



ORIGINAL ARTICLE

Magnitude of depression and anxiety in patients with irritable bowel syndrome: A comparative cross-sectional study.

Attique Rahman¹, Lubna Kamani²

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ABSTRACT... Objective: To find out the magnitude of depression and anxiety in patients with irritable bowel syndrome (IBS) presenting at a tertiary care Gastroenterology clinic of Karachi, Pakistan. **Study Design:** Cross-sectional study. **Setting:** Department of Gastroenterology, Liaquat National Hospital & Medical College, Karachi, Pakistan. **Period:** February 2022 to July 2022. **Methods:** Patients of both genders, aged 18 – 50 years and newly diagnosed IBS patients (as per ROME-IV criteria) were assessed. Patient's attendants, hospital staff, and students without any symptoms of IBS were taken as healthy controls. Non-probability, consecutive sampling technique was adopted. Depression and anxiety were determined using hospital anxiety and depression scale (HADS). The collected data was entered and analyzed using IBM-SPSS Statistics, version 26.0. Chi-square test was applied to compare data taking $p < 0.05$ as significant. **Results:** This study was conducted on 110 IBS and 110 healthy controls. The mean age of the IBS group was 32.81 ± 1.12 years while that of the healthy group was 37.60 ± 1.08 years. There were 47 (42.7%) males and 63 (57.3%) females in IBS group while 72 (65.5%) males and 38 (34.5%) females in healthy groups. The prevalence of anxiety was 52.7% and that of depression was 49% according to HAD Scale in IBS group ($p < 0.001$). **Conclusion:** A strong association of IBS with anxiety and depression was noted, highlighting the necessity of screening for these disorders in gastrointestinal clinics.

Key words: Anxiety, Depression, Hospital Anxiety and Depression Scale, Irritable Bowel Syndrome, ROME-IV Criteria.

INTRODUCTION

Irritable bowel syndrome (IBS) has previously been referred to as functional gastrointestinal disorders (FGID).¹ According to the ROME-IV criteria, IBS is classified as a disorder of gut-brain interaction.² IBS is characterized by abdominal pain that is accompanied by changes in bowel habits.^{2,3} IBS is a common reason for patients seeking medical attention from a gastroenterologist.⁴ IBS impacts approximately 10-15% of the overall population and contributes to more than 40% of new referrals to outpatient gastroenterology clinics.^{4,5} The contemporary data revealed that the highest prevalence of IBS was found in South America (21%), and the lowest in South Asia (7%).⁶ Recent local data has found that IBS is more prevalent among females and individuals below the age of 50.^{7,8}

headaches, anxiety, depression, sleep problems, and chronic fatigue syndrome, are frequently present in IBS patients. Compared to people without IBS, IBS patients typically have a lower quality-of-life (QOL) and need more on healthcare services.^{9,10} The lower QOL experienced by IBS patients can be attributed to both gastrointestinal symptoms and psychiatric comorbidities.¹¹ The persistent characteristics of the illness result in a significant financial strain as a result of expenses needed for numerous appointments, tests, medications, and absence from work.¹² Researchers have linked psychiatric disorders to IBS.¹³ The information that is now available shows that brain imaging tests of IBS patients differ from those of healthy participants, which may indicate a biological relationship between the psychiatric problems that cause IBS.¹⁴ The purpose of this study was to find out the magnitude of depression and anxiety in patients with IBS presenting at a

Many co-morbidities, including fibromyalgia,

1. MBBS, Postgraduate Trainee Gastroenterology, Liaquat National Hospital, Karachi, Pakistan.

2. MBBS, MRCP (UK), FRCP (London), SCE-Gastro (UK), FACP (USA) (Medicine), FCPS (Gastroenterology), Professor Gastroenterology, Liaquat National Hospital, Karachi, Pakistan.

Correspondence Address:

Dr. Attique Rahman
Department of Gastroenterology
Liaquat National Hospital, Karachi, Pakistan.
atq.sheikh50@gmail.com

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tertiary care gastroenterology clinic of Karachi, Pakistan.

METHODS

This cross-sectional study was conducted at of Gastroenterology, Liaquat National Hospital & Medical College, Karachi, Pakistan from February 2022 to July 2022. The study was conducted after the approval from the "Hospital Ethical Committee" (letter number: 0720-2022 LNH-ERC, dated: January 5, 2022). Informed and written consents were obtained from study participants. Inclusion criteria were patients of both genders, aged 18–50 years, newly diagnosed IBS (ROME-IV criteria), and visiting out-patient department (OPD). The exclusion criteria were patients with preexisting GI disorders, those not providing the consent, past history of any GI surgery, abnormal lower and upper GI endoscopy, chronic medical illness such as CKD, CLD, diabetes mellitus, malignancies, or patients already diagnosed with depression and/or other psychiatric disorders. Patient's attendants, hospital staff and students having self-reported no chronic disease, free of primary disease (IBS), and found to be normotensive, non-diabetic, non cardiovascular diseases were taken as healthy controls. Depression and anxiety were determined using hospital anxiety and depression scale (HADS). HADS is a 14-item self-reported questionnaire with 4-point rating scale from 0-3 and score range of 0-21. A special proforma was designed to record study data.

The collected data was entered and analyzed using IBM-SPSS Statistics, version 26.0. Categorical variables such as gender, residence, presenting symptoms, obesity, educational status, occupation, family system, marital status, smoking status, experience of traumatic event in past three months, alcohol intake, physical exercise were presented as frequency and percentage. Continuous variables including age, depression score, and anxiety score were shown as mean \pm standard deviation (SD). Chi-square test was applied to compare data taking $p < 0.05$ as significant.

RESULTS

This research involved 110 patients in the IBS group and 110 patients in the healthy group. The mean age of the IBS group was 32.81 ± 1.12 years, whereas the healthy group had an average age of 37.60 ± 1.08 years. In the IBS group, there were 47 (42.7%) males and 63 (57.3%) females, while the healthy group consisted of 72 (65.5%) males and 38 (34.5%) females. A majority of IBS group patients worked 6-8 hours per day, accounting for 58 (52.7%), compared to 96 (87.3%) in the healthy group (Table-I). In the IBS group, there were 9 (8.2%) patients who were smokers, whereas in the healthy groups, there were 26 (23.6%) who smoked. The majority of patients in their daily lives did not engage in physical exercise, with 73 (66.4%) in the IBS group. The educational level of 64 (58.2%) patients in the IBS group was primary (Table-I).

Characteristics	Group		P-Value
	IBS Group (n=110)	Healthy Group (n=110)	
Gender			
Male	47(42.72%)	72(65.45%)	0.001
Female	63(57.27%)	38(34.54%)	
Age in years			
18-35	76 (69.1%)	57 (51.8%)	0.020
36-50	27 (24.5%)	37 (33.6%)	
51-65	7 (3.4%)	16 (14.5%)	
Place of residence			
Urban	70(63.6%)	110(100%)	<0.001
Rural	40(36.4%)	0	
Smoker			
Yes	25(22.7%)	26(23.6%)	0.500
Working hours/day			
<6	37(33.6%)	3(2.7%)	<0.001
6-8	58(52.7%)	96(87.3%)	
>8	15(13.6%)	11(10%)	
Alcohol			
Yes	9(8.2%)	2(1.8%)	0.029
Physical exercise			
Daily	6(5.5%)	4(3.6%)	0.388
Sometime	31(28.2%)	40(36.4%)	
Never	73(66.4%)	66(60%)	
Other substance abuse			
Yes	14(12.7%)	11(10%)	0.336
Family system			
Nuclear	68(61.8%)	101(91.8%)	<0.001
Joint	42(38.2%)	9(8.2%)	
Education			
Illiterate	16(14.5%)	3(2.7%)	<0.001
Primary	64(58.2%)	12(10.9%)	
Secondary	30(27.3%)	95(86.4%)	
Experienced any major traumatic event in life			
Yes	7(6.4%)	3(2.7%)	0.116

Table-I. Demographic characteristics of patients (N=220)

In the IBS group, the HAD Scale indicated that anxiety was present in 52.7% of individuals, while depression was present in 49% (P value <0.001). In healthy controls, borderline abnormal anxiety was found in 3.6% of participants, and depression was found in 6.4% (Table-II).

Variables	Group		P-Value
	IBS Group (n=110)	Healthy Group (n=110)	
Symptoms of IBS			
Yes	110(100%)	-	<0.001
Comorbidity			
Yes	76 (69.1%)	57 (51.8%)	0.020
Experienced any major traumatic event in life			
Yes	7(6.4%)	3(2.7%)	0.116
History of Anxiety and depression			
Yes	100(90.9%)	8(7.3%)	<0.001
Anxiety according to HAD Scale			
Normal	23(20.9%)	106(96.4%)	<0.001
Borderline abnormal	29(26.4%)	4(3.6%)	
Abnormal	58(52.7%)	-	
Depression according to HAD Scale			
Normal	18(16.4%)	103(93.6%)	<0.001
Borderline abnormal	43(39.1%)	7(6.4%)	
Abnormal	49(44.5%)	-	

Table-II. Clinical characteristics of patients (N=220)

DISCUSSION

IBS is a common, expensive, and potentially debilitating functional bowel disorder that is characterized by recurring abdominal pain or alterations in bowel habits. It is estimated that 5-10% of the world's population is affected by IBS. Additionally, up to a third of individuals with IBS also suffer from anxiety or depression.¹⁶ In our research, we found that IBS was prevalent among individuals in their 30s and 40s. The mean age of the IBS group was 32.81 ± 1.12 years, while the healthy group had an average age of 37.60 ± 1.08 years. This age range is particularly vulnerable to developing IBS due to various factors like hormonal changes, stress, diet, and lifestyle habits. These findings align with Amna Subhan Butt's study in Pakistan, which reported a mean age of 43.1 ± 12.1 years for IBS.¹⁷ Victor and colleagues reported that 38% of patients within the 31-40years range.¹⁸ The prevalence of IBS was found to be 63 (57.3%) more common in women, according to the current data, although this relationship was not statistically significant.

According to Wang et al., there was a statistically significant difference in the prevalence of IBS between males and females.¹⁹ However, in regional research by Jafri and associates, IBS was primarily detected in men, accounting for 56%²⁰ and 48%²¹ of cases, respectively. There is a strong correlation between tobacco use and several GI disorders. Smoking is recognized as a significant risk for gastric cancer, Crohn's disease, peptic ulcer disease, and gastroesophageal reflux disease (GERD). In comparison, the relationship between smoking and IBS remains unclear. There have been suggestions that smoking may also protect against IBS, but there is currently a lack of reliable and consistent data to support this theory.^{22,23} IBS was found to be more common in non-smokers, according to an international study.²³

In our research overall prevalence of depression and anxiety were found in 44.5% and 52.7% of patients with IBS, respectively, according to the HAD Scale. On the other hand, Barberio B et al²⁴ study showed a higher prevalence of anxiety symptoms at 57.6% and depression symptoms at 38.9% in patients with active IBD. The study also revealed that up to a third of patients with IBS experiences anxiety symptoms, while a quarter experiences depression symptoms. These findings are consistent to what we found. These data exhibit that anxiety and depression might be common psychiatric issues among patients with IBS and there is a need to identify and treat these ailments to improve overall QOL in these patients.

Being a single center study, our findings need further verification in large multicentric studies. There is also a need to identify factors that independently contribute to the existence of anxiety and depression in IBS patients. Prospective studies examining various interventions designed to reduce the burden of anxiety and depression should be conducted in patients with IBS to the outcomes.

CONCLUSION

A strong association of IBS with anxiety and depression was noted, highlighting the necessity of screening for these disorders in

gastrointestinal clinics. Anxiety and depression were higher in middle aged patients. IBS patients showed a higher prevalence among females. The treatment and management of these psychiatric comorbidities is anticipated to lead to better quality of life and clinical outcomes in IBS patients.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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
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AUTHORSHIP AND CONTRIBUTION DECLARATION

No.	Author(s) Full Name	Contribution to the paper	Author(s) Signature
1	Attique Rahman	Data collection, drafting, responsible for data's integrity, approved for publication.	
2	Lubna Kamani	Conception and designed, Critical revisions, Proof reading, Approved the final draft for publication.	