Original Article

A Spectrum of Functional Constipation in A Tertiary Care Centre in North Karnataka

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Abstract

Background: Functional constipation is a common gastrointestinal disorder affecting individuals across all age groups, significantly impacting quality of life. Despite its high prevalence, variations in clinical presentation and contributing factors often remain underreported, especially in tertiary care settings in India. The aim is to evaluate the clinical spectrum, demographic distribution, and associated factors of functional constipation in patients attending a tertiary care centre in North Karnataka. **Material and Methods:** This observational cross-sectional study was conducted at a tertiary care centre in North Karnataka over a period of 18 months. Patients presenting with symptoms suggestive of functional constipation were included based on standard diagnostic criteria such as the Rome IV criteria. Detailed history, clinical examination, dietary habits, lifestyle factors, and associated comorbidities were recorded. Data were analysed using appropriate statistical methods. **Results:** A total of 100 patients were included in the study. Functional constipation was more prevalent among age group of 41 to 50 years with slight female predominance. The most common symptoms observed were infrequent bowel movements, straining during defecation, and a sensation of incomplete evacuation. Dietary factors such as low fiber intake and inadequate fluid consumption were significantly associated with constipation. Sedentary lifestyle and psychological stress were also identified as contributing factors. A subset of patients reported chronic symptoms with considerable impact on daily activities and quality of life. **Conclusion:** Functional constipation presents with a wide clinical spectrum and is influenced by multiple modifiable lifestyle and dietary factors. Early identification and targeted interventions focusing on lifestyle modification may improve patient outcomes and reduce disease burden in tertiary care settings.

Keywords: Functional constipation, Rome IV criteria, bowel habits, lifestyle factors, tertiary care, North Karnataka.

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Introduction

Functional constipation is one of the most common gastrointestinal disorders encountered in clinical practice, affecting individuals of all age groups worldwide. It is characterized by persistent difficult, infrequent, or perceived incomplete evacuation of bowel movements without an identifiable structural or biochemical cause. The global prevalence of functional constipation varies widely, ranging from 2% to 27%, depending on the diagnostic criteria and population studied, making it a significant public health concern.[1,2] In India, the burden of constipation is also substantial, with lifestyle, dietary habits, and sociocultural factors playing a crucial role in its manifestation.

The diagnosis of functional constipation is primarily based on symptom-based criteria, most notably the Rome IV criteria, which provide a standardized framework for clinical and research purposes.[3] According to these criteria, patients must present with symptoms such as straining, lumpy or hard stools, sensation of incomplete evacuation, anorectal obstruction, or reduced frequency of defecation for at least three months prior to diagnosis. These criteria have improved diagnostic accuracy and facilitated better understanding of functional gastrointestinal disorders globally.

The pathophysiology of functional constipation is multifactorial and involves complex interactions between colonic motility, anorectal function, dietary habits, psychological factors, and the gut-brain axis. Delayed colonic transit, pelvic floor dyssynergia, and altered rectal sensitivity are among the key physiological mechanisms implicated.[4] Additionally, lifestyle factors such as low dietary fiber intake, inadequate fluid consumption, sedentary behavior, and irregular bowel habits contribute significantly to the development and persistence of constipation.[5] Emerging evidence also highlights the role of psychological stress, anxiety, and depression in exacerbating symptoms, indicating a strong psychosomatic component.[6]

Functional constipation can be broadly categorized into normal transit constipation, slow transit constipation, and defecatory

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disorders. Each subtype has distinct clinical features and may require different management approaches.[7] However, in routine clinical settings, especially in resource-limited regions, detailed physiological classification is often not feasible, and treatment is largely empirical. This underscores the importance of understanding the clinical spectrum and associated factors in specific populations to guide appropriate management strategies.

The impact of functional constipation extends beyond physical discomfort and includes significant impairment in quality of life. Patients often report abdominal pain, bloating, reduced appetite, and psychological distress, which can affect daily activities and productivity.[8] Chronic constipation may also lead to complications such as hemorrhoids, anal fissures, and, in severe cases, fecal impaction. Despite its high prevalence and impact, many patients do not seek medical attention due to social stigma, lack of awareness, or underestimation of symptoms, leading to underdiagnosis and undertreatment.

In the Indian context, particularly in semi-urban and rural areas such as North Karnataka, dietary patterns rich in refined carbohydrates, low fiber intake, and changing lifestyles due to urbanization may influence the prevalence and presentation of functional constipation. Additionally, cultural practices, healthcare accessibility, and health-seeking behavior play a significant role in disease recognition and management.[9] However, there is a relative paucity of region-specific data describing the clinical spectrum and associated factors of functional constipation in tertiary care settings in this part of the country.

Understanding the demographic distribution, symptom profile, and contributing factors of functional constipation in a tertiary care centre can help clinicians identify high-risk groups and tailor interventions accordingly.[10] Furthermore, such studies can contribute to the existing body of literature and aid in developing preventive strategies focused on modifiable risk factors such as diet and lifestyle. Given the variability in presentation and the multifactorial nature of the disorder, it is essential to evaluate functional constipation in diverse populations to improve patient outcomes.

Therefore, the present study aims to explore the spectrum of functional constipation among patients attending a tertiary care centre in North Karnataka, with a focus on clinical presentation, demographic characteristics, and associated lifestyle factors.

The aim of the present study is to evaluate the spectrum of functional constipation among patients attending a tertiary care centre in North Karnataka. The study seeks to assess the demographic profile and clinical presentation of patients diagnosed with functional constipation, along with identifying associated dietary habits, lifestyle factors, and comorbid conditions contributing to the disorder. Additionally, it aims to analyze the pattern of symptoms based on standard diagnostic criteria and to determine the influence of modifiable risk factors such as low fiber intake, inadequate fluid consumption, and physical inactivity. Through this, the study intends to provide a comprehensive understanding of functional constipation in the study population and to aid in developing targeted preventive and management strategies in tertiary care settings.

Materials and Methods

Study Design: The study was a prospective observational Study
Period of Study: The study period was from February 2023 to August 2024.i.e. total period of 18 months.

Place of Study: The present study was carried out in OPD, Medical Gastroenterology department at a tertiary care hospital in north Karnataka.

Study Population: The study population comprised patients presenting with symptoms suggestive of functional constipation attending the outpatient and inpatient departments of Gastroenterology/General Medicine at a tertiary care centre in North Karnataka during the study period. Adult patients fulfilling the diagnostic criteria for functional constipation were considered eligible for inclusion.

Sample Size: 100 patients

Inclusion Criteria:

- Adults aged ≥18 years
- Patients fulfilling the Rome IV diagnostic criteria for functional constipation
- Patients willing to participate and provide informed consent

Exclusion Criteria:

- Evidence of organic causes of constipation (e.g., colorectal malignancy, intestinal obstruction, inflammatory bowel disease)
- History of gastrointestinal surgery affecting bowel habits
- Use of medications known to cause constipation (e.g., opioids, anticholinergics)
- Neurological disorders affecting bowel function (e.g., Parkinson's disease, spinal cord injury)
- Pregnancy
- Patients unwilling or unable to provide consent.

Results

Among the total 100 patients included in the study, the majority belonged to the 41–50 years age group, accounting for 32 patients (32.0%). This was followed by 28 patients (28.0%) in the 31–40 years age group. A total of 18 patients (18.0%) were in the 51–60 years age group, while 12 patients (12.0%) were below 30 years of age. The least number of patients, 10 (10.0%), were observed in the 61–70 years age group.Out of 100 patients, 54 (54.0%) were females and 46 (46.0%) were males. Out of 100 patients, 62 patients (62.0%) had low fiber intake, while 38 patients (38.0%) had adequate fiber intake.Out of 100 patients, 58 patients (58.0%) were sedentary, while 42 patients (42.0%) were physically active.Among the study participants, straining was present in 72 patients (72.0%), hard stools in 65 patients (65.0%), and a sensation of incomplete evacuation in 60 patients (60.0%). Normal transit constipation 54(54%) predominated, dyssynergic 24(24%), slow transit 12(12%), combined 10(10%) statistically significant ($p<0.001$).Urban patients (70) predominated over rural patients (30), statistically significant $p<0.001$.

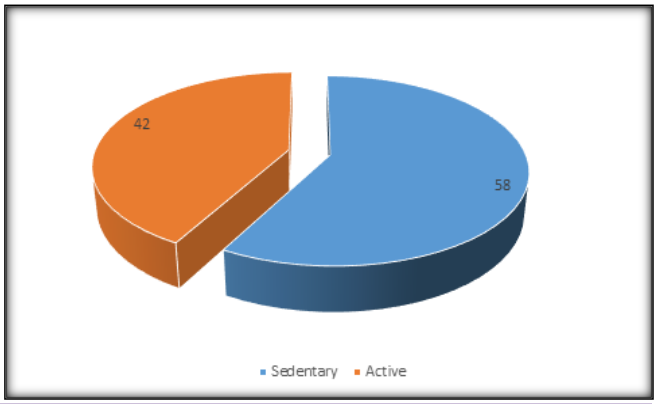

Figure 1: Association of Physical Activity with Functional Constipation (n=100)

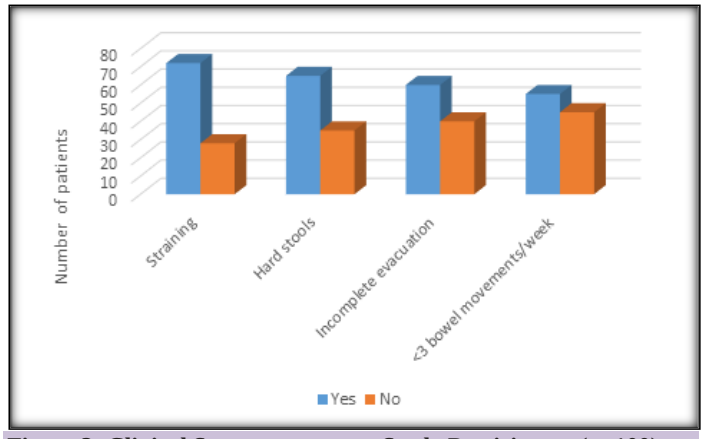

Figure 2: Clinical Symptoms among Study Participants (n=100).

Table 1: Distribution of patients according to Age Group (n=100)

Age Group (years)	Frequency	Percent
<30	12	12.0
31–40	28	28.0
41–50	32	32.0
51–60	18	18.0
61–70	10	10.0
Total	100	100

Table 2: Distribution according to Gender (n = 100)

Gender	Frequency	Percent
Male	46	46.0
Female	54	54.0
Total	100	100

Table 3: Association of Dietary Fiber Intake with Functional Constipation (n=100)

Fiber Intake	Frequency	Percent	p-value
Low Fiber	62	62	0.015
Adequate Fiber	38	38	
Total	100	100	

Table 4: Association of Physical Activity with Functional Constipation (n=100)

Physical Activity	Frequency	Percent	p-value
Sedentary	58	58	0.027
Active	42	42	
Total	100	100	

Table 5: Clinical Symptoms among Study Participants (n=100)

Symptoms	Yes	No	Total
Straining	72	28	100
Hard stools	65	35	100
Incomplete evacuation	60	40	100
<3 bowel movements/week	55	45	100

Table 6: Distribution of Study Subjects According to the Type of Constipation (n=100)

Type of constipation	Cases	Total	p-value
Normal transit constipation	54	54%	< 0.001
Slow transit constipation	12	12%	
Dyssynergic defecation	24	24%	
Slow transit constipation and dyssynergic defectaion	10	10%	

Table7: Distribution of Chronic constipation cases according to residency (n=100)

Residency	No.	%	P-value
Urban	70	70	< 0.001
Rural	30	30	

Discussion

The present study assessed the spectrum of functional constipation among patients attending a tertiary care centre in North Karnataka. Functional constipation was found to be more common in middle-aged individuals, which is consistent with the findings of Wald A et al,[11] who reported that constipation prevalence increases with age and is influenced by lifestyle and dietary habits. Similarly, Peppas G et al,[12] observed that functional constipation is frequently seen in adults due to reduced physical activity and poor dietary fiber intake.

In the present study, a slight female predominance was observed.This is supported by Markland AD et al,[13] who found that women are more likely to suffer from constipation compared to men, possibly due to hormonal variations, pregnancy-related changes, and pelvic floor dysfunction. Choung RS et al,[14] also reported similar gender differences, attributing them to both biological and psychosocial factors.Dietary habits,
particularly low fiber intake, were significantly associated with constipation in the present study. This finding is comparable to the study by Müller-Lissner SA et al,[15] who demonstrated that insufficient dietary fiber is strongly linked with decreased stool bulk and slower intestinal transit time. Likewise, Heizer WD et al,[16] emphasized that low fiber diets and inadequate hydration are major modifiable risk factors for chronic constipation.
Sedentary lifestyle was another important factor identified in the present study. This is consistent with the findings of Dennison C et al,[17] who reported that reduced physical activity significantly contributes to decreased colonic motility and constipation. Similarly, Madoff RD et al,[18] observed that physical inactivity is a key contributor to functional bowel disorders, particularly in urban populations.
The most common symptoms observed in the present study included straining, hard stools, and incomplete evacuation. These findings are consistent with the work of Longstreth GF et al,[19] who described these symptoms as core diagnostic features of functional constipation based on Rome criteria. Additionally, Suares NC et al,[20] also highlighted that straining and hard stools are the most frequently reported complaints among patients with chronic constipation. Normal transit constipation was the most common type, followed by dyssynergic defecation, slow transit constipation, and combined type, with a statistically significant difference. Urban patients were more affected than rural patients, also showing statistical significance.

Conclusion

Functional constipation is a common gastrointestinal disorder with a wide clinical spectrum and multifactorial etiology. The present study highlights that it is more prevalent among middle-aged individuals and shows a slight female predominance. Lifestyle factors such as low dietary fiber intake and sedentary behavior are strongly associated with the condition. The most common symptoms include straining during defecation, hard stools, and a sensation of incomplete evacuation. Early identification of these modifiable risk factors and timely lifestyle interventions, including dietary modification, increased physical activity, and patient education, can significantly improve patient outcomes and reduce the burden of functional constipation in the community and tertiary care settings. With a statistically significant difference, the most common subtype was normal transit constipation, which was followed by dyssynergic defecation, slow transit constipation, and combination type. Normal transit constipation was the most prevalent subtype and urban patients were more often impacted than rural patients, with statistically significant variance.

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Conflicts of interest

There are no conflicts of interest.

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