

## Anxiety, Depression and IBS: Results from Lahore, Pakistan

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**Objective:** To find an association of IBS with anxiety and depression in a local setting.

**Methodology:** This cross-sectional study was performed in Mayo Hospital, Lahore during July and August 2018. Patients were diagnosed by the ROME IV criteria, and the Hospital Anxiety and Depression Scale (HADS) questionnaire was used to evaluate the degree of anxiety and depression. The IBS Severity Index (IBS-SI) was used to calculate the severity of symptoms.

**Results:** A total of 101 subjects were enrolled with mean age of 24.0 years. No relation of gender was found with subtypes, severity, anxiety and depression levels. The age groups had a significant association with the degree of anxiety and depression. Anxiety was found in 83.2% patients while 51.5% had depression. Association

of IBS with anxiety and with depression was significant ( $p < 0.05$ ). The IBS subtype had no relation with the levels of the psychiatric problems but had an association with the severity index.

**Conclusion:** There was a female predominance in IBS patients. Older age groups of patients had higher levels of anxiety and depression. IBS was associated independently with anxiety and depression. IBS-Mixed was the most common subtype and had the highest severity of symptoms. The severity of disease had no relation with the levels of anxiety and depression. (Rawal Med J 202;45:303-306).

**Keywords:** Irritable Bowel Syndrome, depression, anxiety, IBS-SI, HADS, psychiatric disorders

## INTRODUCTION

Irritable bowel syndrome (IBS) is a gastrointestinal condition characterized by chronic abdominal pain and altered bowel habits in the absence of any organic cause.<sup>1</sup> It is sub-divided depending upon the predominant bowel habits: IBS with constipation (IBS-C); IBS with diarrhea (IBS-D); and mixed IBS (IBS-M).<sup>2</sup> It is one of the most commonly diagnosed gastrointestinal conditions, with a prevalence of approximately 10-15% in North America.<sup>3,4</sup> However, local results in Pakistan have shown significantly higher rates of IBS: in one study, 34% of the subjects were affected,<sup>5</sup> while in another, 45% of adults were found to have IBS.<sup>6</sup>

IBS has important associations with biopsychosocial factors such as anxiety or depression that negatively impact people's quality of life.<sup>7,8</sup> This results in both direct expenses of medical treatment and indirect expenses due to reduced productivity.<sup>9</sup> One study in Sweden<sup>10</sup> found that the subtypes IBS-M and IBS-D were more common in the population, while patients with IBS-C had higher levels of psychological symptoms. A

study from Iran showed that the most common subtype was IBS-C, with no differences in the symptomatic profiles between IBS subtypes.<sup>11</sup> Significant gender differences also exist in various population: in a systematic review from North America, there was an overall 2:1 predominance of females,<sup>4</sup> however, other studies have reported a male predominance of IBS.<sup>5,6</sup> The purpose of this research was to find the association of IBS with anxiety and depression in our local setting and to examine the gender ratios and the differences in symptoms suffered by patients depending upon the subtype and severity of IBS.

## METHODOLOGY

The study was carried out at Mayo Hospital, Lahore during July and August 2018. Informed consent was obtained from all the subjects. Patients aged 15-50 years, presenting with symptoms of IBS as defined by the ROME IV Criteria were included in the study. Patients with rectal bleeding, history of nocturnal or progressive abdominal pain, weight loss, laboratory abnormalities such as anemia,

elevated inflammatory markers, or electrolyte disturbances, family history of IBD and colorectal carcinoma, positive stool cultures for Giardia, having malabsorption syndrome, diabetic patients, patients with abnormal thyroid function tests (TFTs), and those taking medications for psychiatric illness for six months or more were excluded from the study.

The Hospital Anxiety and Depression Scale (HADS)<sup>12</sup> was used to determine the levels of anxiety and depression. Two scores (one each for the HAD-ANX and the HAD-DEP) were calculated, each ranging from 0 to 21. The interpretation is as follows: In case of depression: 0-7-No depression, 8-11-Mild Depression and 12-21-Moderate to Severe Depression. In case of anxiety:

0-7-No anxiety, 8-11- Mild anxiety and 12-21-Moderate to Severe anxiety.

The IBS Severity Index (IBS-SI)<sup>13</sup> was used to determine the severity of the disease in the subject. This index incorporates pain, distension, bowel dysfunction and quality of life/global well-being. It is interpreted as follows: 0-75-In remission/No Disease, 75-175-Mild case, 175-300-Moderate case and 300-500-Severe case.

**Statistical Analysis:** Chi-squared tests were run to see associations of the age groups with other variables and one-sample t-test was used.  $P < 0.05$  was considered statistically significant.

## RESULTS

Out of 101 patients, 62 were female and 39 male with a mean age of 24 years. Majority (77.2%) of patients were under the age of 25. The associations of gender with severity of IBS, subtypes and psychiatric disorders had no significant associations ( $p > 0.05$ ). Significant relationships for anxiety ( $p < 0.005$ ) and depression ( $p < 0.001$ ) were noted with the various age groups, with the severity of anxiety and depression increasing concurrently with increasing age. The subtypes of IBS (IBS-C, IBS-D, and IBS-M) had no significant association with the severity of anxiety and depression. However, significant results were observed with the severity of IBS itself (as measured by IBS-SI) (Table 1). IBS-M had the highest severity of the disease while IBS-D had the lowest.

**Table 1. Correlation of IBS Subtypes with Other Variables.**

Group	Male	Female	Total	p*	p**	p***
IBS-C	4(10.3%)	17(27.4%)	21(20.8%)	0.038	0.189	0.630
IBS-D	13(33.3%)	16(25.8%)	29(28.7%)			
IBS-M	22(56.4%)	29(46.8%)	51(50.5%)			
Total	39(38.6%)	62(61.4%)	101(100%)			

\*p-value represents association with IBS Severity Index.

\*\*p-value represents association with HAD-ANX groups.

\*\*\*p-value represents association with HAD-DEP groups

**Table 2. Association of anxiety with IBS.**

Group	Male	Female	Total	HAD-ANX mean scores	p
Normal	5(12.8%)	12(19.4%)	17(16.8%)	6.4	<0.001
Mild	20(51.3%)	27(43.5%)	47(46.5%)	10.1	
Moderate to Severe	14(35.9%)	23(37.1%)	37(36.6%)	13.2	
Total subjects with anxiety	34(87.2%)	50(80.6%)	84(83.2%)	11.5	

**Table 3. Association of Depression with IBS.**

Group	Male	Female	Total	HAD-DEP mean scores	p
Normal	16(41.0%)	33(53.2%)	49(48.5%)	4.4	0.001
Mild	15(38.5%)	20(32.3%)	35(34.7%)	9.7	
Moderate to Severe	8(20.5%)	9(14.5%)	17(16.8%)	13.7	
Total subjects with depression	23(59.0%)	29(46.8%)	52(51.5%)	11.0	

**Table 4. Association of IBS-SI with Anxiety and Depression.**

Groups	Male	Female	Total	p*	p**
In remission/No Disease	2(2.0%)	2(2.0%)	4(4.0%)	0.322	0.090
Mild	10(9.9%)	9(8.9%)	19(18.8%)		
Moderate	20(19.8%)	42(41.6%)	62(61.4%)		
Severe	7(6.9%)	9(8.9%)	16(15.8%)		
Total	39(38.6%)	62(61.4%)	101(100%)		

\*p-value represents association with HAD-ANX groups. \*\*p-value represents association with HAD-DEP groups

Table 2 presents the relationship between anxiety and IBS. According to a previous research, the prevalence of anxiety in the local population is about 28.3%<sup>15</sup>, while 83.2% of subjects in the present study had anxiety of either mild or moderate-to-severe severity. A significant association between anxiety and IBS was found ( $p < 0.05$ ). The prevalence of depression in the local population was about 34% according to a previous study,<sup>16</sup> whereas 51.5% of the subjects in this study were suffering from depression (Table 3). Most

patients had moderate severity of IBS. No significant association was noted with anxiety and depression ( $p > 0.05$ ) (Table 4).

## DISCUSSION

Our results showed that IBS was associated independently with anxiety and depression, as reported by studies from other countries.<sup>14</sup> We had female predominance (61.4 %), which is consistent with a study from US.<sup>4</sup> However, some local studies have shown higher prevalence in males.<sup>6,15,16</sup> An explanation for this discrepancy between these local studies from Western studies could be that these studies were conducted in private centers where males with health-seeking behaviors are more likely to present, whereas our study was in a government setup where people from all strata come and thus, the patients in our study are more representative of the population.

Among 101 patients, 83.2% were suffering from anxiety and 51.5% had depression. These results are in line with studies from Iran and India<sup>17,18</sup> which showed high levels of these disorders in IBS patients. However, research done in Western countries<sup>19</sup> has found high levels of both disorders in IBS patients, with depression taking the lead. This suggests that anxiety disorders have a greater prevalence in IBS patients in Asian populations.

We had 50.5% patients with IBS-M, 28.7% with IBS-D and 20.8% with IBS-C. This is consistent with previous research,<sup>11</sup> which showed that IBS-M was the most common and IBS-C the least common subtype encountered. We found that patients who had IBS-M had the worst severity, with least severity reported for the IBS-D group.

Higher scores of anxiety and depression were recorded as the symptom severity increased in the subjects. However, the association of symptom severity with anxiety and depression was not significant ( $p < 0.05$ ). This is not consistent with previous studies<sup>20</sup> which found that severity of anxiety and depression was related with severity of disease. This can be attributed to the small sample size in our study.

Based on our findings, we recommend that psychiatric assessment should be done in patients of functional gastrointestinal disorders such as IBS; a

suggestion that has been made previously.<sup>2</sup> HADS questionnaire should be utilized frequently. Confirmatory investigations should be sought for suspected cases, with a multidisciplinary approach. There were few limitations in our study. The sample size was small and it was not a multi-center study. Furthermore, we did not look for history or family history of psychiatric disorders in the participants, which could be a confounder in this setting. We also recommend a long-term follow-up of patients of IBS looking into effect of treatment of IBS on anxiety and depression and vice versa. A long-term study was conducted<sup>16</sup> but it did not measure clinical outcomes in a systematic manner; no tools or scales for measuring severity of gastrointestinal or psychiatric symptoms were used.

## CONCLUSION

IBS was associated independently with anxiety and depression. Older age groups of patients had higher levels of anxiety and depression. There was a female predominance in IBS patients. IBS-Mixed was the most common subtype and had the highest severity of symptoms.

### Author contributions:

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