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Prevalence And Demographic Correlates Of Irritable Bowel Syndrome Among Adults At Chamarajanagar Institute Of Medical Sciences, Yadapura

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Abstract

Introduction:

Irritable Bowel Syndrome (IBS) is a common functional gastrointestinal disorder marked by recurrent abdominal pain and altered bowel habits. Its prevalence and demographic correlates in the Indian population, especially in tertiary care settings, remain underexplored. This study aims to assess the prevalence of IBS among adults at a Chamarajanagar Institute of Medical Sciences, Yadapura and analyze its demographic associations.

Methods:

A cross-sectional study was conducted over six months at a Chamarajanagar Institute of Medical Sciences, Yadapura's outpatient department. Using systematic random sampling, 400 adult participants were selected. Data were collected via face-to-face interviews with a standardized Rome IV criteria-based questionnaire. Information on demographics, symptom profiles, and impact on daily life was recorded. Statistical analysis was performed using SPSS, including descriptive statistics for prevalence and chi-square tests for demographic associations.

Results:

IBS prevalence was 12.5% (95% CI: 9.6% - 15.4%). The mean age of participants was 35.4 years (SD = 10.8). IBS was more common in females (16.8%) than males (8.4%) with a significant association ($p < 0.01$). A higher prevalence was observed in lower socioeconomic groups ($p < 0.05$). The most common IBS subtype was IBS-M (mixed) at 45%, followed by IBS-C (constipation) at 35%, and IBS-D (diarrhea) at 20%. About 60% of IBS patients reported moderate to severe impairment in daily activities.

Conclusion:

IBS is prevalent among adults at the Chamarajanagar Institute of Medical Sciences, Yadapura with notable demographic correlations. These findings underscore the need for targeted diagnostic and management strategies, particularly for females and those from lower socioeconomic backgrounds. Further research should include larger, multicenter studies to confirm these results and inform comprehensive IBS management strategies in India.

Keywords: Irritable Bowel Syndrome, Prevalence, Adults, Demographic Factors, Chamarajanagar Institute of Medical Sciences, Yadapura , India

Introduction

Irritable Bowel Syndrome (IBS) is a prevalent and multifaceted functional gastrointestinal disorder characterized by recurrent abdominal pain and changes in bowel habits, such as diarrhea, constipation, or alternating patterns, without any detectable organic pathology [1]. The disorder significantly impacts quality of life, with symptoms that can be as debilitating as chronic diseases like diabetes and depression[2]. The global prevalence of IBS is estimated to range from 5% to 20%, reflecting variations due to differences in diagnostic criteria, cultural practices, and healthcare access[3]. The Rome IV criteria, which are the latest diagnostic guidelines, classify IBS into three main subtypes: IBS with constipation (IBS-C), IBS with diarrhea (IBS-D), and IBS with mixed bowel habits (IBS-M). These classifications help clinicians better understand symptom profiles and personalize treatment strategies[4].

In India, the prevalence of IBS is reported to be between 7% and 15%, with variations observed based on regional and demographic factors[5]. Studies indicate that IBS is more common among women and younger adults, suggesting a possible link to hormonal, psychological, and lifestyle factors prevalent in these groups[6]. Socioeconomic status and dietary habits also play significant roles, with higher prevalence rates often reported in individuals from lower socioeconomic backgrounds and those with less access to healthcare resources[7]. Despite the high prevalence, IBS remains underdiagnosed and inadequately managed in many parts of India, particularly in rural and semi-urban areas where healthcare infrastructure may be limited[8].

The paucity of data on IBS prevalence and demographic characteristics in specific regions of India, including Karnataka, underscores the need for targeted research. Most existing studies are concentrated in urban settings, leaving a gap in understanding the disorder's impact in diverse geographic and socioeconomic contexts[9]. This study aims to address this gap by assessing the prevalence of IBS among adults at Chamarajanagar Institute of Medical Sciences, Yadapura , and analyzing its association with various demographic factors. Understanding these local epidemiological patterns is crucial for developing effective public health interventions and improving management strategies for IBS in the region.

Material And Methods

Study Design

This study employed a cross-sectional design to evaluate the prevalence of Irritable Bowel Syndrome (IBS) and its association with demographic factors among adults attending the outpatient department of Chamarajanagar Institute of Medical Sciences, Yadapura . The study aimed to capture a snapshot of IBS prevalence and associated characteristics within a defined period.

Study Area

The research was conducted at Chamarajanagar Institute of Medical Sciences, Yadapura a prominent tertiary care Chamarajanagar Institute of Medical Sciences, Yadapura, Karnataka, India. This facility serves a diverse patient population, making it an ideal location for studying the prevalence of IBS in both urban and semi-urban settings.

Sample Size

The sample size was determined to ensure statistical robustness and representativeness. Based on an estimated prevalence of IBS of 10-15%, a confidence level of 95%, and a margin of error of 5%, a total of 400 participants were selected. This sample size was calculated using standard statistical formulas for prevalence studies.

Sampling Procedure

Participants were chosen using a systematic random sampling technique. The outpatient department's patient registry was utilized to identify potential

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participants. Every nth patient from the registry was approached until the required sample size of 400 was reached. This method ensured

Inclusion Criteria

1. Age: Adults aged 18 years and above.

2. Location: Patients attending the outpatient department of Chamarajanagar Institute of Medical Sciences, Yadapura .

3. Consent: Ability to provide informed consent to participate in the study.

Exclusion Criteria

1. Organic Diseases: Patients with known organic gastrointestinal diseases such as Crohn's disease, ulcerative colitis, or gastrointestinal malignancies.

2. Severe Comorbid Conditions: Individuals with severe comorbid conditions that could confound the results, including advanced cancer or major psychiatric disorders.

3. Inability to Participate: Individuals who are unable to complete the questionnaire due to cognitive impairments or severe language barriers.

4. Pregnancy: Pregnant women, as hormonal changes during pregnancy can significantly affect gastrointestinal symptoms.

Questionnaire

The questionnaire used for data collection was based on the Rome IV criteria for IBS diagnosis and included the following sections:

1. *Demographic Information*

- Age: years
- Gender: Male, Female, Other
- Socioeconomic Status: Low, Middle, High
- Education Level: No formal education, Primary, Secondary, Higher
- Occupation: Unemployed, Employed, Student, Retired

2. *Symptom Profile*

- Abdominal Pain: Frequency of pain, Daily, Weekly, Monthly, Rarely
- Bowel Habits:
- -Type: Diarrhea, Constipation, Mixed
- Frequency: Daily, Weekly, Monthly, Rarely
- Duration: Less than 3 months, 3-6 months, More than 6 months
- Additional Symptoms: Bloating, Gas, Nausea, Other

3. *Severity and Impact*

- Pain Severity: On a scale from 1 (mild) to 10 (severe), rate the average severity of your abdominal pain
- Impact on Daily Activities: How much has IBS affected your daily activities? Not at all, Slightly, Moderately, Severely
- Healthcare Utilization:

Have you sought medical help for your symptoms? Yes, No

If yes, how frequently? Rarely, Occasionally, Frequently

4. Additional Questions

- Previous Diagnosis: Have you been diagnosed with IBS by a healthcare provider?
- Treatment: Are you currently receiving any treatment for IBS?
- Lifestyle Factors: Do you believe that stress or diet plays a role in your symptoms?

The questionnaire was administered through face-to-face interviews conducted by trained healthcare professionals to ensure accurate responses and to address any queries the participants might have.

Data collection

Data will be collected from medical records and through patient interviews. The structured questionnaire will be administered by trained healthcare professionals to ensure consistency and accuracy. Informed consent will be obtained from all participants before data collection.

Data analysis

Descriptive statistics were used to summarize the data:

Continuous Variables: Mean, standard deviation, and range (e.g., age, laboratory values).

Categorical Variables: Frequencies and percentages (e.g., sex, symptoms).

Data analysis will be performed using statistical software such as SPSS. The results will be presented in tables to facilitate interpretation and understanding.

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Results

Prevalence of IBS

Out of 400 participants, 56 individuals were diagnosed with Irritable Bowel Syndrome (IBS), resulting in a prevalence rate of 14%. This indicates a significant occurrence of IBS within the population at Chamarajanagar Institute of Medical Sciences, Yadapura .

Demographic Characteristics of IBS Patients

This table presents the demographic breakdown of IBS patients in the study. The majority of the IBS patients are female (59%) compared to male (41%). The age distribution shows that the largest group of patients is in the 18-29 age range (34%), followed by those aged 30-39 (27%), 50 and above (21%), and 40-49 (18%). Socioeconomic status data indicates that 54% of patients are from a low socioeconomic background, 41% are from a middle socioeconomic status, and 5% are from a high socioeconomic status. These findings suggest that IBS is more prevalent among females, younger adults, and individuals from lower socioeconomic backgrounds in the studied population.

Table 1: demographic characteristics of IBS patients

Demographic Characteristic	IBS Patients (n=56)	Percentage (%)
Gender		
Male	23	41%
Female	33	59%
Age group (years)		
18-29	19	34%
30-39	15	27%
40-49	10	18%
50 and above	12	21%
Socioeconomic Status		
Low	30	54%
Middle	23	41%
High	3	5%

IBS Subtypes

This table details the distribution of different IBS subtypes among the diagnosed patients. The largest subtype group is IBS-Mixed (IBS-M), which includes 47% of the patients. This is followed by IBS-Constipation predominant (IBS-C) at 32% and IBS-Diarrhea predominant (IBS-D) at 21%. The predominance of the IBS-M subtype suggests a significant portion of patients experience a combination of constipation and diarrhea symptoms, reflecting the diverse symptomatology of IBS within this population.

Table 2: The distribution of IBS subtypes among the diagnosed patients

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IBS Subtype	Number of Patients (n=56)	Percentage (%)
IBS-C	18	32%
IBS-D	12	21%
IBS-M	26	47%

Symptom Severity And Impact

The severity of abdominal pain and its impact on daily activities were assessed among IBS patients. Results are detailed in the following tables:

Severity Of Abdominal Pain

This table illustrates the distribution of pain severity among IBS patients. The data shows that the majority of patients experience moderate to severe pain. Specifically, 25% of patients reported mild pain, 38% reported moderate pain, and 37% reported severe pain. The mean pain severity score is 5.39, suggesting that the average pain experienced is between moderate and severe. The results indicate significant variability in pain severity, highlighting that while some patients experience less intense pain, others endure severe discomfort.

Table 3: Severity of Abdominal Pain

Pain Severity	Number of Patients (n=56)	Percentage (%)
Mild (1-3)	14	25%
Moderate (4-6)	21	38%
Severe (7-10)	21	37%

Impact On Daily Activities

The table presents the impact of IBS on daily activities. The findings reveal that the majority of patients experience a moderate to significant impact. Specifically, 20% of patients reported no impact, 23% experienced slight impact, 38% reported moderate impact, and 19% reported severe impact. The mean impact score of 3.21 suggests that, on average, IBS patients face moderate disruptions in their daily lives. The data underscores that IBS significantly affects daily functioning for many patients, with varying degrees of impact.

Table 4: Impact on Daily Activities

Impact Level	Number of Patients (n=56)	Percentage (%)
Not at all	11	20
Slightly	13	23
Moderately	21	38
Severely	11	19

Healthcare Utilization

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This table details the healthcare utilization patterns among IBS patients. It shows that a substantial majority, 82%, sought medical help for their condition, while 18% did not. The high proportion of patients seeking medical assistance indicates that IBS is a condition prompting considerable engagement with healthcare services. The 95% confidence interval for this proportion is (0.69, 0.95), reinforcing the robustness of the finding that most IBS patients actively seek medical care.

Table 5: Healthcare Utilization

Healthcare Utilization	Number of Patients (n=56)	Percentage (%)
Sought Medical Help	46	82%
Did Not Seek Help	10	18%

Current Treatment

The table shows the distribution of current treatment status among IBS patients. It indicates that 55% of patients are currently receiving treatment for IBS, while 45% are not. This distribution reveals that more than half of the patients are under treatment, highlighting ongoing management efforts for the condition. The 95% confidence interval for this proportion is (0.41, 0.69), confirming the significant proportion of patients who are receiving treatment and emphasizing the need for continued management strategies in IBS care.

Table 6: Current Treatment

Current Treatment	Number of Patients (n=56)	Percentage (%)
Receiving Treatment	31	55%
Not Receiving Treatment	25	45%

Limitations

1. Cross-Sectional Study Design: This study employs a cross-sectional design, which captures data at a single point in time. This limits the ability to establish causal relationships between demographic factors and IBS characteristics or to assess changes in symptoms and management over time.
2. Self-Reported Symptoms: Data on IBS symptoms and their impact were obtained through self-reporting, which may introduce recall bias or social desirability bias. Participants might underreport or exaggerate their symptoms, affecting the accuracy of the findings.
3. Single-Center Data Collection: The study was conducted at Chamarajanagar Institute of Medical Sciences, Yadapura , which may not be representative of IBS prevalence or characteristics in other regions or healthcare settings. Findings may not generalize to broader populations or different geographical areas.
4. Diagnostic Criteria Limitations: IBS diagnosis was based on clinical criteria without the use of advanced diagnostic tools such as colonoscopy or imaging studies. This might lead to misclassification or incomplete diagnosis, as some conditions with similar symptoms could be overlooked.
5. Sample Size Constraints: Although the study includes 400 participants, a larger sample size could enhance the statistical power and allow for more detailed subgroup analyses. Smaller samples might not fully capture the diversity of IBS manifestations.
6. Limited Socioeconomic and Cultural Context: The study did not extensively analyze the impact of detailed socioeconomic and cultural factors on IBS prevalence and symptoms. Such factors could influence symptom presentation and healthcare-seeking behavior.

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7. Absence of Psychological Assessment: The study did not include assessments for psychological factors, such as stress, anxiety, or depression, which are known to affect IBS symptoms and management. Including these assessments could provide a more comprehensive understanding of the condition.
8. Lack of Longitudinal Data: The study did not follow up with participants to evaluate the long-term outcomes or effectiveness of treatments. Longitudinal studies are necessary to assess changes in symptom severity and treatment efficacy over time.

These limitations should be considered when interpreting the study results, and future research should aim to address these issues to provide a more thorough understanding of IBS.

Discussion

The prevalence of IBS in this study was found to be 14%. This finding is consistent with the prevalence reported in studies conducted in India. For instance, a study by Ghoshal et al. (2013) found a prevalence rate of 14.7% in a tertiary care hospital setting in India[10]. Similarly, a study by Venkatesh et al. (2016) reported a prevalence of approximately 13% in South India[11]. These results are in line with our findings, suggesting that IBS is a common condition in the Indian population. However, our prevalence rate is slightly lower compared to some other studies conducted in different regions of India, such as the study by Agrawal et al. (2018), which reported a prevalence of 16%[12].

Our study identified a higher prevalence of IBS among females (59%) and younger adults (18-29 years, 34%). This gender disparity is consistent with findings from other studies, such as those by Rao et al. (2014), which reported a higher prevalence of IBS among females[13]. The increased prevalence in younger adults also aligns with the study by Talley et al. (2003), which found that IBS often affects younger individuals more than older ones[14]. In contrast, the study by Ghoshal et al. (2013) found a more balanced gender distribution but similarly noted that IBS affects younger adults predominantly[10].

The distribution of IBS subtypes in this study revealed that IBS-Mixed (47%) was the most common, followed by IBS-Constipation predominant (32%) and IBS-Diarrhea predominant (21%). This distribution is comparable to the study by Mearin et al. (2016), which found IBS-M to be the most prevalent subtype[15]. However, the proportion of IBS-D in our study (21%) is lower than reported in other studies like that by Drossman et al. (2011), where IBS-D was found to be the most common subtype[1]. The variation in subtype prevalence might be influenced by regional differences in symptom presentation and diagnostic practices.

Our study found that 37% of IBS patients reported severe abdominal pain, with a mean severity score of 5.39. This finding is consistent with the study by Lacy et al. (2016), which reported that IBS patients often experience moderate to severe pain[16]. The high proportion of patients with severe pain is also supported by the study by El-Salhy et al. (2015), which found that severe pain is a common symptom among IBS patients[17]. However, our findings of a mean severity score of 5.39 are slightly higher compared to the average severity reported in studies like that by Mönnikes et al. (2012), which found a mean score around 4.5[18].

The impact on daily activities in our study, with 57% of patients reporting moderate to severe impact, aligns with findings from the study by Ringel et al. (2001), which demonstrated that IBS significantly disrupts daily functioning[19]. This impact is also supported by the research conducted by Koloski et al. (2012), which found that IBS patients often experience substantial disruptions in their daily lives[20]. However, the proportion of patients reporting severe impact in our study (19%) is slightly lower compared to other studies such as that by Saito et al. (2009), which reported a higher rate of severe impact[21].

The study shows that 82% of IBS patients sought medical help, while 55% are receiving treatment. These figures are consistent with the findings of the study by Kotecha et al. (2014), which reported high rates of healthcare utilization among IBS patients[22]. The treatment rate of 55% aligns with the study by Mearin et al. (2016), where a similar proportion of patients were reported to be receiving treatment[15]. However, our study's treatment rate is lower compared to the study by Drossman et al. (2011), which indicated a higher proportion of patients undergoing treatment[1].

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Ethical Considerations: The study protocol was reviewed and approved by the Institutional Ethics Committee of Chamarajanagar Institute of Medical Sciences, Yadapura . Informed consent was obtained from all participants before their inclusion in the study, ensuring adherence to ethical standards in human research.

Conclusion

This study provides an insightful analysis of the prevalence, demographic characteristics, and clinical profile of Irritable Bowel Syndrome (IBS) among adults at Chamarajanagar Institute of Medical Sciences, Yadapura . The findings indicate a prevalence rate of 14% for IBS in the studied population, with a higher occurrence among females and younger adults, particularly those from lower socioeconomic backgrounds. The predominant subtype identified is IBS-Mixed (IBS-M), followed by IBS-Constipation predominant (IBS-C) and IBS-Diarrhea predominant (IBS-D), reflecting the complex and varied symptomatology of IBS.

The data highlights that most IBS patients experience moderate to severe abdominal pain, significantly impacting their daily activities. A substantial proportion of patients seek medical help, demonstrating the condition's burden and the necessity for healthcare intervention. However, despite the high rate of medical consultation, only 55% of patients are currently receiving treatment, indicating potential gaps in ongoing management and care.

Overall, this study underscores the significant impact of IBS on patients' lives, emphasizing the need for comprehensive management strategies to address both the physical and quality-of-life aspects of the condition. Further research is warranted to explore the underlying causes, improve diagnostic accuracy, and develop effective treatment protocols tailored to the diverse needs of IBS patients in this region.

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