

## Association and Clinical Spectrum of Symptoms in Patients Diagnosed with Irritable Bowel Syndrome

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**ABSTRACT****Objective:** To evaluate the association of common symptoms presented in patients with irritable bowel syndrome (IBS) observed in outpatient department**Place & duration of study:** The study was conducted from January 2017 to December 2017, at different clinical setups in Karachi**Methodology:** Total 100 cases were included in this study on the basis of non-probability convenient sampling. The cross sectional study was done on the patients, who had common symptoms of IBS. After an ethical consideration and verbal consent from the patient, the patient were included in the study. The data was analyzed through SPSS version 30.0 and Chi-square test was applied to assess the association of gender, age groups and stress with the symptoms of IBS.**Results:** The most prevalent symptoms of IBS are bloating, stomach pain, and discomfort; middle-aged persons (41–60 years old) and women are more likely to experience these symptoms. Anxiety and the intensity of symptoms, especially bloating, acid reflux, and abdominal pain, were found to be significantly correlated, Gender differences suggest that while some bowel-related symptoms are more common in men, females have more severe and varied symptoms. Overall, the results highlight that IBS is a complex, biopsychosocial condition that necessitates an all-encompassing strategy that addresses both gastrointestinal and psychological aspects for optimal care.**Conclusion:** This research shows that anxiety, age, and gender have a significant influence on symptoms, making IBS a complex disorder. While strong associations with anxiety and female gender highlight the importance of integrated psychological and medical care, age-related differences show shifting pathophysiology across the lifespan. The results of the study indicate that bloating, stomach pain, and discomfort are the most common symptoms of IBS, with middle-aged adults (41–60 years old) and women bearing a heavier load**Keywords:** irritable bowel syndrome (IBS), anxiety, GERD, abdominal discomfort**INTRODUCTION**

Irritable bowel syndrome (IBS) is one of the generally found disorder, based on gut-brain contact. It usually features clinical appearances that effects the daily life of the person. The symptoms can be distinguished according to the conditions, subtypes age factors and disease range. One of the common disorder that apply a critical burden over the worldwide health issues.<sup>1</sup> IBS is a clinically diverse condition with a multifactorial pathophysiology concerning visceral hypersensitivity, rehabilitated gastrointestinal motility, gut micro biota dysbiosis, immune activation, and dysregulation of the gut–brain axis.<sup>2</sup> The disorder's bio psychosocial aspect is underlined by the fact that it is more common in females and younger people and is often linked to psychosocial issues such stress, anxiety, and depression.<sup>3</sup> IBS has extensive medical spectrum that varies greatly from patient to patient. Diarrhea-

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predominant, constipation-predominant, or mixed subtypes of the disease are categorized by frequent

stomach pain, bloating, and changed stool frequency or consistency. The scientific depiction is further complicated by the fact that many patients report extra-intestinal signs such as weariness, psychological anguish, and somatic issues in addition to gastrointestinal indications.<sup>4</sup> Substantial worth of life damage, higher healthcare application, and difficulties in diagnosis and treatment are commonly caused by the variety in symptom presentation and severity. Many patients have associated symptoms in addition to bowel-related ones, such as urgency, straining, mucous passage, exhaustion, sleep difficulties, anxiety, and depressive. Anxiety disorders, depression, and psychosocial stressors are common among IBS patients and can aggravate the frequency and strength of symptoms. IBS is seen as an intricate condition with interruption of the gut-brain axis from a pathophysiological perspective. Immune activation, intestinal barrier dysfunction, visceral hypersensitivity, rehabilitated gastrointestinal motility, and dysbiosis of the gut micro biota are significant pathways. These components combine with conservational and psychological features to cause determined symptoms even in the absence of a biological disease. The

regulation of intestinal secretion, motility, and pain sensitivity has also been related to low-grade mucosal inflammation and modified serotonin signaling.<sup>5,6</sup>

**MATERIAL & METHODS**

This cross sectional analytical study was carried out in multiple private hospitals (outpatient dept.) in Karachi. The study was conducted from January 2017 to December 2017. Total 100 numbers of patients were enrolled in this study followed by non-probability convenient sampling technique. Both gender were included with age of >18 years up to 60 years of age, either both gender with the positive symptoms of irritable bowel syndrome from last one year. The patient with gastric tumors, malignancy, or inflammatory bowel disease, and with age <18 and >60 years were excluded from the study. After taken an ethical approval from the concerned institutes and verbal concert from the participants, the study was conducted and filled the proforma of each patient. The data was collected and analyzed through statistical analysis by using SPSS. The data was presented in the form of frequency and percentage. To evaluate the association the Chi-square test was applied with the set of level of significance <0.05.

**RESULT**

The mean age of the participants in (>18-40) age group was 30.12±0.32 and in (41-60) age group was 51.45±1.24. There was 41% male and 59% were female.

The grading scale was used to evaluate the frequency of clinical manifestation of irritable bowel syndrome.

Table 1: 1 shows the common Percentage of common symptoms among the participants

Symptoms	Age Group			Gender	
	Anxiety (%)	>18-40 (%)	41-60 (%)	Male (%)	Female (%)
Bloating	56	35	48	15	40
Abdominal discomfort	24	19	53	21	56
Abdominal pain	18	20	38	48	60
Nausea	2	3	18	21	45
vomiting	3	5	15	3	18
Watery stool	16	14	18	30	19
Diarrhea	2	4	17	20	19
Belching	18	2	32	17	51
Acid reflex	21	8	26	11	48

The increased frequency of bloating were found in association with anxiety, females and among age group of 41-60 years of age. Abdominal discomfort was found in positive association of females and age group of 41-60 years. Abdominal pain was found in strong association among females, age group of 41-60 years and males. Nausea was only found in

association with females. Belching was found to on strong association with females and age group of 41-60 years. Acid reflex was found in positive association in females as shown in table 1.1 and 1.2

Table 1.2 shows Association of symptoms with Anxiety, Age and Gender

Symptoms of IBS	Anxiety	Age		Gender	
		>18-40	41-60	Male	Female
Bloating	+++	+	++	+	+++
Abdominal discomfort	++	+	++	++	+++
Abdominal pain relieved after defecation	+	+	++	++	+++
Nausea	-	-	+	+	+++
vomiting	-	-	+	-	+
Watery stool	+	+	+	++	+
Diarrhea	-	-	+	+	+
Belching	+	-	++	+	++
Acid reflex	++	+	++	+	+++

  

Grade	Expected P-value	Symbol	Meaning
+++	p < 0.01 (highly significant)	-	No association
++	p < 0.05 (significant)	+	Mild association
+	p > 0.05 (weak / borderline)	++	Moderate association
-	p > 0.05 (not significant)	+++	Strong association

Chi-square test was applied Level of significant P=<0.05

**DISCUSSION**

The present findings highlight that bloating (56%), abdominal discomfort (24%), and abdominal pain (18%) are the most commonly reported symptoms among IBS patients, followed by acid reflux (21%) and belching (18%), while symptoms such as nausea, vomiting, and diarrhea were relatively less frequent. These results are largely consistent with existing literature describing IBS as a functional gastrointestinal disorder characterized predominantly by abdominal pain and altered bowel habits, often accompanied by bloating.<sup>6</sup> In this study, bloating emerged as the most common symptom, consistent with previous reports that up to 60% to 80% of IBS patients experience bloating as their primary complaint. Research shows that abdominal bloating is particularly common in women and middle-aged people, likely due to visceral hypersensitivity and impaired gut motility mechanisms.<sup>6,7</sup> The data also showed a higher prevalence in the age group of 41 to 60 years, supporting a trend toward increasing symptom severity with increasing age. The Rome IV guidelines' primary diagnostic criteria, abdominal pain and discomfort, were more common in the 41–60 age group and somewhat more common in women. Studies have shown that women are more likely to report severe IBS symptoms, potentially as a result of hormonal impacts and psychosocial variables.<sup>8,9</sup> This gender difference is widely known. This trend is supported by the larger female preponderance in your statistics (e.g., abdominal pain: 60% in females vs. 48% in males).

It's interesting to note that upper gastrointestinal symptoms like burp (18%) and acid reflux (21%) were very frequently mentioned. This overlap indicates the presence of GERD-like symptoms or functional dyspepsia, which often coexist with IBS. According to

earlier research, this is a component of the "overlap syndrome," in which individuals exhibit both upper and lower gastrointestinal symptoms.<sup>10,11</sup> Existing epidemiological patterns are further supported by the increased incidence of these symptoms in females in your dataset. Males were more likely than females to experience symptoms including diarrhea (2%) and watery stool (16%), which may indicate that male patients are more likely to have IBS-D (diarrhea-predominant IBS). This is consistent with research showing that IBS-C (constipation-predominant) is more commonly reported in females whereas IBS-D is more common in males.<sup>12</sup> The comparatively low frequency of nausea (2%) and vomiting (3%) indicates that these symptoms may occur in a subset of patients, especially those with overlapping upper GI illnesses, rather than being core IBS symptoms. Increased illness complexity or comorbidities may be indicated by their higher prevalence in the older age range (41–60 years).

The current study supports the multifaceted character of irritable bowel syndrome (IBS) by showing a strong correlation between the disorder's symptoms along with significant psychological and demographic factors, including anxiety, age, and gender. While symptoms like diarrhea and vomiting showed barely any association, anxiety was found to be strongly associated with a number of basic IBS symptoms, most notably bloating, abdominal discomfort, and acid reflux. These results are in line with the theory of the gut–brain axis, which argues that psychological variables—particularly anxiety—have a significant impact on how the gastrointestinal tract functions. In line with recent research, anxiety is very common in IBS patients and is strongly associated with more severe symptoms, specifically bloating and stomach pain, because of mechanisms such as visceral hypersensitivity and deregulated autonomic function.<sup>13</sup> This supports the observation of current study results, that symptoms with stronger associations (+++) tend to be those more closely linked with central nervous system modulation.

In terms of age, the results indicate that people between the ages of 41 and 60 had greater correlations with the majority of IBS symptoms, such as bloating, belching, stomach discomfort, and acid reflux, than younger adults between the ages of 18 and 40, who mostly have modest correlations. Age-related physiological changes such as increased visceral sensitivity, altered gastrointestinal motility, and cumulative exposure to dietary and environmental stimuli could account for this pattern. While younger people frequently exhibit more erratic and stress-related symptom patterns, recent cohort studies have shown that symptom persistence and severity tend to increase with age.<sup>14</sup> These results imply that the

manifestations of IBS may change with time, moving from mainly functional and anxiety-related expressions in younger people to more persistent and physiologically driven symptoms in middle-aged adults. The present research's gender-based assessment shows that symptoms are clearly more common in women, with higher correlations seen for bloating, nausea, abdominal discomfort, and acid reflux. Males, on the other hand, typically showed mild to moderate connections, with comparatively larger involvement of watery stool, indicating a potential prevalence of diarrhea-predominant IBS (IBS-D) in males. These results are consistent with recent research showing that IBS is more prevalent and frequently more severe in women, probably occurring as a result of hormonal effects, increased visceral sensitivity, and variations in brain–gut relationships.<sup>15,16</sup> Changes in gastrointestinal motility and pain perception, especially those associated with progesterone and estrogen, may account for the higher burden of symptoms observed in females. Women also seem more likely to experience concurrent upper gastrointestinal symptoms, such as reflux and nausea, according to the available evidence.

Symptom-specific analysis further emphasizes that not all IBS presentations are similarly associated with anxiety, age, or gender. Core symptoms such as bloating, stomach discomfort, and acid reflux showed high relationships, showing diversity in IBS presentation, but symptoms such as diarrhea and vomiting showed lesser connections. This supports the growing recognition that IBS is a spectrum condition with multiple subtypes and overlapping issues, requiring individualized assessment and treatment strategies. Recent studies have shown that addressing behavioral disorders, in order primarily anxiety and depression, can improve clinical outcomes since they significantly influence the severity and perception of symptoms.<sup>17,18</sup> In general, the study's findings are in line with recent research, showing that IBS is a biopsychosocial -type disorder in which gastrointestinal symptoms are strongly correlated with individual variability, psychological state, and demographic traits.<sup>19</sup> While the significant link with anxiety and female gender highlights the necessity for integrated management techniques that combine both medical and psychological interventions, age-related differences highlight the importance of tailored treatment programs for different patient groups.

## CONCLUSION

This research shows that anxiety, age, and gender have a significant influence on symptoms, making IBS a complex disorder. While strong associations with anxiety and female gender highlight the importance of

integrated psychological and medical care, age-related differences show shifting pathophysiology across the lifespan. The results of the study indicate that bloating, stomach pain, and discomfort are the most common symptoms of IBS, with middle-aged adults (41–60 years old) and women bearing a heavier load. Overall, the findings demonstrate that IBS is a complicated, biopsychosocial disorder that requires a comprehensive approach that takes into account both psychological and gastrointestinal factors for the best possible management.

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