Original Article

Frequency of Irritable Bowel Syndrome in Patients Presenting with Abdominal Pain in Tertiary Care Hospital

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ABSTRACT

Objective: To determine the frequency of Irritable bowel syndrome (IBS) in patients presenting with abdominal pain.

Study Design: Cross Sectional Study

Place and Duration of Study: This study was conducted at the tertiary care teaching hospital attached to Al-Tibri Medical College, Isra University Campus, Malir Karachi from October 2021 to March 2022.

Materials and Methods: Probability consecutive sampling technique was used. Data was collected from the patients diagnosed on basis of ROME –III criteria and were included in study. Data was analyzed by using SPSS version -25.

Results: 130 patients who come to attended the gastroenterology out patient department with abdominal pain. Out of 130 patients 71were females and 59 were males. The age range of the total sample was 25-55 years. Age was classified into three groups 25 – 35years, 36-50 years and greater than 50 years. Mean age was 36.4 ±8.05 years. Frequency of Irritable Bowel Syndrome was matched with age, gender, smoking status, presence of diabetes and socio-economic/income status. Abdominal pain was relieved by defecation in 66.2%, change of stool frequency was found in 46.2% and change of stool form was found in 57.7%. The association of IBS with different study variables was done to check the effect modifiers by applying chi square test. Age group 25-35 years (p value 0.011) and female sex (p value 0.001) positively correlated with IBS as p value was found to be statistically significant.

Conclusion: The prevalence of IBS in the female population is higher as compared in general population. This study also correlates IBS in patients who were smoker diabetics and also with variable socioeconomic status.

Key Words: Irritable bowel syndrome, Abdominal pain, Patient, Tertiary care hospital Gadap Town, Karachi

INTRODUCTION

Irritable bowel syndrome (IBS) was first reported by Cumming in 1849. IBS has historically had a variable nomenclature, being labeled at different times as IBS colitis, mucous colitis, spastic colon, nervous colon, and spastic bowel[1]. IBS is the most common functional bowel disorder which predominantly affects women (70%).

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Irritable Bowel Syndrome (IBS) has been classified as functional GI disorder, which is a chronic illness of the GI tract that affects 11-12% in some studies and 15% in the adult population in the US[2]. It is not characterized by any anatomical or structural deformity, infection, or any kind of metabolic disturbances. The underlying mechanisms of IBS still remain unclear although recent research has led to an increased clinical recognition of this disorder. The telltale sign of IBS is abdominal pain or discomfort. The abdominal pain is mostly associated with mild to moderate bowel dysfunction and with abdominal bloating intermittently. The pain is often alleviated by defecation .No mass or any structural abnormality is found which can lead to explanation of this abdominal pain. As already mentioned, the etiology of IBS is likely multifactorial, primarily including, gut dysmotility, inflammatory conditions, and genetic factors, immune, psychological, and dietary factors. Lacking of recognition of these symptoms also exists and many patients even do not contact physician, and diagnosis remains under cover. There may be overlapping with other bowel disorders as well like GERD i.e. gastro esophageal reflux disease, functional

constipation and dyspepsia etc. Thus overall it contributes to a major health care expenditure worldwide[3].

Generally, IBS has been classified into four types according the pre dominant bowel habit:

- IBS with constipation (IBS-C): Constipation is the most frequent symptom
- IBS with diarrhea (IBS-D): Diarrhea is the most frequent symptom
- IBS mixed (IBS-M): Both constipation and diarrhea are experienced alternately
- IBS unspecified (IBS-U): Symptoms follow an irregular pattern

The prevalence rate of IBS varies from region to region. It has been more frequently diagnosed in females as compared to males. The variation in the prevalence rate worldwide among both genders was just over 5 % that is 8 .9 % in males and 14 % in females. IBS-C is supposed to be prevalent in females and IBS-D more prevalent in males. The affected population is usually below the age of fifty[4]. Around the world approximately 9- 23 % of the population has been affected with this chronic debilitating condition. So far it has been the largest subgroup documented in the clinics of gastroenterology, approaching 12 % in the primary health care facilities resulting in utilization of health care to a greater extent as compared to the patient without the diagnosis of IBS[5]. Quality of life may also get impaired in long term. In the recent updated statistics by international federation of Functional GI disorders the world-wide prevalence rate was found to be of 10-15 % out of which 40% was found to have mild IBS 35 % having moderate IBS and the remaining 25 % were categorized in severe IBS classification[6,7].

The diagnosis is based on clinical findings and the exclusion of other disorders[8]. Researchers do not know what causes IBS, and the intestines of people with IBS appear normal when examined. It may be caused by a disturbance in the muscle movement of the intestine, or a lower tolerance for stretching and movement of the intestine[9]. The Rome Criteria is a system developed to classify the functional gastrointestinal disorders (FGIDs), disorders of the digestive system, in which symptoms cannot be explained by the presence of structural or tissue abnormality, based on clinical symptoms. Irritable bowel syndrome (IBS) affects around 11% of the population globally[10]. In a 2007 study by Jafri et al determined the frequency of irritable bowel syndrome (IBS) and health seeking behavior in patients. They found the overall prevalence of irritable bowel syndrome to be 14% in patients.[11] Based on our literature search; firstly, Pakistan lacks recent data on the prevalence of IBS. Secondly, studies have been done using ROME II criteria. Our aim is to determine the frequency of IBS by using the ROME-III criteria and to establish early diagnosis by using Rome-III criteria without getting over investigation and start prompt treatment in order to reduce time and cost burden of both patient and health services and psychological burden to patients and families. In our study we also observed prevalence rate in diabetics, smokers, and variable socioeconomic status.

MATERIALS AND METHODS

Study Design: Cross-sectional study.

Sample Size: 130 patients by using the WHO's sample size calculator for Health Sciences.

Site of study: Department of Gastroenterology, Al-Tibri Medical College & Hospital, Isra University, Karachi.

Study Duration: 6 months from October 2021 to March 2022.

Inclusion Criteria: Patients of both genders age between 25 to 55 years with abdominal pain duration of ≥ 3 months. Patient with established diagnosis of diabetes and on treatment for ≥6 months and smokers who smoke ≥ 5 cigarettes per day and who don't refrain from smoking for at least 3 months before including in study.

Exclusion Criteria: Patients having alarming signs such as weight loss ≥ 5kg in a month, anemia Hb<9g/dl, bleeding per rectum. Patient already diagnosed or being worked for some illness such as abdominal Koch's, malabsorption syndromes or malignancy. Current treatment including drugs leading to altered bowel habits.

Data Collection Procedure: The patients with abdominal pain visited to the department of Gastroenterology, and fulfilled the inclusion criteria included in the study. Informed and written consent was taken. Data was analyzed by using SPSS version 25.

RESULTS

The present study consisted of 130 subjects who presented to the Gastroenterology outpatient department with abdominal pain. Frequency of Irritable Bowel Syndrome was matched with age, gender, smoking status, presence of diabetes and socio-economic/income status. The age range of the total sample was 25-55 years. Mean age was 36.4 ±8.05 years.
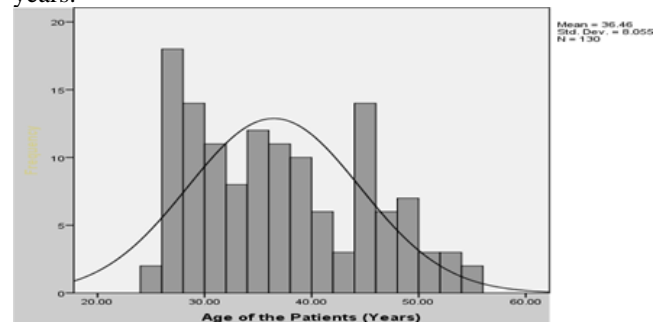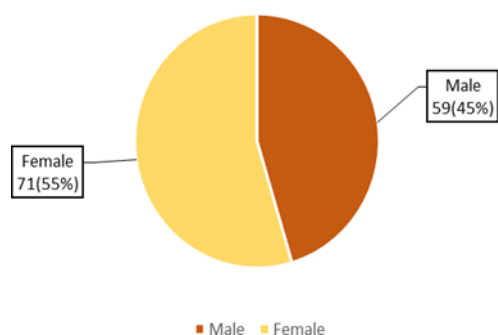

Figure No.1: Patients age

Figure No.2: Gender distribution.

Duration of symptoms overall in the total sample ranged from 3.6 months – 24 months. Median duration was 8.4 months. Mean duration was 10.21 ± 5.63. The frequency of Irritable bowel syndrome was found to be 21.5%. Age was classified into three groups 25 – 35years, 36-50 years and greater than 50 years. Out of 130 patients 71were females and 59 were males.

Abdominal pain was relieved by defecation in 66.2%, change of stool frequency was found in 46.2% and change of stool form was found in 57.7%. Visual analog scale scoring system was used to quantify intensity of pain and was 50.8 %, 45.4% and 3.8% in mild, moderate and severe respectively. Socioeconomic status was classified into lower-, middle- and high-income groups according to monthly income. Out of 42 patients in the low-income group, 9 patients (21.42%) were found to have IBS. Out of 67 patients in middle-income group, 15 (22.3%) had IBS and out of 21 patients in high-income group, 4 (19.04%) had IBS. In overall sample 9/130 (6.9%) were low-income, 15/130 (11.5%) were middle income and 4/130 (3.1%) were from high-income group. Out of 130 patients, 32.3 % were smokers while 67.7% were nonsmokers. 31 patients were found to be diabetic.

The association of IBS with different study variables was done to check the effect modifiers by applying chi square test. Age group 25-35 years (p value 0.011) and female sex (p value 0.001) positively correlated with IBS as p value was found to be statistically significant.

Table No.1: Comparison of irritable bowel syndrome with socio economic status

Socio Economic Status	Irritable Bowel Syndrome		Total
	Yes	No	
Lower	9(6.9%)	33(25.4%)	42(32.3%)
Middle	15(11.5%)	52(40%)	67(51.5%)
Upper	4(3.1%)	17(13.1%)	21(16.2%)
Total	28(21.5%)	102(78.4%)	130 (100%)

Chi-square=0.106, P-value=0.948

To check the association between IBS with different parameter of the study we observed that gender, severity of abdominal pain, duration of abdominal pain and smoker found statistically significantly associated in patients presented with IBS(P-value<0.05).

Table No.2: Comparison of irritable bowel syndrome with duration of abdominal pain

Duration of Abdominal Pain	Irritable Bowel Syndrome		Total
	Yes	No	
<=5 Months	13(10%)	10(7.7%)	23(17.7%)
6-15 Months	15(11.5%)	72(55.4%)	87(66.9%)
16-24 Months	0(0%)	20(15.4%)	20(15.4%)
Total	28(21.5%)	102(78.4%)	130 (100%)

Chi-square=23.097, P-value=0.001*

Table No.3: Comparison of irritable bowel syndrome with severity of abdominal pain

Severity of Abdominal Pain	Irritable Bowel Syndrome		Total
	Yes	No	
Mild	7(5.4%)	59(45.4%)	66(50.8%)
Moderate	20(15.4%)	39(30%)	59(45.4%)
Severe	1(0.8%)	4(3.1%)	5(3.8%)
Total	28(21.5%)	102(78.4%)	130 (100%)

Chi-square=10.008, P-value=0.007*

But marital status, diabetes and socio economic status found insignificantly associated with IBS P-value>0.05 respectively.

DISCUSSION

The current study was carried out for a period of 6 months at the gastrointestinal out patient department, Al-Tibri medical college hospital, Karachi. The study was designed to assess the prevalence rate of IBS among patients presenting with abdominal pain in GI clinics. In our study we concluded 21.5% of IBS prevalence .Several studies have been conducted in order to explore prevalence rate of IBS globally and in given population. The lowest prevalence of IBS was observed in South Asia of 7 % and highest in South America of 21.0[12]. The global prevalence of IBS is estimated 11.2 %. Although some research estimate prevalence rates as high as 25%, the prevalence of IBS in adults and adolescents in western studies is generally between 10% and 20%[13]. The prevalence of IBS was observed 20.1% according to ROME III criteria in an adult Lebanese population[14]. IBS is prevalent in between 9% and 23% of people worldwide. However, depending on the diagnostic method employed, it differs from one nation to the next. IBS affects 10%–

15% of people in North America and 10%–20% of people in western countries, respectively, according to Rome III criteria[15]. Using the Rome III criteria, Naeem and colleagues found that there was a 28.3% prevalence of IBS among medical students in Karachi, Pakistan[16]. Results of most of studies demonstrated higher prevalence rate of IBS in female gender as compare to male gender .In our study we found 18.5% vs. 3.1% female to male gender distribution in patients who were diagnosed with IBS. Similarly, a recent meta-analysis on the prevalence of IBS worldwide indicated that women had a higher pooled prevalence rate of 10.2% compared to men's 8.8%[17]. The cause of the sex-based disparity in IBS prevalence is yet unknown. This may be explained by differences in sociocultural traits, such as how men and women seek medical treatment, or it may be the result of actual biological differences. Previous studies have suggested that with increasing age, the prevalence rate of IBS declines. Our study also demonstrates the same pattern of prevalence result .Most of the prevalence of IBS found between the age of 25 -35 years in our study, which was 16.2 %[18]. The frequency of IBS was higher among respondents with low-income socioeconomic status. It was discovered that smoking and the prevalence of IBS did not correlate statistically[19]. IBS was more common in Type 1 diabetics (106/662, 16%) than in controls (48/602, 7.9%). (OR 2.2, 1.5–3.1)[20].

CONCLUSION

The prevalence of IBS in the female population is higher as compared in general population which was also observed in our study .Patients presenting with abdominal pain not relieving on symptomatic treatment usually go through extensive lab workup and frequently remains undiagnosed similarly the application of ROME III criteria may help in diagnosing these undiagnosed patients without using detail workup in OPD basis. As it is associated with significant financial burden on patient, society and healthcare system. Therefore, a correct diagnosis and effective treatment for IBS benefits society as a whole as well as the patients. Furthermore, our study also correlates IBS in patients who were smoker diabetics and also with variable socioeconomic status.

Author's Contribution:

Concept & Design of Study:	Aneeqa Jehanzaib
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Final Approval of version:	Aneeqa Jehanzaib

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. Saha L. Irritable bowel syndrome: pathogenesis, diagnosis, treatment, and evidence-based medicine. World J Gastroenterol 2014;20:6759-6773.
2. Occhipinti K, Smith JW. Irritable bowel syndrome: a review and update. Clin Colon Rectal Surg 2012;25:46-52.
3. Oka P, Parr H, Barberio B, Black CJ, Savarino EV, Ford AC. Global prevalence of irritable bowel syndrome according to Rome III or IV criteria: a systematic review and meta-analysis. Lancet Gastroenterol Hepatol 2020;5:908-917.
4. Canavan C, West J, Card T. The epidemiology of irritable bowel syndrome. Clin Epidemiol 2014, 6:71-80.
5. Defrees DN, Bailey J. Irritable bowel syndrome: epidemiology, pathophysiology, diagnosis, and treatment. Prim Care 2017;44:655-71.
6. Adriani A, Ribaldone DG, Astegiano M, Durazzo M, Saracco GM, Pellicano R. Irritable bowel syndrome: the clinical approach. Panminerva Med 2018;60:213-22.
7. Click B, Ramos Rivers C, Koutroubakis IE, Babichenko D, Anderson AM, Hashash JG, et al. Demographic and clinical predictors of high healthcare use in patients with inflammatorybowel disease. Inflammatory Bowel Diseases 2016; 22(6):1442-9.
8. Lovell RM, Ford AC. Effect of gender on prevalence of irritable bowel syndrome in the community: systematic review and meta-analysis. Am J Gastroenterol 2012;107:991-1000.
9. Enck P, Aziz Q, Barbara G, et al. Irritable bowel syndrome. Nat Rev Dis 2016;2:16014.
10. Alammar N, Stein E: Irritable bowel syndrome: what treatments really work? Med Clin North Am 2019;103:137-52.
11. Jafri W, Yakoob J, Jafri N, Islam M, Ali QM. Irritable bowel syndrome and health seeking behaviour in different communities of Pakistan. J Pak Med Assoc 2007;57(6):285-287.
12. Chang FY, Lu CL, Chen TS. The current prevalence of irritable bowel syndrome in Asia. J Neurogastroenterol Motility 2010;16(4):389.
13. Ghoshal UC, Rahman MM. Post-infection irritable bowel syndrome in the tropical and subtropical regions: Vibrio cholerae is a new cause of this well-known condition. Ind J Gastroenterol 2019;38:87–94.
14. Chatila R, Merhi M, Hariri E, Sabbah N, Deeb ME. Irritable bowel syndrome: prevalence, risk factors in an adult Lebanese population. BMC Gastroenterol 2017;17(1):137.

15. Dong YY, Zuo XL, Li CQ, Yu YB, Zhao QJ, Li YQ. Prevalence of irritable bowel syndrome in Chinese college and university students assessed using Rome III criteria. World J Gastroenterol 2010;16(33):4221.
16. Naeem SS, Siddiqui EU, Kazi AN, Memon AA, Khan ST, Ahmed B. Prevalence and factors associated with irritable bowel syndrome among medical students of Karachi, Pakistan: a cross-sectional study. BMC Res Notes 2012;5:255.
17. Lovell RM, Ford AC. Global prevalence of and risk factors for irritable bowel syndrome: a meta-analysis. Clin Gastroenterol Hepatol 2012;10(7): 712-21.
18. Sherwin LB, Ozoji OM, Boulineaux CM, Joseph PV, Fourie NH, Abey SK, et al. Gender and Weight Influence Quality of Life in Irritable Bowel Syndrome. J Clin Med 2017; 6(11):103.
19. Meleine M, Matricon J. Gender-related differences in irritable bowel syndrome: potential mechanisms of sex hormones. World Journal of Gastroenterology: WJG 2014;20(22):6725.
20. Mahmood K, Riaz R, Ul Haq MS, Hamid K, Jawed H. Association of cigarette smoking with irritable bowel syndrome: A cross-sectional study. Med J Islam Repub Iran 2020;34:72.
21. Leeds JS, Hadjivassiliou M, Tesfaye S, Sanders DS. Lower gastrointestinal symptoms are associated with worse glycemic control and quality of life in type 1 diabetes mellitus. BMJ Open Diabetes Res Care 2018;6(1):e000514.