

# Impact of a Nurse-Led Intervention on Symptom Severity and Life Satisfaction in Patients with Irritable Bowel Syndrome - A Quasi-Experimental Study

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## KEYWORDS

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## ABSTRACT

Irritable Bowel Syndrome (IBS) is a prevalent functional gastrointestinal condition characterized by abdominal pain, bloating, and erratic bowel movements, which considerably diminishes patients' quality of life and psychological health. This study aimed to assess the efficacy of a structured nurse-led intervention on symptom severity and life satisfaction in patients with IBS. A quasi-experimental one-group pre- and post-test design was executed over four weeks at the Institute of Medical Gastroenterology, Rajiv Gandhi Government General Hospital, Chennai. Sixty patients aged 18 to 60 years, diagnosed with irritable bowel syndrome (IBS), were selected by a non-probability consecutive sampling procedure. Data were collected using a socio-demographic questionnaire, clinical checklist, the IBS Symptom Severity Scale (IBS-SSS), and the Work and Social Life Satisfaction Scale (WSLS). The intervention comprised a 40–45 minute session focusing on IBS patho-physiology, dietary guidance (low FODMAP diet), lifestyle changes, stress reduction, and coping techniques. Post-intervention results showed that the proportion of patients with mild symptoms increased from 26.67% to 80%, while those with moderate symptoms decreased from 73.33% to 20%. The mean IBS-SSS score significantly decreased from  $199.46 \pm 51.97$  to  $104.58 \pm 38.92$  ( $p < 0.001$ ). Life satisfaction significantly improved, with WSLS scores increasing from  $14.77 \pm 5.59$  to  $23.85 \pm 4.77$  ( $p < 0.001$ ). Symptom severity was significantly associated with age and gender, while life satisfaction was linked to family income, family structure, and co-morbidities. These findings suggest that nurse-led interventions are effective in improving both physical and psychological outcomes in IBS patients and should be integrated into standard care protocols.

## INTRODUCTION

Irritable Bowel Syndrome (IBS) is a common functional gastrointestinal illness characterized by persistent abdominal pain, bloating, and irregular bowel movements, encompassing both diarrhoea and constipation. Worldwide, IBS impacts between 5-10% of individuals [1]. The disorder markedly diminishes quality of life and has a considerable economic impact due to heightened healthcare utilization and diminished productivity. The diagnosis of IBS predominantly depends on symptom-based criteria, particularly the frequently utilized Rome IV criteria. However,

these criteria were formulated based on research conducted in Western populations, potentially restricting their relevance in other cultural situations [2]. The estimated prevalence of IBS in India is approximately 9-20% [3].

The symptoms of IBS are erratic and can significantly disrupt everyday activities, resulting in a deterioration of emotional well-being and social functioning. Approximately 20-40% of consultations with gastroenterologists are ascribed to IBS symptoms [4]. The intensity of IBS symptoms is a crucial determinant of health-related quality of life and influences

patients' healthcare-seeking behaviour and treatment reactions. Patients exhibiting more severe symptoms frequently report elevated levels of healthcare use, including an increase in physician consultations and heightened pharmaceutical usage [5]. The effects of symptom severity beyond simple physical discomfort, including psychological dimensions. Individuals with severe IBS frequently demonstrate elevated levels of anxiety and sadness, which both intensify and are influenced by the severity of gastrointestinal symptoms. This association highlights the significance of a biopsychosocial strategy in controlling IBS, wherein psychological assistance is combined with conventional gastrointestinal therapy methods [6]. In people with IBS, life satisfaction is predominantly affected by psychological factors rather than the intensity of gastrointestinal symptoms. Research demonstrates that psychological distress significantly influences life satisfaction in IBS patients more than the physical symptoms of the disorder [7]. This highlights the necessity for holistic therapy strategies that encompass both psychological and physical well-being.

Education and exercise have demonstrated a substantial influence on symptom intensity and life satisfaction in individuals with IBS. Research highlights the effectiveness of digital health interventions that often incorporate instructional elements, thereby enhancing patient comprehension and self-management. These therapies are associated with substantial improvements in symptom control and quality of life [8]. Moderate-intensity aerobic exercise has consistently enhanced gastrointestinal symptoms and psychological well-being in persons with IBS. A study indicated that a twelve-week treatment led to substantial decreases in bloating and stomach pain, as well as diminished levels of anxiety, sadness, and stress, significantly improving patients' quality of life. Seventy-one percent of subjects reported substantial alleviation of abdominal pain, while seventy-five percent indicated a decrease in bloating [9].

Nurse-led self-management programs significantly enhance patient outcomes through educational initiatives. Research indicated that following a sequence of nurse-led interventions, the majority of patients reported ameliorated IBS symptoms, with 79% experiencing diminished discomfort, 73.7% reduced bloating, and 76.8% fewer occurrences of diarrhoea. In total, 66.7% of individuals indicated an improved quality of life following the intervention [10].

This study intended to evaluate the effect of a targeted nurse-led intervention on symptom severity and life satisfaction in patients with irritable bowel syndrome.

#### Methodology

This quasi-experimental study utilized a one-group pre-test and post-test design to assess the effects of a nurse-led intervention on symptom severity and life satisfaction in patients with Irritable Bowel Syndrome (IBS). The study, conducted over four weeks at the Institute of Medical Gastroenterology, Rajiv Gandhi Government General Hospital in Chennai, employed a quantitative research methodology. Sixty patients with IBS, aged 18 to 60 years, were selected by a non-probability consecutive sampling method. The inclusion requirements mandated a verified diagnosis of IBS and able to read or write in either Tamil or English. Individuals with chronic medical illnesses, psychological disorders, or simultaneous research involvement were eliminated.

Data collection involved four tools: (1) a socio-demographic questionnaire; (2) a clinical variable checklist; (3) the IBS Symptom Severity Scale (IBS-SSS), a validated instrument measuring symptom severity with scores ranging from 0 to 500; and (4) the Work and Social Life Satisfaction Scale (WSLS), which uses a 7-point Likert scale to assess life satisfaction. Ethical approval was obtained from the Institutional Ethics Committee, Madras Medical College, and written informed consent was

secured from all participants. Intervention consisted of structured teaching sessions delivered by trained nurses. These sessions, lasting 40-45 minutes, provided comprehensive education on IBS, including its patho-physiology, symptom management strategies, dietary guidance, and coping techniques. Specific interventions included the low FODMAP diet, elimination of trigger foods (e.g., gluten, lactose), and advice on soluble fiber intake. Pharmacological management such as antispasmodics and antidepressants was discussed. Patients were also guided on lifestyle modifications: regular exercise (e.g., walking, yoga), ensuring 7-8 hours of sleep, adequate hydration, and relaxation techniques like deep breathing and muscle relaxation. Data were coded in Microsoft Excel and analyzed using SPSS Version 26. Descriptive statistics summarized demographic and clinical. A  $p$ -value  $\leq 0.05$  was considered statistically significant.

#### Results

##### Demographic characteristics

This study evaluates the effect of a targeted nurse-led intervention on symptom severity and life satisfaction in patients with Irritable Bowel Syndrome. The mean age was  $48.7 \pm 10.5$ . Most participants (60%) were aged 51-60 years, followed by 18-30 years (16.67%). Female participants constituted the majority (58.33%), and 70% were married. In terms of education, 33.34% had completed higher secondary schooling, while 23.33% had undergraduate degrees. A significant proportion (66.67%) were unemployed, and 41.67% had a monthly family income between ₹19,759-₹26,354. Urban residents formed the majority (65%), and 50% lived in joint families. Tobacco chewing was the most prevalent personal habit (43.33%), and 61.67% followed a mixed dietary pattern.

##### Clinical Characteristics:

IBS with diarrhea (IBS-D) was the most common sub-type, affecting 50% of the patients, followed by IBS with constipation (43.33%) and mixed IBS (6.67%). Most participants (66.67%) had a normal BMI (18.5-24.9). Regarding illness duration, 36.67% were diagnosed within the first month, and 30% had been symptomatic for more than six months. Co-morbidities were present in 56.66% of patients, with diabetes (21.67%) and hypertension (18.33%) being the most common.

##### Pre-Intervention Findings:

Before the intervention, 73.33% of patients had moderate IBS symptom severity, and 26.67% had mild symptoms. None reported severe symptoms. Life satisfaction levels were low, with 43.33% dissatisfied and 15% extremely dissatisfied. Only 21.67% were slightly satisfied.

##### Post-Intervention Outcomes:

Following the nurse-led intervention, 80% of participants reported mild symptom severity, and 20% had moderate symptoms. No severe cases were reported. Life satisfaction significantly improved 41.67% of participants were satisfied and 31.67% slightly satisfied. No patients remained dissatisfied.

##### Effectiveness of the Nurse-led Intervention

After the nurse-led educational and lifestyle intervention, 80% of participants reported mild symptom severity and 20% reported moderate severity. None experienced severe symptoms. Life satisfaction improved significantly, with 41.67% feeling satisfied and 31.67% slightly satisfied. Statistical analysis confirmed significant improvements. Mean symptom severity decreased from 199.46 (SD = 51.97) to 104.58 (SD = 38.92), a reduction of 95 points ( $t = 18.24$ ,  $p < 0.001$ ). Life satisfaction scores rose from 14.77 (SD = 5.59) to 23.85 (SD = 4.77), an increase of 9.08 points ( $t = 9.83$ ,  $p < 0.001$ ). McNemar's test also indicated significant changes ( $p < 0.001$ ). [Table 1 & 2]

**Table 1: Effectiveness of Nurse-led intervention on symptom severity**

		Max score	Mean score	% of mean score	Percentage of mean gain score
Symptoms	Pretest	500	199.46	39.89%	18.97%
	Posttest	500	104.58	20.92%	

Table 2: Effectiveness of Nurse-led intervention on life satisfaction

		Max score	Mean score	% of mean score	Percentage of mean gain score
Life satisfaction	Pretest	35	14.77	42.20%	25.94%
	Posttest	35	23.85	68.14%	

#### Associations with demographic and clinical variables

Post-intervention symptom severity was significantly associated with age ( $p = 0.05$ ) and gender ( $p = 0.05$ ), with younger patients and males reporting better outcomes. Life satisfaction was significantly linked to family income ( $p = 0.05$ ) and family structure ( $p = 0.05$ ), with higher satisfaction among those with mid-range income and joint or extended families. Presence of co-morbid illness was also significantly related to both outcomes ( $p = 0.05$ ).

#### DISCUSSION

This study evaluated the impact of a structured nurse-led intervention on symptom severity and life satisfaction among patients with Irritable Bowel Syndrome (IBS). The findings revealed significant improvements in post-intervention, reinforcing the role of education and behavioral support in managing IBS.

The baseline data showed that most participants (73.33%) experienced moderate symptom severity, and a considerable proportion reported low life satisfaction. These findings align with earlier studies by Singh et al. (2020) and Aljahdli ES et al. (2024), which reported moderate-to-severe symptoms as common among IBS populations and emphasized dissatisfaction with quality of life [11,12].

Following the intervention, symptom severity significantly reduced, with mild cases increasing from 26.67% to 80% ( $p=0.001$ ), and life satisfaction scores improved markedly ( $p=0.001$ ). The average symptom score dropped from 199.46 to 104.58, while life satisfaction increased from 14.77 to 23.85. These results are consistent with the work of Sierżantowicz et al. (2020) and Tayama J et al. (2024), who demonstrated the efficacy of structured education and self-management strategies in alleviating IBS symptoms and improving patient quality of life [13,14].

This study further revealed that age, gender, and co-morbidities significantly influenced symptom severity, while family income and structure affected life satisfaction. These findings are supported by research from Snijkers JTW et al. (2024) and Addante R et al. (2019), who identified demographic and psychosocial factors as crucial determinants of symptom perception and quality of life in IBS patients [15,16]. The strength of this study lies in its practical approach—integrating focused education, lifestyle modifications, and stress management into a nurse-led program. However, limitations include the lack of a control group, reliance on self-reported outcomes, and a short follow-up period, which may affect generalizability and long-term inference.

#### CONCLUSION

This study confirms that nurse-led interventions can significantly reduce symptom severity and enhance life satisfaction in IBS patients. These findings highlight the necessity for structured, holistic, and individualized care approaches. Incorporating such interventions into standard IBS management may improve patient outcomes and quality of life.

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