractory diarrhoea even without preceding infections. This will help eradicate bacterial overgrowth and decrease diarrhoea (29). The other benefit of Rifaximin is that it helps improve bloating symptoms (30).

Antispasmodic drugs were prescribed to all patients in this study to manage abdominal pain. In a study done in England (21), 44.3% patients with IBS were prescribed antispasmodic medications. It reduces acetylcholine binding at muscarinic receptors and induces smooth muscle relaxation of the gastrointestinal tract. Although usually safe, these medications can cause blurred vision, dry mouth, and constipation (29). As management of pain in IBS patients is a challenging task, it may require the use of tricyclic antidepressants (TCAs) and selective serotonin reuptake inhibitors (SSRIs) at times. TCAs were prescribed among 4.9% and SSRI among 2.4% patients in the present

study and respectively among 7.2% and 12.5% IBS patients in the study done in England (21).

As per NICE guidelines, if antispasmodic medications are not working, TCAs can be considered second-line treatment in IBS patients (27). TCAs, through anticholinergic effects, increase colon transit time and may benefit IBS-D patients. SSRIs benefit IBS patients in pain relief and reduce other symptoms, such as fibromyalgia. Since SSRIs can cause diarrhoea, it can be prescribed to IBS-C patients. As per the NICE guidelines, SSRIs are indicated for IBS management when TCAs are ineffective (27).

Probiotics were prescribed among 12.2% patients in the present study and as a monotherapy among 29% IBS patients in the Romanian study (19). This comprises "good" bacteria that may be beneficial in relieving abdominal pain, bloating, and diarrhoea symptoms among IBS patients (29). Probiotics have been proven to benefit IBS-D patients particularly.

In the present study, although psychosomatic symptoms and mental health problems were present among patients, psychological therapies were not attempted among the affected. These therapies comprise dynamic psychotherapy, cognitive behavioural therapy, and hypnotherapy that effectively reduce symptoms among IBS patients. These therapies have also been shown to improve the quality of life among IBS patients. IBS management must always be comprehensive, comprising lifestyle advice, dietary recommendations, psychosocial support, and pharmacotherapy.

As per the NICE guidelines, psychological therapies are also indicated when IBS patients do not respond even after 12 months of pharmacological treatment (27). In this study, more than one-third of patients did not improve with treatment. Rusu et al. (19) reported 10% of patients without symptom improvement despite being on treatment. The healthcare providers, therefore, need to personalize the IBS treatment plan as per the patient's need and introduce more non-pharmacological therapies for IBS management. Management of the alarming signs, such as passage of blood and mucus in the stools, need to be prioritized while treating IBS patients.

### **Conclusion**

Holistic management of alarming signs such as blood and mucus in the stools and extra-intestinal symptoms like weight loss is required among IBS patients in this setting. In addition, various mental health problems and psychosomatic disorders need to be screened and treated as a part of IBS management. Non-pharmacological therapies need to be also introduced to improve treatment outcomes.

### **Limitations**

This was a record-based study. Therefore, the results presented are limited to the information available in

the medical records. The study population was small and included admitted patients with IBS at two tertiary care hospitals in the setting. Therefore, this has the limitation of selection bias, and non-random selection of patients. Moreover, IBS patients put on non-standardized treatment plans over the years might be another possibility. Considering all these limitations, the findings of this study may not be representative of the IBS patients among the general population of the country.

### Acknowledgements

The authors of this study thank the Medical Superintendents for permitting us to do this study at these hospitals.

### Competing interests

The authors declare that they have no competing interests.

### Ethical clearance

The institutional ethics committee of Kasturba Medical College, Mangalore approved this study. The approval number was IEC KMC MLR 04-2021/162. Informed consent from the patients could not be taken as this was a retrospective hospital record-based study.

### Financial support

No funding was received for this work.

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