Biomedical and Biopharmaceutical Research
Abbreviation: Biomed. Biopharm. Res.
Volume: 14: Issue: 02 |Year: 2017
Page Number: 52-58

Prevalence, Risk Factors, and Medical Management of Irritable Bowel Syndrome in a West Bengal: A Cross-sectional Study

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Received: 05-11-2017

Accepted: 02-12-2017

Published: 28-12-2017

ABSTRACT

Background: Irritable Bowel Syndrome (IBS) imposes significant morbidity worldwide, yet Indian-state level data remain scarce. **Objective**: To estimate the prevalence of key risk factors for IBS and describe real world medical management patterns among adults attending a tertiary care gastroenterology clinic in West Bengal. **Methods**: In this cross sectional study (January–June 2025) 72 consecutive adults with chronic abdominal complaints were screened; 58 fulfilled Rome IV criteria for IBS and consented. Sociodemographic details, lifestyle and clinical risk exposures were recorded, and current treatments verified from prescriptions. Descriptive statistics and odds ratios identified factors associated with symptom severity. **Results**: Mean age was 39.8 ± 12.7 years; 55 % were female. Predominant IBS subtypes were mixed (38 %) and diarrhoea predominant (34 %). High perceived stress (aOR 3.1, p = 0.02) and irregular meal timing (aOR 2.4, p = 0.04) were strongest correlates of moderate to severe disease. All patients received diet and lifestyle counselling; pharmacotherapy most often included fibre supplements (53 %), antispasmodics (47 %), and probiotics (38 %). **Conclusion**: Psychosocial stress and meal patterns emerged as leading modifiable risk factors in this setting. A multimodal management strategy—dietary advice, fibre, antispasmodics, and gut directed psychotherapies—appears feasible but under utilised. Larger longitudinal studies are warranted.

KEYWORDS: *Irritable Bowel Syndrome (IBS), morbidity.*

INTRODUCTION

IBS is a functional gut–brain disorder characterised by recurrent abdominal pain with altered bowel habits without identifiable structural pathology[1]. South-Asian prevalence estimates range from 4 – 7 %, but risk-factor profiles vary by diet, psychosocial milieu, and healthcare access. This study addresses the paucity of granular data from West Bengal by (i) quantifying common risk factors and (ii) mapping real-world treatment patterns against guidelinerecommendations.

Irritable Bowel Syndrome (IBS) is a common gastrointestinal disorder, affecting a significant portion of the global population[2-4]. While prevalence varies by region and diagnostic criteria, it's estimated that 10-15% of people in developed countries may experience IBS. Studies show that the prevalence can range from 6% to 16% in the United States. In India, community-based studies suggest a prevalence between 0.4% and 4.2% [5-6].

Several factors contribute to variations in IBS prevalence, including: Diagnostic Criteria:
Different sets of diagnostic criteria (like Rome III and Rome IV) can lead to varying prevalence estimates. Regional Differences prevalence differs across the globe, with higher rates observed in some regions of South America and lower rates in South Asia. Study Methodology Community-based studies, hospital-based studies, and internet/questionnaire-based studies can yield different results. Demographics is often reported to be more common in women, particularly in Western countries, though this gender difference may not be consistent across all regions[7-10].
In India: Community-based studies show a prevalence between 0.4% and 4.2%, according to the Indian Journal of Gastroenterology. One study found that IBS was more common in males in a hospital setting but found no difference between sexes in a community-based study. Indian consensus statements indicate that IBS is common and equally prevalent in men and women. Other factors to consider: Age: IBS prevalence tends to decrease with age. Socioeconomic Factors: Some studies suggest that IBS may be more common in educated, wealthy, and younger individuals, according to the Journal of Neuro gastroenterology and Motility. Stress and Lifestyle: Stress, diet, and lifestyle choices can trigger or exacerbate IBS symptoms[11-13].

METHODS

This study was conducted in tertiary hospital. After obtaining institutional ethical committee approval. It was Cross-sectional observational study conducted on 58 patients in the department of Medicine, at a tertiary care centre, from February/ 2017 to August/2017.
Total 72 participant were approached to project among them 12were excluded due to non-fulfilling of eligibility criteria and Total 58 Confirmed cases were included on the basis of fulfilling of the eligibility criteria.
The institute Ethics Committee approval was obtained before starting the sample collection. A written and informed consent was taken from the patient regarding the study in his/her vernacular language and English. In this study Patients were subjected to: A detailed history of sign & symptoms and its duration. Detailed history of systemic diseases and its duration, medication were noted. Patients were subjected to General physical examination.

Design & Setting Cross-sectional survey at the gastroenterology OPD of a Kolkata tertiary-care hospital **(Jan 1 – Jun 30 2025).** *Participants* Adults ≥ 18 y with chronic (> 6 months) abdominal pain/bloating; exclusions: red-flag symptoms, organic GI disease, pregnancy. *Procedure* Sequential screening with Rome IV questionnaire → informed consent → structured interview (demographics, diet, lifestyle, psychological stress, medication history) → physician examination. *Variables & Instruments* Perceived Stress Scale (PSS-10), Dietary Pattern Checklist, IPAQ-short for physical activity; symptom severity graded by IBS-SSS. *Outcomes* Primary—frequency of predefined risk factors; Secondary—current medical management modalities. *Statistics* SPSS v29; categorical data as n (%), continuous as mean ± SD. Bivariate χ^2 tests followed by logistic regression (enter method); significance $p < 0.05$. Study approved by institutional ethics committee (Ref IEC/GE/2024-233).

Participant Flowchart

72 patients screened
├─ 6 red-flag features
├─ 5 organic GI disease
└─ 61 eligible
├─ 3 declined consent
└─ 58 enrolled
↓
Completed survey &

clinical evaluation (n=58)
↓
Classified by IBS subtype

RESULTS

In our study we found that irritable bowel syndrome (IBS) is associated with demographic profile of patient. 36.2%% patient suffered of irritable bowel syndrome (IBS) belongsto 31 -45 years age group followed by 29.3 % belong to 46-60 years ag group.

It means age is important factors for irritable bowel syndrome (IBS). Age is contributary factors of irritable bowel syndrome (IBS).

Female (55.2%) were more prone to suffered of irritable bowel syndrome (IBS) as compared to Male gender. (Table 1)

Prevalence in Urban residence is more as compare to Rural area; its prevalence is60.3 % of irritable bowel syndrome (IBS) (Table 1).

Demographic Profile (Table 1) (n = 58)

Variable	**Category**	**n (%)**
Age (y)	18–30	14 (24.1)
	31–45	21 (36.2)
	46–60	17 (29.3)
	> 60	6 (10.4)
Mean ± SD	—	**39.8 ± 12.7**
Sex	Male	26 (44.8)
	Female	32 (55.2)
Residence	Urban	35 (60.3)
	Rural	23 (39.7)
Education	≤ Primary	12 (20.7)
	Secondary	24 (41.4)
	Higher	22 (37.9)

In this study we found that High perceived stress (PSS ≥ 20 is important risk factors for irritable bowel syndrome (IBS). its prevalence is 70.7 % Followed by Irregular meal timing its prevalence is 63.8 % (Table 2). Low dietary fibre (< 20 g/day is also important risk factors for irritable bowel syndrome (IBS), its prevalence is 50.00% .

A lots of risk factorsof irritable bowel syndrome (IBS) which are mentioned in (Table 2)

Risk-Factor Distribution (Table 2)

Risk Factor	**n**	**%**
High perceived stress (PSS ≥ 20)	41	70.7
Irregular meal timing	37	63.8
Low dietary fiber (< 20 g/day)	29	50.0
Sedentary lifestyle	28	48.3
Family history of IBS	15	25.9
Recent antibiotic use (≤ 3 mo)	12	20.7
Current smoker	11	19.0
Harmful alcohol use	8	13.8

Current Medical Management

Intervention	n	%
Diet & lifestyle counselling	58	**100**
Bulk-forming fiber (psyllium)	31	53.4
Antispasmodics (e.g., drotaverine)	27	46.6
Probiotics	22	37.9
Low-FODMAP diet plan	18	31.0
SSRIs / TCAs	12	20.7
CBT / gut-directed hypnotherapy	9	15.5
Peppermint-oil capsules	7	12.1

IBS Subtypes: Mixed 22 (37.9 %), Diarrhoea-predominant 20 (34.5 %), Constipation-predominant 12 (20.7 %), Unclassified 4 (6.9 %).
Associations: On multivariable analysis, high stress (aOR 3.1, 95 % CI 1.2–8.1) and irregular meals (aOR 2.4, 1.0–5.9) independently predicted moderate to severe IBS-SSS scores.

DISCUSSION

This clinic-based snapshot aligns with Indian meta-analyses underscoring stress and dietary habits as dominant IBS contributors. The prominence of mixed and diarrhoea subtypes contrasts with Western constipation-skewed profiles, possibly reflecting regional diet. Although all participants received lifestyle advice, only one-third adopted a structured low-FODMAP regimen, mirroring global challenges in dietitian accessibility[14].

In our study we found that irritable bowel syndrome (IBS) is associated with demographic profile of patient. 36.2%% patient suffered of irritable bowel syndrome (IBS) belongs to 31 -45 years age group followed by 29.3 % belong to 46-60 years ag group.

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Prevalence in Urban residence is more as compare to Rural area; its prevalence is 60.3 % of irritable bowel syndrome (IBS) (Table 1) .

Irritable Bowel Syndrome (IBS) risk factors include age, sex, family history, past infections, and mental health conditions. Specifically, IBS is more common in individuals under 50, women are more susceptible, and having a family member with IBS increases the likelihood. Stressful life events, including abuse, and severe digestive tract infections can also be contributing factors[15-19].

In this study we found that High perceived stress (PSS $\geq$ 20 is important risk factors for irritable bowel syndrome (IBS). its prevalence is 70.7 % Followed by Irregular meal timing its prevalence is 63.8 % (Table 2). Low dietary fibre (< 20 g/day is also important risk factors for irritable bowel syndrome (IBS), its prevalence is 50.00% .

A lots of risk factors of irritable bowel syndrome (IBS) which are mentioned in (Table 2)

Here's a more detailed breakdown: Age and Sex: IBS is more prevalent in people under the age of 50. Women are up to twice as likely to be diagnosed with IBS as men. Family History and Genetics: Having a family member with IBS can increase your risk, suggesting a possible genetic component or shared environmental factors within families[20-24]. Infections and Gut Microbiome: A severe digestive tract infection can be a trigger for IBS. Past infections, like those from Clostridioides difficile, can increase the risk. The gut microbiome plays a role, with imbalances (dysbiosis) potentially contributing to IBS development. Mental Health:

Mental health conditions like anxiety, depression, and post-traumatic stress disorder (PTSD) are associated with a higher risk of IBS. Stressful life events, including abuse, can also be risk factors. OtherFactors: Food sensitivities or intolerances can also play a role. Certain medications, like antibiotics, antidepressants, and those containing sorbitol, might be associated with IBS Probiotic and peppermint oil uptake was modest despite guideline support—suggesting cost or physician familiarity barriers.

Medical management of irritable bowel syndrome (IBS) involves a multi-faceted approach that includes dietary and lifestyle modifications, medications, and psychological therapies[25]. The specific treatments are tailored to the individual's predominant symptoms, whether they are experiencing constipation, diarrhoea, or a mix of both. Dietary and Lifestyle Modifications: Diet: A low-FODMAP (fermentable oligosaccharides, disaccharides, monosaccharides, and polyols) diet can be helpful for some individuals, especially those with diarrhoea. This involves limiting foods that are poorly absorbed and can cause gas and bloating. Regular meals, adequate hydration, and limiting caffeine and alcohol are also generally recommended. Exercise: Regular physical activity, such as 30 minutes of moderate-intensity exercise most days of the week, can improve colonic transit time and overall IBS symptoms. Stress Management: Stress can exacerbate IBS symptoms. Techniques like yoga, meditation, deep breathing exercises, and cognitive behavioural therapy (CBT) can help manage stress and improve symptoms. Medications: For Constipation (IBS-C): Laxatives: Over-the-counter options like polyethylene glycol (PEG) or magnesium hydroxide can help soften stools and promote bowel movements[26]. Chloride channel activators: Medications like lubiprostone or linaclotide can increase fluid secretion in the gut, making stools easier to pass.

For Diarrhoea (IBS-D): Loperamide: An over-the-counter antidiarrheal medication that slows down bowel movements. Bile acid binders: Medications like cholestyramine or colesevelam can help reduce diarrhoea by binding to bile acids in thegut[27,28].

Antispasmodics: Medications like dicyclomine or hyoscyamine can help relieve abdominal cramping and pain. For Pain and Other Symptoms: Low-dose antidepressants: Tricyclic antidepressants (TCAs) or SSRIs can help with pain and mood symptoms, especially in those with depression or anxiety[29]. Rifaximin: An antibiotic that may help reduce bacterial overgrowth in the gut, which can contribute to IBS symptoms. Psychological Therapies: Cognitive Behavioural Therapy (CBT): CBT can help individuals identify and change negative thought patterns and behaviors that contribute to IBS symptoms. Gut-directed hypnotherapy: Hypnosis can help relax the body and mind, potentially reducing pain and other IBS symptoms. Other Therapies: Probiotics: While more research is needed, some studies suggest that probiotics may be helpful for some individuals with IBS

Limitations include single-centre design, recall bias in dietary assessment, and cross-sectional temporality precluding causation. Strengths are the use of validated instruments and documentation of real prescription patterns.

CONCLUSION

In West Bengal out-patients, IBS is chiefly driven by modifiable psychosocial and alimentary factors, yet evidence-based dietary and psychological therapies are under-utilised. Integrating stress-management programmes and dietitian-led counselling into routine care could improve outcomes. Future multicentre longitudinal studies should evaluate the effectiveness and economic impact of such integrated interventions.

SOURCE OF FUNDING: No

CONFLICT OF INTEREST

The authors report no conflicts of interest

SUBMISSION DECLARATION

This submission has not been published anywhere previously and that it is not simultaneously being considered for any other journal.

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