

Prevalence of Anxiety Related Irritable Bowel Syndrome Symptoms Among Medical Students of Rawalpindi

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ABSTRACT

Objective: The aim of the study was to find prevalence of Irritable Bowel Syndrome (IBS), compare its prevalence among male and female students and find association of IBS with anxiety among medical students of Rawalpindi.

Study Design: Descriptive cross-sectional study

Place and Duration of Study: It was conducted among the Medical Students of Army Medical College and Rawalpindi Medical University, Rawalpindi Pakistan, from Mar to May 2021.

Methodology: A structured, self-administered questionnaire was distributed after obtaining consent. Systematic Random Sampling was done. Sample size was 363. Questionnaire consisted of two parts; IBS Questionnaire for healthcare professionals and Generalized Anxiety Disorder Questionnaire. Data analysis was done using SPSS 26.

Results: All the questionnaires were inquired from the age group of 15 to 30 years. A total of 243 responses were collected from females and 120 from males. Analysis of the data revealed that 84 out of 363 respondents (23.1%) had probable IBS. There was a preponderance of females with IBS (26.7%) over males (15.8%). There was significant association of IBS with Gender. Out of 243 females, 37 had severe anxiety, 46 had moderate anxiety, 96 had mild anxiety and 64 had no anxiety. Six males had severe anxiety, 20 had moderate anxiety, 29 had mild anxiety and 65 had no anxiety. Overall prevalence of severe anxiety was 11.845%. 20.2% individuals with probable IBS had severe anxiety. Data analysis revealed ($p < 0.05$) implying that the association of IBS with anxiety is highly significant.

Conclusions: The overall prevalence of Probable IBS was found to be 23.1%. A significant association was found between IBS and gender as well as IBS and anxiety levels. The problem can be addressed by managing the stress levels among medical students.

Keywords: IBS, anxiety, medical students, healthcare professionals, stress.

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INTRODUCTION

Irritable Bowel Syndrome or IBS is a fairly common Gastrointestinal Disorder characterized by persistent fluctuations in bowel movements manifesting as constipation alternating with diarrhea, abdominal cramps and bloating in the absence of any anatomical defect of the GI tract. The symptoms and their severity vary from individual to individual and can affect the performance of daily activities.¹ It is one of the commonest diagnoses made in a gastroenterology clinic particularly in the modern times. IBS is a functional disorder of the GI Tract affecting how the GI tract works and not causing any sort of structural or biochemical abnormalities.² The pathogenesis of functional GI disorders is multifactorial. It predominantly involves the dysfunction of brain and gut interaction which manifests as altered bowel motility. Other pathogenic factors involved include: visceral hypersensitivity which can be defined as an exaggerated response of the

GI tract to stimuli, changes in the normal flora of GI tract, hereditary predisposition and dietary habits like alcohol and tobacco consumption. Hence psychological comorbidity is a common finding in patients with IBS.³ Stress seems to be the major aggravating factor of this condition hence professionals with a busy and hectic routine and disrupted psychosocial behavior seem to be the major population affected by this disorder.⁴ It has been a common finding among medical students and professionals particularly owing to their hectic routine, academic pressures, stress of balancing social and academic life as well as the constant pressure and stress of their future and career.⁵ Besides the burden of disease on the healthcare system IBS adversely affects the life of healthcare professionals resulting in poor academic performance, lack of interest as well as adverse effects on mental and psychological health. It has become an important cause of poor occupational performance especially among medical students and professionals resulting in lack of consistence and absenteeism.⁶

There are considered to be a total of 33 functional gastrointestinal disorders responsible for almost 44

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percent of the referrals to the Gastroenterologists. Out of these disorders IBS is considered to be the most common one with an overall global prevalence of 12%.⁷ According to a Survey conducted at King Saud bin Abdul Aziz University in Riyadh the overall prevalence rate of IBS was found out to be 21%. The occurrence of IBS symptoms was higher among females (26%) as compared to males (19%). Final year Medical Students were more affected by this condition which can be attributed to their higher stress and anxiety levels.⁸

A Malaysian study conducted in a Private Medical University revealed that IBS occurrence rate was significantly higher among the population of Medical Students compared to general Malaysian population.⁹ A similar study conducted in Jeddah estimated the prevalence rate of IBS to be around 15.6% and established a link of IBS with several factors namely Depression, family history of IBS and lack of exercise.¹⁰

In Pakistan IBS has not received the attention it deserves. The problem has already adversely influenced the life of many medical students and professionals and the issue needs to be brought to limelight without further delay. This study will focus upon the current status and baseline data for prevalence of anxiety related IBS among Medical Students. By establishing a relation between IBS and anxiety we can proceed to behavioral therapy along with medications as a treatment approach because finding a way to keep emotions under control might help to ease the symptoms or prevent flare ups of the condition.

METHODOLOGY

This was a descriptive cross-sectional study design conducted among Medical Students from Army Medical College, Rawalpindi Medical University, Rawalpindi Pakistan, from March 2021 to May 2021.

Systematic random sampling was used. The list of students was obtained from the administration of the Colleges and used as a sampling frame. The sampling interval was calculated by dividing the total number of students by the number of elements needed in the sample.

Inclusion Criteria: A total of 363 Medical students were enrolled.

Exclusion Criteria: the non-medical students were excluded and those who did not give consent.

A structured, self-administered questionnaire was distributed after obtaining consent. The Questionnaire consisted of 2 parts: Part-A included demographic: data name, age, gender, Discipline of study and year of

study. The Part-B included the Irritable bowel syndrome questionnaire for healthcare professionals, consisting of 21 items. The scores used for analysis was: Scores<15 No IBS, while scores 15-25 Probable IBS.

To assess the anxiety, a Generalized Anxiety Disorder 7-item (GAD-7) Scale consisting of 7 items was used. Scoring was conducted as: 5: Mild anxiety, 10: Moderate anxiety and 15: Severe anxiety

Participants were contacted through email. Informed consent was taken from the subjects before filling of Questionnaire in Google forms. Ethical permission from college ethical review committee was taken prior to data collection. Confidentiality of the data was maintained throughout the process by the method of coding the responses. Only the investigators knew the key to codes. Data were analyzed using SPSS 26. Frequencies and percentages of IBS and Anxiety prevalence were reported. Statistical Significance was calculated using Chi Square test. ($p<0.05$) was considered to be statistically significant.

RESULTS

Data was collected through Google forms that were distributed among the medical students of Army Medical College and Rawalpindi Medical University after obtaining their consent. The forms were sent through social media platforms and email.

Data was collected using IBS Questionnaire and Generalized Anxiety Disorder Questionnaire. A total of 363 responses were obtained All respondents belonged to 15 to 30 age group. Out of the total 363 responses, 243(66%) responses were from females and 120(33%) responses from males.

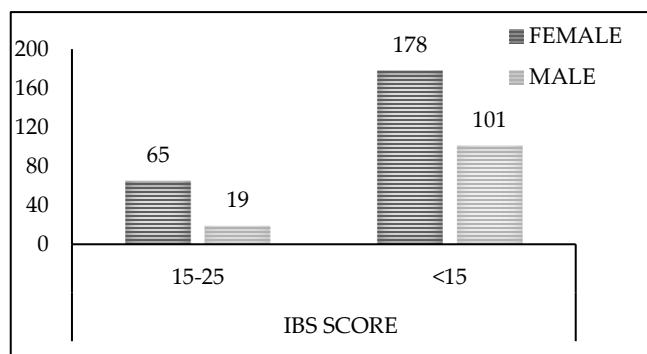


Figure-1: Graph Showing the Scores of IBS in Males and Females

Out of the 363 respondents 84(23.1%) had an IBS score between the range of 15-25, implying that they had probable IBS. Out of the 84 individuals who were positive for IBS, there was a preponderance of females

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65(26.7%) over males 19(15.8%). 279 individuals had IBS score <15 implying that they do not have IBS.

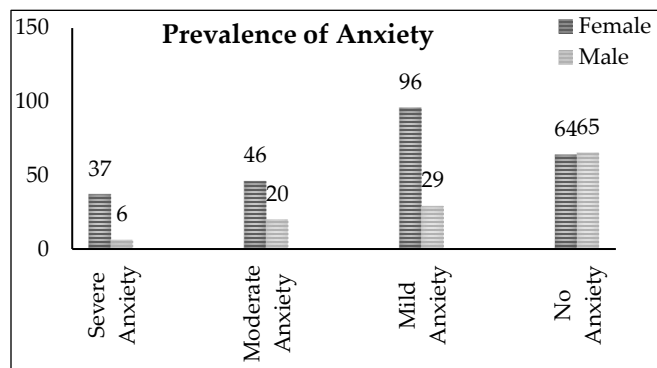


Figure-2: Graph showing the prevalence of different levels of anxiety in males and females

Statistical analysis was done using SPSS version 26. Chi Square tests were applied on the results to derive the *p*-values and find out if any association existed between female gender and IBS. Results of test revealed (*p*<0.05) implying that prevalence of IBS is associated with gender.

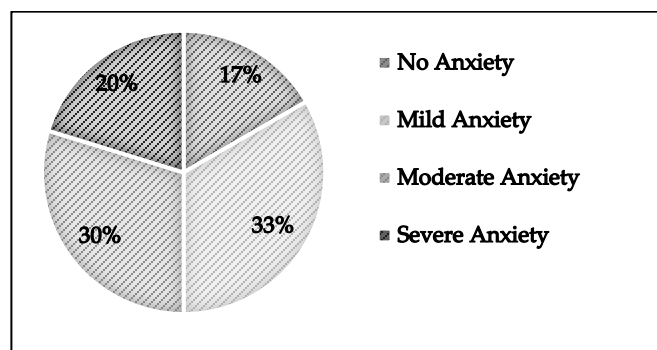


Figure-3: Association of IBS with anxiety

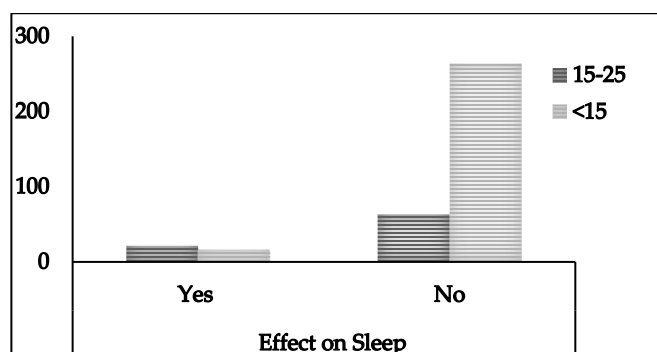


Figure 4: Effect of IBS on Sleep

The GAD 7 Questionnaire results revealed that out of the 243 females, 37 had severe anxiety, 46 had moderate anxiety, 96 had mild anxiety and 64 had no

anxiety. Out of the 120 males, 6 had severe anxiety, 20 had moderate anxiety, 29 had mild anxiety and 65 had no anxiety. Females had a dominance (15.22%) over males (5%) in terms of severe anxiety. The overall prevalence of severe anxiety was 11.845%.

Out of the total 84 individuals with IBS score in the range 15-25(probable IBS), 14 had no anxiety, 28 had mild anxiety, 25 had moderate anxiety and 17(20.2%) had severe anxiety. Out of the total 43 individuals with severe anxiety, 17(39.5%) had probable IBS. 25 out of 66 individuals (37.8%) with moderate anxiety had probable IBS. Only 14 out of 129 individuals (10.8%) with no anxiety had probable IBS. Chi Square test was applied to find out if an association existed between IBS and anxiety. Results of test revealed (*p*<0.05) implying a significant association prevalence of Probable IBS and level of anxiety.

Table: Irritable bowel syndrome among male and female

	Gender	
	Male	Female
IBS Score		
<15	101	178
15-25	19	65
Level of Anxiety		
No anxiety	65	64
Mild anxiety	29	96
Moderate anxiety	20	46
Severe anxiety	6	37

Out of the total 84 individuals with probable IBS, 21(25%) said that their symptoms affected their sleep and woke them up at night. 63(75%) individuals with probable IBS said their symptoms had no effect on their sleeping patterns. A total of 20(23.8%) out of the 84 individuals with probable IBS had used antibiotics recently whereas the remaining 64(76%) had not used antibiotics recently.

DISCUSSION

According to different studies conducted globally, the prevalence of IBS and other disorders of GIT involving brain gut interaction varies from nation to nation. As the developing countries now adopt a western lifestyle the rampancy of IBS seems to be increasing.¹¹ A study conducted among college students of northern India (2021) found out that the prevalence of functional gastrointestinal disorders was 26.9% and was significantly more common among females compared to males(32.3% vs 17.6%).¹²

Our study revealed very similar results with a total IBS prevalence of 23.1%. The IBS score of females was higher compared to males leading to an overall higher

prevalence of IBS among females compared to males (26.7% vs 15.8%). A Spillebout in a study conducted in France found out that the prevalence of IBS among University students was 7.8%. This difference in prevalence of IBS can be due to inclusion of non-Medical Students in the former study.¹³ Research conducted at King Faisal University Saudi Arabia among medical students and interns reported a higher prevalence of IBS among the female students (31.8%) as compared to males (12.7%).¹⁴

A study conducted in 2017 in Egypt by Mohamed Fawzy reported that the prevalence of anxiety was 73% among the Medical Students. This percentage of prevalence of severe anxiety is very high compared to our findings where the prevalence of severe anxiety was estimated to be 11.845%. This difference can be attributed to the growing political and security environments surrounding the country.¹⁵ A study by R Shao in China among the medical students revealed the prevalence of severe anxiety to be 0.8%. This differs slightly from the prevalence of severe anxiety in our study (11.845%).¹⁶ In the Chinese study there was found to be no significant association of Severe anxiety with gender whereas the current study found that the prevalence of severe anxiety among females (15.22%) was significantly higher compared to males (5%). This difference can be due to use of different diagnostic tools. Research was conducted by Arko Banerjee using Hamilton rating scale of anxiety to assess levels of anxiety among IBS patients and healthy controls.¹⁷ The prevalence of anxiety and depression in IBS patients was found to be 44% and 84% respectively. The higher percentage of anxiety in individuals with IBS (44%) as compared to ours can be due to the difference in demographic characteristics of the sample especially the inclusion of older age groups in the former study. In another study by Irina Midenfjord 44.9% of IBS patients reported anxiety symptoms. This difference in the prevalence compared to our study can be attributed to cultural, socioeconomic and dietary habits in various countries.¹⁸

Study at King Faisal University also reported that students with history of emotional stress in the past month had a higher prevalence of IBS (25.4%).¹⁴ This is in consistency with our results where the results were highly significant to prove that IBS has association with severe anxiety. Study at Ain Shams University analyzed that 32.9% of students with IBS had morbid anxiety and that 35.8% individuals had a family history of IBS, an indicator not analyzed in our study.¹⁹

Study conducted among medical and commerce students of University of Sudan revealed IBS prevalence of 27.2% among medical students and 26.8% among the commerce students. The results were very close to each other yet they were statistically significant. The higher prevalence of IBS among medical students can be justified by their hectic routines, long clinical hours and academic pressures.²⁰ Study conducted at the Qassim University in Saudi Arabia reported an overall prevalence of IBS to be 13.7%. They also reported age, advanced academic years, family history and living situation as predictors of IBS.²¹

Another similar study conducted at a private Malaysian university found significant association between IBS and anxiety ($p < 0.05$).²² All these studies are consistent with our results that IBS is strongly associated with level of anxiety.

23.8% individuals with probable IBS reported use of antibiotics recently in the current study. Similar results were obtained by another study conducted by Krogsgard on Danish population where the use of antibiotics reported among individuals with IBS was higher compared to asymptomatic controls (29% vs 17.9%).²³

A significant association was found between sleep disorders and IBS in a study conducted by Ben Wang.²⁴ Our study reported that 25% of individuals with probable IBS had effects on sleeping patterns but data from our study is deficient to make a conclusive result. Study conducted by Seung Young Kim reported that sleep was significantly affected in people with functional dyspepsia but not IBS.²⁵ This was in consistency with our study where 75% individuals with IBS had no effect on their sleep.

LIMITATIONS OF THE STUDY

1. The results cannot be generalized to the entire population of medical students.
2. The year of study was not included as a part of questionnaire which could have given better results for comparison.
3. Risk factors like family history were not addressed.

RECOMMENDATIONS

Our study found the association between levels of anxiety and probable IBS. These results can help us employ counseling techniques for the treatment of IBS patients along with pharmaceutical interventions and improve the management outlook of patients with IBS.

CONCLUSIONS

The overall prevalence of Probable IBS was found to be 23.1%. A significant association was found between IBS and

gender with the prevalence being higher in females. Anxiety is also an important risk factor for IBS and the results of the study found a highly significant association between IBS and anxiety. Medical students with their long clinical hours, academic pressures and hectic routine are predisposed to developing some level of anxiety and are at greater risk for the development of IBS. The need is to increase the idea of treating and managing stress in order alleviate the symptoms of IBS.

Conflict of Interest: None

Author's Contribution

Following authors have made substantial contributions to the manuscript as under:

AH: Supervision, Conception, Study design, analysis and Interpretation of data, Critically reviewed manuscript & approval for the final version to be published.

SFM: Co-supervision, Data entry, analysis and interpretation, manuscript writing & approval for the final version to be published.

MA: HJ: Critically reviewed, Drafted manuscript & approval for the final version to be published.

HA: MW: Data collection, Entry and analysis of data, preparation of rough draft & approval for the final version to be published.

TA: Data collection and entry & approval for the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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