

**FUNCTIONAL GASTROINTESTINAL DISORDERS AND PSYCHIATRIC CO-MORBIDITIES; CANDOR OF ASSOCIATION SEEN IN TERTIARY CARE HOSPITAL OF PAKISTAN**<sup>1</sup>\*Dr. Rahila Aamir, <sup>2</sup>Dr. Sehar Ashraf, <sup>3</sup>Dr. Tehzeeb Zehra and <sup>4</sup>Dr. Uzma Batool<sup>1,3</sup>FCPS, Assistant Professor, Department of Medicine,<sup>2</sup>FCPS, Assistant Professor, Department of Psychiatry,<sup>4</sup>FCPS, Senior Registrar, Department of Medicine,

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**ABSTRACT**

**Objective:** To observe the co-existence of FGID and psychiatric comorbidities in our patients. **Methodology:** In this observational, case control study, patients aged > 15 years, having gastrointestinal symptoms, presented in medical or gastroenterology outpatient department of Shifa International Hospital were enrolled. Patient having organic Gastro-Intestinal disorder were excluded. Diagnosis of FGID (functional gastro intestinal disorder) was made using Rome III criteria. Age and gender matched healthy relatives of patients, were recruited as controls. Both patients and controls were assessed for psychiatric disorders and somatic symptoms. Statistical analysis was conducted using the SPSS 23. Chi-square test and *t* test used for data analysis. Results were expressed in mean  $\pm$  SD and *P* value < 0.05 with 95% confidence interval was considered statistically significant. **Results:** Mean age of patients and controls was 41.3 and 40.7 respectively. Female gender, unemployment, BMI 25-30, urban residence and being married were higher in data frequency. There was no significant difference between two groups regarding demographic characteristics. IBS-C was most common and was associated with more severe disease. Anxiety and stress disorder was most frequent (20.4%) psychiatric illness. Psychiatric co-morbidities were significantly higher in cases than in controls, however patients with depressive syndrome had more severe symptoms of IBS and more somatic complaints. Somatic symptoms were significantly higher among cases than controls. **Conclusion:** FGID overlap frequently with psychiatric comorbidities with same spectrum of psychiatric illness in cases and controls, indicating cause effect relationship between the two, so should be screened and managed under single umbrella.

**KEYWORDS:** Correlation of IBS, FGID, IBS, psychiatric co-morbidity, somatic complaints.**INTRODUCTION**

Functional gastrointestinal disorders (FGIDs) are among the commonest complaint presenting in outpatient clinics of Medicine and Gastroenterology and sometimes disabling also. Irritable bowel syndrome (IBS) is the most common of FGIDs. In addition functional dyspepsia, chronic constipation, gastro esophageal reflux disease contributes significant public health problem. They account for almost 40–60% of all outpatient visits to GI clinics.<sup>[1]</sup>

IBS, is characterized by abdominal pain or discomfort and alteration of bowel habits in the absence of an organic disorder.<sup>[2]</sup> Although functional gut disorders are benign with a good long-term prognosis, it has an important effect on a patient's quality of life<sup>[3]</sup>, so need to be corrected. The mechanism of development of FGID has not been fully explained. Among different proposed hypothesis, post-infectious inflammation, impaired gut

motility, psychological distress and alteration in the brain-gut axis are common.<sup>[4]</sup> Association between psychological disorders and FGID used to be considered conflicting, and it was generally regarded as biased observations, however in recent years there is mounting evidence that genuine relationship exists between two.

Literature suggest that approximately 60% of treatment seeking FGID patients have a co-existing psychiatric condition. Diagnosis among them established through structured clinical interviews.<sup>[1]</sup> In addition studies have shown that patients with IBS make twice or thrice the health care visits than age matched controls for multiple somatic complaints.<sup>[3]</sup>

In a community-based study in Sweden, anxiety but not depression was linked to functional dyspepsia. In a population-based study in Hong Kong IBS found to be associated with 6-fold increase in the likelihood of

having generalized anxiety disorder.<sup>[5]</sup> Somatization disorder (SD) is also highly relevant to functional gastrointestinal disease, prevalence rates of somatization disorder is 15% to 48% among IBS patient samples.<sup>[6]</sup>

Our aim is to find out the burden of psychiatric problems among our patients presenting with FGID. This would reinforce the need of setting the protocol for early recognition and intervention of FGID and psychiatric co morbidity as single entity in our hospitals. Very little research and practical toil has been done on these interrelated disorders in this part of the world especially in Pakistan.

#### METHODOLOGY

After approval from IRB (institutional review board), Adult patients, 15 years or above, presenting in medical or gastroenterology outpatient clinics of Shifa International Hospital were enrolled. Written informed consent was taken from all patients. Detailed history and physical examination was performed on all patients. The diagnosis of FGID was made on the basis of Rome III criteria. IBS was further classified based on Rome III criteria into constipation predominant IBS (IBS-C), diarrhea predominant IBS (IBS-D) and mixture of the 2 symptoms (IBS-M); other functional GI disorders into functional dyspepsia, non-specified belching and cyclic vomiting syndrome. Organic problem ruled out, where indicated, by imaging and endoscopy. The subjects were

interviewed on the basis of a pre-designed proforma. Severity of IBS was assessed through visual analogue IBS severity scale (IBS-SSS) with severity number ranging from 0-500 and categorized as mild, moderate and severe. Age and gender matched healthy relatives of patients visiting outpatient department recruited as controls. Patients suffering from any major underlying medical or surgical conditions were excluded from the study. Somatic complaints were recorded for both cases and controls. Both patients and controls were assessed for psychiatric disorders by psychiatrist on same day, in same premises through Structured Clinical Interview for DSM-IV (SCID-IV). Statistical analysis was conducted using the SPSS 23. Comparisons between different FGID subgroups performed using Chi-square test for categorical data and *t* test for continuous data. Results were expressed in mean  $\pm$  SD and P value < 0.05 was considered significant.

#### RESULTS

Mean age of patients with FGID was 41.3 for patients and 40.7 for controls. Female gender, literacy level high secondary, unemployment, BMI 25-30, urban residence and married status were higher in data frequency. There was no significant difference between two groups regarding demographic characteristics except marital status, being married and widowed had statistically higher psychiatric illness with border line significance (P value = 0.061). (Table: 1).

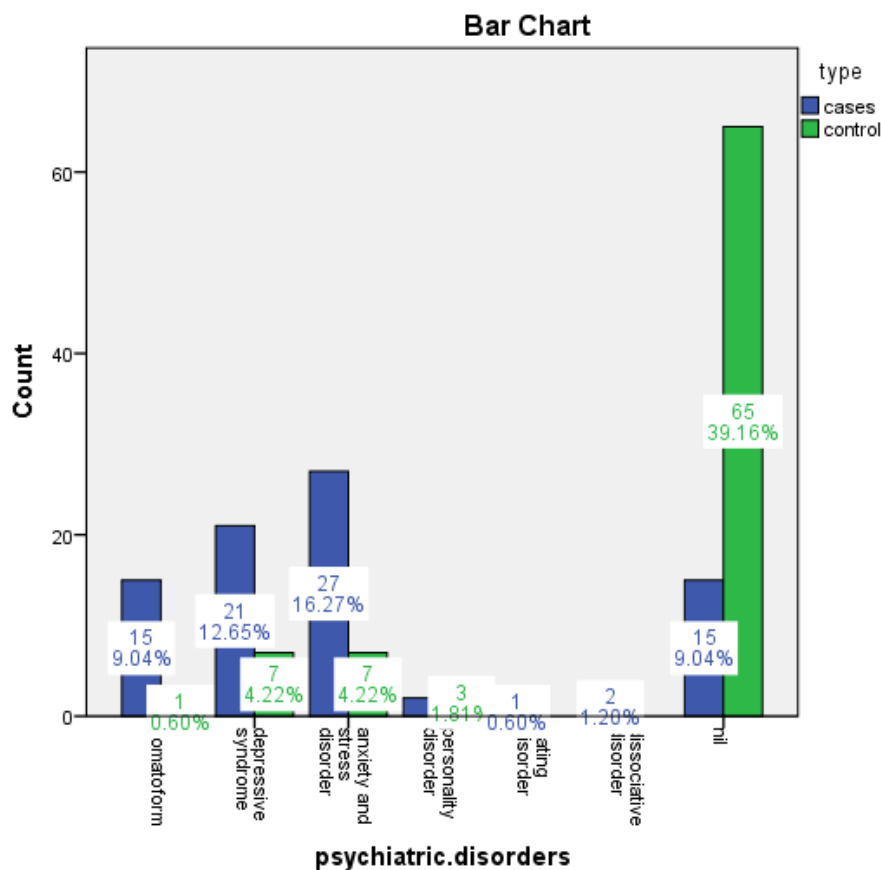
**Table. 1: Demographic characteristics of study population (n=166).**

S/NO	Demographic Characteristics	Cases N=83	Control N=83	P. Value
1	Mean age	41.3373	40.7711	0.789
2	<b>Gender</b>			0.500
	Male	25(30.1%)	24(28.9%)	
	Female	58(69.9%)	59(71%)	
3	<b>Education</b>			0.796
	Illiterate	15(18%)	15(18%)	
	Primary	19(22.9%)	14(16.9%)	
	Secondary and above	32(38.5%)	36(43.3%)	
	Graduate and above	17(20.5%)	18(21.7%)	
4	<b>Occupation</b>			0.536
	employed	30(36.1%)	24(28.9%)	
	unemployed	40(48.1%)	42(50.6%)	
	student	13(15.6%)	17((20.5%)	
5	<b>BMI</b>			0.351
	<25	5(6%)	4(4.8%)	
	25-30	35(42.2%)	45(54.2%)	
	30-35	34(40.9%)	30(36.1%)	
	35-40	7(8.4%)	4(4.8%)	
	>40	2(2.4%)	0	
6	<b>Domicile</b>			0.610
	rural	26(31.3%)	23(27.7%)	
	Urban	57(68.7%)	60(72.3%)	
7	<b>Marital Status</b>			0.061
	un-married	22(26.5%)	32(38.5%)	
	married	53(63.8%)	49(59%)	
	widow	8(9.6%)	2(2.4%)	

Among 83 patients with functional GI disorders, 26(31.3%) had IBS-C, 18(21.7%) had IBS-D and 25(30.1%) had IBS-M. Among other functional GI disorders, 54(65.1%) had functional dyspepsia, 25(30.1%) had non-specified belching and only 4(4.8%) had cyclic vomiting syndrome. When assessed on severity scale, majority that is 42(50.6%), had moderate disease while 18(21.7%) had mild disease and 23(27.7%) had severe disease. Among different subtypes of IBS, patients with IBS-C had more severe disease than IBS-D and IBS-M. (Figure: 2).

Regarding psychiatric comorbidities, 32(20.4%) had anxiety and stress disorder, 28(16.8%) had depressive syndrome, 16(19.6%) had somatoform disorder, 5(3%) had personality disorder, 2(1.2%) had dissociative

disorder and only 1(0.6%) had eating disorder. When comparison made between cases and controls, psychiatric co-morbidities were significantly higher in cases than in controls with P Value 0.000(Figure: 1). 15(out of 83) patients of FGID, while 65(out of 83) controls did not have any psychiatric comorbidity. Interestingly, spectrum distribution of psychiatric disorders among cases and control is same (figure 1); personality disorder, eating and dissociative disorder lower in frequency in both groups indicating that FGID does not add in spectrum of psychiatric comorbidities but enhances the same prevalent spectrum, indicating a cause effect relationship between psychiatric comorbidities and FGID. However, somatoform disorders which are almost always associated with FGID.



**Figure 1: Psychiatric comorbidities in study population (n=166).**

Severity of IBS symptoms also varies with type of co-existing psychiatric co morbidity. Patients with depressive syndrome present with more severe symptoms of IBS (Figure: 2)

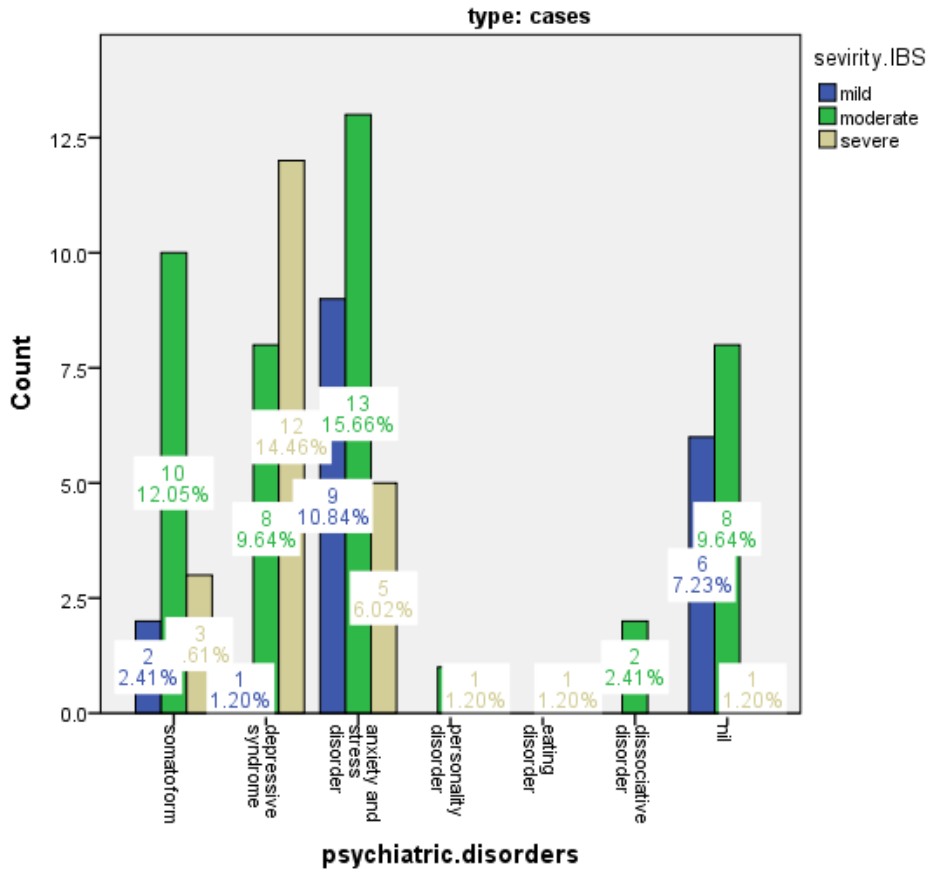


Figure 2: Association of different types of psychiatric comorbidities with severity of IBS.

When somatic co-morbidities were analyzed and compared between two groups, it was found significantly higher in patients with FGID as compared to controls. Body aches were found to be most common somatic comorbidity followed by fatigue (Table: 2). In addition

patients with co-existing psychiatric problem found to have more somatic complaints than patients without psychiatric problem and patients with depressive syndrome had highest number of somatic complaint.(Table:3)

Table 2: Comparison of Somatic Complaints in cases and controls.

S/NO	Somatic Complaints	Cases	Control	P value
1	Fatigue	51(70%)	21(29.1%)	0.000
2	Headache	39(63.9%)	22(30%)	0.006
3	Generalized weakness	34(80.9%)	8(19%)	0.000
4	Palpitation	27(81.8%)	6(18.1%)	0.000
5	Body aches	54(65%)	29(34.9%)	0.000
6	Decreased Appetite	30(81%)	7(18.9%)	0.000

Table 3: Relationship of Psychiatric disorders with somatic complaints.

S/NO	Psychiatric condition	Somatic symptoms					
		Fatigue	Headache	Generalized weakness	Palpitation	Body aches	Decreased apatite
1	Somatoform disorder	11	12	9	6	15	4
2	Depressive syndrome	24	13	17	9	24	22
3	Anxiety and stress disorder	19	13	10	11	17	6
4	Personality disorder	2	2	1	0	3	1
5	Eating disorder	0	1	0	1	0	0
6	Dissociative disorder	1	1	0	2	1	0
7	No psychiatric problem	15	19	5	4	23	4

## DISCUSSION

Functional gastrointestinal disorder (FGID) refers to chronic or recurrent gastrointestinal syndromes that are not explained by anatomical or physiological abnormalities.<sup>[7]</sup> FGID includes irritable bowel syndrome (IBS) with 3 common sub types (IBS-C, IBS-D, IBS-M), functional dyspepsia (FD), functional heartburn (FH), and can cause serious social and economic burdens. As a representative FGID, IBS affects 10–20% of the general population<sup>[8]</sup> and is known to result in a very low quality of life, similar to the quality of life in patients with chronic renal failure or ischemic heart disease.<sup>[9,10]</sup> Vanuytel *et al* reported that increased corticotrophin releasing hormone (CRH) in the event of acute emotional stress alters intestinal permeability<sup>[11]</sup> via the action of mast cells, and that CRH and mast cells also affect visceral sensitivity.<sup>[12-14]</sup>

Lyadiard R demonstrated that psychiatric disorders, FGIDs and extra-intestinal(somatic) disorders overlap frequently.<sup>[12]</sup> We wished to confirm the findings of internationally published material in our community to see whether racial differences affects these findings or not.

We aimed this study to optimize workup and treatment targets in FGID patients so to not only focus on gastrointestinal symptom relief but also eradication of root cause. Kushner V *et al*, has demonstrated same objectivity in their study because extra intestinal and psychiatric comorbidity appear to affect FGID patient quality of life more than GI symptoms themselves.<sup>[15]</sup>

Chuah K H *et al* has highlighted social factors influencing FGID in eastern countries<sup>[16]</sup>. Our study endorsed their findings of more urban population having the burden of FGID than rural.

Whereas the majority of FGID, including IBS, bloating, constipation, chronic functional abdominal pain, and pelvic floor dysfunction, are more prevalent in women than men<sup>[17]</sup>, our study confirmed these findings. Marital status has shown negative impact on our cases than controls being more married females with FGID than un married, highlighting the need of adequate family relations to decrease burden and to ease management of FGID and related psychiatric comorbidities in our population. Jerson M J *et al* has supported the premise that relationships may have an impact on the IBS illness experience and may even have an effect on response to treatment.<sup>[18]</sup>

Regarding prevalence of different types of FGID, our study findings match the already published data as a US study demonstrated that Irritable bowel syndrome (IBS) and functional dyspepsia (FD) are the most prevalent FGIDs.<sup>[1]</sup> About different types of IBS, frequency order from IBS-C, to IBS-D, to IBS-M, (IBS-C being most prevalent) in our study is the same as already published literature.<sup>[19]</sup>

Our study results demonstrated more cases with somatic complaints than the controls. Different studies are in favor of this association and also provide the mechanism. Kawoos Y *et al*, Wu J C Y *et al*, and North C S *et al* has demonstrated that patients with IBS have enhanced visceral sensitivity to rectal or colonic distention as evidenced by decreased threshold for pain and exaggerated intensity of sensations.<sup>[20-22]</sup>

Also depression among other psychiatric disorders is more associated with somatic complaints.<sup>[15]</sup> Our study results also correlate depression with somatic symptoms more than the other psychiatric problems.

Above discussion illustrates that we need to bring FGID and causative psychiatric comorbidities under single umbrella to avoid physician and patient's confusion regarding diagnosis as Wessely *et al* has highlighted this problem that on the basis of clinical history, the same patient with somatic complaints can be diagnosed having somatization disorder by a psychiatrist, fibromyalgia by a rheumatologist, IBS by a gastroenterologist, chronic pelvic pain by a gynecologist and so on. However, this coexistence of various somatic comorbidities with IBS also highlights that these disorders share a common underlying pathophysiology so their collective diagnosis and prescription should be made under one roof. Singh P has proposed that more time per patient seems to be a good way to screen these patients for associated comorbidities.<sup>[2]</sup>

We further suggest to make a combined gastro-psychiatric co-morbidity evaluating system, as a well-designed protocol, desk, or specialty.

As much as the weakness of this study is concerned, smaller study population and that it lacked criteria for somatic symptoms (SSS-8) which could have further improved the results.

## CONCLUSION

Married females of above secondary education level, unemployed, from urban back ground, were more prone to have FGID, mainly IBS-C with mostly moderate symptoms at the time of presentation, while ASD (anxiety and stress disorder) and DS (depressive syndrome) as their main psychiatric comorbidities. Also these patients were more prone to somatization. In general every patient with functional GI disorder requires assessment by psychiatrist regarding type and severity of psychiatric comorbidity under single umbrella, for a better mental and GI health.

**CONFLICT OF INTEREST:** None

**DISCLOSURE:** Not Applicable

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