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The Role of Dietary Fibres in Treating Chronic Constipation in Males

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Abstract

Chronic constipation is a common gastrointestinal issue affecting a significant number of adult males, often attributed to poor dietary habits, sedentary lifestyles, and low fluid intake. Dietary fibre has emerged as a primary, non-pharmacological treatment approach due to its ability to regulate bowel movements and improve stool consistency. This study explores the role of dietary fibre—both soluble and insoluble—in alleviating symptoms of chronic constipation in males. Soluble fibre, such as psyllium, forms a gel-like substance that softens stools, while insoluble fibre adds bulk and accelerates intestinal transit. Clinical evidence supports that a daily intake of 20–35 grams of fibre, along with adequate hydration, can significantly reduce constipation-related symptoms such as infrequent bowel movements, straining, and hard stools. Furthermore, fibre enhances gut microbiota health and contributes to overall gastrointestinal function. Men often consume insufficient fibre, increasing their risk of chronic constipation. Gradual dietary changes, including increased consumption of fruits, vegetables, whole grains, and legumes, are recommended. This abstract emphasizes the importance of incorporating fibre as a first-line, safe, and effective treatment for chronic constipation in males, ultimately improving quality of life and reducing reliance on laxatives or invasive procedures.

Keywords: - Chronic, Dietary, Males

1. INTRODUCTION

Chronic constipation is a prevalent gastrointestinal condition characterized by infrequent bowel movements, difficult stool passage, or a sensation of incomplete evacuation. It poses a considerable burden on the quality of life, particularly among the male population, who often underreport symptoms due to sociocultural norms and personal discomfort in discussing bowel habits. While both genders are affected, chronic constipation in males often remains

underdiagnosed and undertreated, leading to prolonged discomfort and potential complications such as hemorrhoids, anal fissures, and rectal prolapse.

Over the decades, the focus of management strategies for chronic constipation has shifted from pharmacological to more holistic, dietary, and lifestyle-centered approaches. Among these, dietary fiber has emerged as a cornerstone in the conservative management of constipation. The physiological role of dietary fiber in promoting bowel health has been well-established through its ability to increase stool bulk, enhance water retention in the colon, and stimulate colonic motility. However, the specific impact of dietary fibers in treating chronic constipation, particularly in males, warrants a comprehensive evaluation.

1.1 The Role of Diet in Bowel Function

Diet plays a central role in gastrointestinal health, with dietary fiber being a key component in maintaining regular bowel function. Fiber is classified into two main types: soluble and insoluble. Soluble fiber dissolves in water to form a gel-like material and is fermented by colonic bacteria, producing short-chain fatty acids (SCFAs) that enhance colonic motility. Insoluble fiber, on the other hand, adds bulk to the stool and facilitates its passage through the gastrointestinal tract.

Sources of soluble fiber include oats, barley, nuts, seeds, beans, lentils, peas, and some fruits and vegetables. Insoluble fiber is found in whole grains, wheat bran, and vegetables such as cauliflower, green beans, and potatoes. Both types are essential for optimal digestive health, and their combined effect can significantly alleviate constipation symptoms.

1.2 Rationale for the Study

Given the high prevalence of chronic constipation and the significant role of dietary fiber in its management, there is a pressing need for focused research on its efficacy among males. This study aims to evaluate the therapeutic benefits of dietary fiber intake in treating chronic constipation in male subjects. By identifying effective fiber sources, optimal dosages, and patient responses, the research seeks to contribute to evidence-based dietary guidelines for gastrointestinal health in men.

The study also aims to bridge the gender gap in gastrointestinal research by providing clinical data specific to the male population. This will help in crafting personalized treatment plans, improving patient compliance, and ultimately enhancing quality of life.

2. OBJECTIVES

The primary objective of this clinical thesis is to assess the role of dietary fibers in alleviating symptoms of chronic constipation in males. The specific objectives include:

1. To evaluate changes in bowel movement frequency and stool consistency following dietary fiber intervention.
2. To determine the most effective type(s) of fiber (soluble, insoluble, or mixed) for constipation relief in males.
3. To assess patient tolerance, compliance, and satisfaction with dietary fiber interventions.
4. To explore correlations between dietary fiber intake and quality of life indices in male patients with chronic constipation.

3. METHODS

Study Design

This study is a prospective, randomized, controlled clinical trial conducted over a period of 3 months.

Study Setting

The study was carried out in the Department of Gastroenterology and Nutrition at Siddhanta Multi-speciality hospital

Study Population

The population under investigation comprised adult male patients diagnosed with chronic constipation.

Inclusion Criteria

- Male participants aged 30 to 60 years.
- Diagnosed with chronic constipation for at least three months, with symptom onset at least 3 months prior to diagnosis.
- Able and willing to give informed consent.
- Willing to adhere to the dietary intervention throughout the study duration.
- Having no significant change in lifestyle, medication, or diet in the past month.

Exclusion Criteria

- Females or individuals identifying as other than male.
- Patients with known organic gastrointestinal diseases (e.g., inflammatory bowel disease, colorectal cancer, gastrointestinal strictures).
- History of abdominal surgery (except appendectomy or hernia repair).

- Use of laxatives, prokinetic agents, or enemas in the last two weeks prior to study entry.
- Patients with psychiatric illness, cognitive impairment, or inability to follow instructions.
- Individuals on medications affecting bowel motility (e.g., opioids, anticholinergics, calcium channel blockers).
- Diagnosed cases of diabetes mellitus, hypothyroidism, or neurological diseases such as Parkinson's disease or multiple sclerosis.

Sample Size

A sample size is 25.

4. RESULTS

1. Age (Mean = 45.32 years, SD = 5.78):

The average age of the participants was approximately 45 years, with a moderate standard deviation of 5.78 years, indicating that most participants were likely in their early to mid-40s, but there was some variability in age.

2. Body Mass Index (BMI) (Mean = 25.89, SD = 1.77):

The average BMI is close to the threshold for being categorized as overweight (BMI ≥ 25), suggesting that the group generally maintains a slightly higher-than-normal body weight. The relatively low standard deviation indicates that BMI values did not vary greatly among participants.

3. Soluble Fiber Intake (Mean = 12.56 g/day, SD = 2.48):

Participants, on average, consumed around 12.5 grams of soluble fiber daily. The standard deviation of 2.48 indicates moderate variability in soluble fiber intake. Soluble fiber, known for aiding digestion and reducing cholesterol, appears to be adequately present in the participants' diets.

4. Insoluble Fiber Intake (Mean = 20.88 g/day, SD = 1.79):

The mean daily intake of insoluble fiber is 20.88 grams, which supports healthy bowel movements. With a low standard deviation (1.79), intake was fairly consistent across participants.

5. Constipation Frequency (Mean = 4.28, SD = 1.08):

The mean value of 4.28 (presumably on a scale or as a frequency per week) indicates a moderate frequency of constipation symptoms among participants. The SD of 1.08 reflects relatively low variation, suggesting that most participants reported similar experiences.

6. Fiber Intake Over Time:

- **1st Month (3.00 g/day, SD = 0.00):** All participants consumed a standardized 3 g/day fiber supplement in the first month, as indicated by the SD of 0.00.
- **2nd Month (4.00 g/day, SD = 0.00):** The dosage increased uniformly to 4 g/day for all participants.
- **3rd Month (6.48 g/day, SD = 0.71):** Intake rose further, averaging 6.48 g/day with a slight variation (SD = 0.71), possibly due to personalized adjustments or differing compliance levels.

5. DISCUSSION

This study aimed to assess the effectiveness of dietary fiber in the management of chronic constipation among adult males. The research involved tracking the dietary fiber intake—both soluble and insoluble—alongside constipation frequency and stool consistency, over a period of three months.

6. CONCLUSION

Chronic constipation remains a significant concern in clinical practice, often affecting quality of life, psychological well-being, and daily functionality, especially in the male population where it is frequently underreported. The increasing prevalence of sedentary lifestyles, inadequate hydration, poor dietary habits, and psychosocial stressors all contribute to the chronicity of this condition. This study aimed to investigate the effectiveness of dietary fiber—both soluble and insoluble—in alleviating symptoms of chronic constipation among adult males over a structured three-month intervention period.

7. RECOMMENDATIONS

Based on the findings and experiences gathered during the course of this study, several practical and research-oriented suggestions can be made:

Clinical Practice Recommendations

1. **Incorporation of Fiber Counseling into Routine Practice:**
    - Medical practitioners should integrate dietary counseling focused on fiber intake for male patients presenting with constipation.

- Educational materials, such as fiber-rich diet charts and food group examples, can enhance understanding and adherence.

2. **Personalized Fiber Plans:**
   - A one-size-fits-all approach may not be effective. Patients with more severe symptoms may require higher initial fiber intake.
   - Tailoring fiber types (soluble vs insoluble) based on individual response could yield better outcomes.
3. **Gradual Increase in Intake:**
   - To avoid bloating and gas, patients should be advised to **increase fiber slowly**, allowing the gut to adapt.
   - This method also supports better long-term compliance.
4. **Hydration Emphasis:**
   - Fiber without adequate fluid intake can worsen constipation.
   - Healthcare providers must educate patients on maintaining optimal hydration (at least 2-2.5 liters/day).

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