



Investigating the prevalence of irritable bowel syndrome among students of Kurdistan University of Medical Sciences, Sanandaj, Iran

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Original Article

Abstract

BACKGROUND: Irritable bowel syndrome (IBS) is a significant gastrointestinal (GI) disorder. Due to the few studies that have been conducted in this field, the goal of this study is to determine the frequency of IBS among students of Kurdistan University of Medical Sciences, Sanandaj, Iran.

METHODS: This cross-sectional study was conducted on 300 students of Kurdistan University of Medical Sciences. In this study, Rome 3 questionnaires were used to detect the prevalence of IBS. For descriptive analysis, frequency, percentage, mean, and standard deviation (SD) were used, and the chi-square test was used for the inferential part. After data collection, data were analyzed by Stata software.

RESULTS: The overall prevalence of IBS in students participating in the study was 29 (9.67%) with a confidence interval (CI) of 2.13-30.60. The prevalence by gender in women in the study was 17 (9.6%). In this study, there was a significant relationship between age groups with IBS ($P = 0.04$) and between the student's faculty with IBS ($P = 0.016$). Moreover, 24.33% of students reported abdominal pain with a change in stool consistency. There was a change in bowel habits in 28.67% of students.

CONCLUSION: Due to the significant and widespread prevalence of IBS among students of Kurdistan University of Medical Sciences and the reduction in the student's academic activities which can lead to academic failure, families and staff of the university must pay close attention to this issue.

KEYWORDS: Irritable Bowel Syndrome; Prevalence; Medical Students

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Introduction

Today, irritable bowel syndrome (IBS) is diagnosed based on the symptom-based diagnostic criteria called Rome IV criteria, which includes a history of recurrent abdominal pain or discomfort in the last

6 months, with pain at least 1 day a week in the previous 3 months, and at least 2 episodes of pain improving with bowel movement, changes in the frequency of defecation, and changes in the shape and consistency of feces.¹ IBS is a functional disorder of the gastrointestinal (GI) tract with a prevalence of 9% to 23% worldwide. It has non-specific symptoms of abdominal pain, bloating, and cramps, and is divided into three types: IBS-D with symptoms of diarrhea, IBS-C with constipation, and IBS-M

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with alternating episodes of diarrhea and constipation.^{1,2} Due to the association of this disease with various comorbid mental disorders including depression and anxiety, especially in adults, IBS leads to a decrease in the quality of life (QOL) and an increase in the economic burden on the individual and society.² IBS affects all aspects of a person's life, including job, relationships, travel, and even leisure time, to the extent that except for physical and general health, patients with IBS tend to be weaker in all aspects of their lives compared to people with congestive heart failure (HF).³ According to the study by Mansouri et al. in Iran, women are more susceptible to IBS than men, and higher education level, ages of 26 to 50 years, and being married are the three main risk factors of IBS in populations, and anxiety and weakness in different aspects of health are next risk factors. Among different jobs, people with private sector jobs are more prone to IBS.⁴ In a study conducted by Wani et al. in Saudi Arabia on medical and non-medical students of Al-Jouf University, risk factors affecting the incidence of IBS among students included being a medical student, smoking, and lack of sleep.⁵ Moreover, the prevalence of IBS among senior medical students was more than first-year students. The prevalence of this disease can vary significantly around the world.⁶ Sorouri et al. showed that IBS was the most functional bowel disorder (52%) in the Iranian population.⁷ Oka et al. in the United Kingdom (UK) reported that IBS prevalence was 38%.⁸ Semnani et al. in Iran reported that the prevalence of this disease was 10.9%.⁹ Jahangiri et al. reported that the prevalence of IBS was in the range of 1.1% to 25% and was more common in women in Iran.¹⁰ Cancarevic et al. in the United States (US) reported that the prevalence of IBS according to the National Institute for Health and Care Excellence was 20%.¹¹

Although there is no definitive treatment for IBS due to the lack of clear

pathophysiology, some treatments including adjusting the patient's diet, some medications, and psychiatric interventions, as well as patient education and a good doctor-patient relationship, can be used to relieve symptoms.^{12,13} Considering the negative effects of this disease on the efficiency of the patient, as well as the possibility of educational failure due to reasons such as skipping classes and loss of QOL of students, this study was conducted to determine the prevalence of IBS among students of Kurdistan University of Medical Sciences, Sanandaj, Iran, in 2014.

Methods

In this cross-sectional study, the students of Kurdistan University of Medical Sciences, faculties of medicine, paramedicine, nursing, and health, who studied in the academic year 2014, were examined. Based on the list of students from each faculty and different fields, 300 students were systematically selected.¹⁴ The data collection tool in this study to investigate the prevalence of IBS was the Rome 3 questionnaire,^{15,16} for which the validity and reliability were proven by Ngoenmak et al.¹⁷ The inclusion criterion of students' words in this survey included the presence of abdominal pain for at least three days during the last 3 months, which was accompanied by improvement in defecation, the onset of which was related to changes in stool consistency and defecation. Exit criteria included the patient's unwillingness to participate in the study, the presence of risk signs of GI diseases including history of GI bleeding, history of GI cancers in first-degree family members, chronic GI disease, and severe weight loss during the last 6 months.¹⁴

Frequency, percentage, mean, and standard deviation (SD) were used for descriptive analysis, and confidence interval (CI) was also used for ratios. The frequency and average of the variables as well as the CI for the ratios were calculated. A chi-square test was

performed for the correlation between the study variables with IBS in students after the presumption of normality was established. Data analysis was done using Stata software (version 14, Stata Corporation, College Station, TX, USA) and the significance level in this study was $P < 0.05$.

Results

The results of the present study showed that 41% of the participants were men, 59% were women, and the largest number of participants were medical students (61.33%). 48.33% of students were native and 51.67% were non-native. Most of the participants (61.76%) lived in student dormitories, and most of them (89%) were single. The average age and SD of this study showed that the overall prevalence of IBS in students participating in the study was 29 people (9.67%) with a CI of 6.30-13.02, and the prevalence according to gender in the studied women was 17 people (9.6%). The

results of this study showed that there was a significant relationship between age groups with IBS ($P = 0.04$) and between the field of study with IBS ($P = 0.016$). However, there was no significant relationship between other study variables with IBS (Table 1).

The frequency of abdominal pain or discomfort in the last three months was present in 55.67% of students. Besides, 24.33% of students reported the onset of pain with a change in stool consistency. There was a change in the number of bowel movements in 28.67% of students (Table 2).

Discussion

In this research, the prevalence of IBS among students of Kurdistan University of Medical Sciences in 2014 was considered. In the present study, out of 300 students from different faculties of Kurdistan University of Medical Sciences who participated in the study, 29 (9.67%) had IBS symptoms.

Table 1. Prevalence of each symptom in participants

Variable	Sub-variable	With IBS (n = 29)	Without IBS (n = 271)	χ^2 or Fisher's test	P
		n (%)			
Gender	Woman	17 (58.6)	160 (59.0)	0.001	0.965
	Man	12 (41.4)	111 (41.0)		
Marriage	Single	25 (86.2)	242 (89.3)	1.120	0.571
	Married	3 (10.3)	26 (9.6)		
	Divorced	1 (3.5)	3 (1.1)		
Native	Yes	10 (34.5)	135 (49.8)	2.466	0.116
	No	19 (65.5)	136 (50.2)		
Living in	Dormitory	21 (72.4)	164 (60.5)	2.982	0.225
	Private house	4 (13.8)	78 (28.8)		
	Tenant	4 (13.8)	29 (10.7)		
Faculty of education	Medicine	25 (86.2)	159 (58.7)	-	0.016
	Other	4 (13.8)	112 (41.3)		
Age group (year)	18-20	2 (6.9)	46 (17.0)	-	0.045
	21-23	13 (44.8)	142 (52.4)		
	24-26	14 (48.3)	65 (24.0)		
	27-30	0 (0)	12 (4.4)		
Student grade (0-20)	< 14	4 (13.8)	46 (17.0)	-	0.802
	14-16	19 (65.5)	149 (54.9)		
	16-18	6 (20.7)	78 (28.7)		
	> 18	0 (0)	9 (3.3)		

IBS: Irritable bowel syndrome

Table 2. Prevalence of each symptom in participants

Variable		n (%)	CI
Abdominal pain or discomfort in the last 3 months	Yes	167 (55.7)	(50.01-61.32)
	No	133 (44.3)	(38.67-49.98)
	Total	300 (100)	-
Number of bouts of abdominal discomfort or pain per month	Less than 3 times	140 (46.7)	(40.98-52.34)
	More than 3 times	29 (9.7)	(6.30-13.02)
	Total	300 (100)	-
Pain relief with bowel movements	Yes	113 (37.7)	(32.15-43.18)
	No	187 (62.3)	(56.81-67.84)
	Total	300 (100)	-
The onset of pain with a change in stool consistency	Yes	73 (24.3)	(19.44-29.21)
	No	227 (75.7)	(70.78-80.55)
	Total	300 (100)	-
Change in the frequency of bowel movements	Yes	86 (28.7)	(23.52-33.81)
	No	214 (71.3)	(66.18-76.47)
	Total	300 (100)	-

CI: Confidence interval

This finding is consistent with the study conducted by Mansour-Ghanaei et al. on medical students of Gilan University of Medical Sciences, Rasht, Iran, with a 12.6% prevalence of IBS,¹⁸ and the study conducted by Semnani et al. on the students of Golestan University of Medical Sciences, Gorgan, Iran, with a 10.6% prevalence of IBS.⁹ However, the study of Naeem et al. in Pakistan which was conducted in 2012 on 360 medical students of Karachi universities reported the prevalence of this syndrome to be 28.3%,¹⁹ which was not consistent with our study. The reason for this diversity in reporting the prevalence of IBS can be attributed to the non-uniformity of the sample size and the different distribution of students' college degrees and their levels of education among different studies. Additionally, the findings of this study showed that the prevalence of IBS was the same in boys and girls, with the highest prevalence in medical students. Besides, the most prevalent symptoms were the number of stomach discomfort or pain attacks per month, symptoms of stomach discomfort in the last 3 months, and pain improvement upon defecation.^{14,18,19} The results of the study by Chu et al. in Zhejiang, China, showed that the

probability of suffering from any functional bowel disorder in medical students was higher compared to the basic science and engineering students.²⁰ Wani et al. in Saudi Arabia also reported a higher prevalence of IBS in medical students than in non-medical students in their study.⁵ Considering the long educational period and the stress caused by the medical field itself, and since a positive relationship is shown between stress and IBS, it is reasonable to say that this syndrome is more common in medical students than in other fields. The results of the present study indicate that the prevalence of IBS is 9.7% in men and 9.6% in women; however, this difference is not statistically significant. Although the main cause of the difference in the prevalence of IBS between women and men is unclear, this difference can be explained by different cultural and social characteristics and health behaviors as well as biological differences between men and women. In this study, regarding the prevalence of IBS symptoms, the results showed that the most prevalent symptoms were related to the number of episodes of discomfort or abdominal pain per month with 56.3%, followed by symptoms of stomach discomfort in the last 3 months with

55.7% and pain relief with defecation with 37.67%. The difference in the prevalence of IBS symptoms reported in these studies can be due to the non-uniformity of the diagnostic methods and the investigated variables as well as the period when the history was taken from the patients and the patients were followed up.

One of the limitations of this study was the insufficient cooperation of the participants, and also the information obtained is based on the statements of the participants and may be associated with response errors. Determining the frequency of this syndrome in students will help the authorities make a more accurate plan for the prevention and treatment of the affected students and improve their QOL.

Conclusion

The results of the present study showed IBS in students. Considering that the prevalence of IBS was higher among students who had higher levels of education and who had greater achievements due to higher levels of stress and anxiety, it seems that it is necessary for families, along with university officials, to create a comfortable and stress-free environment, and provide the necessary supports for the students to follow their education.

Conflict of Interests

Authors have no conflict of interests.

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References

1. Lacy BE, Patel NK. Rome criteria and a diagnostic approach to irritable bowel syndrome. *J Clin Med.* 2017; 6(11).
2. Baysoy G, Guler-Baysoy N, Kesicioglu A, Akin D, Dundar T, Pamukcu-Uyan A. Prevalence of irritable bowel syndrome in adolescents in Turkey: effects of gender, lifestyle and psychological factors. *Turk J Pediatr.* 2014; 56(6): 604-11.
3. Whitehead WE, Burnett CK, Cook EW, III, Taub E. Impact of irritable bowel syndrome on quality of life. *Dig Dis Sci.* 1996; 41(11): 2248-53.
4. Mansouri A, Rarani MA, Fallahi M, Alvandi I. Irritable bowel syndrome is concentrated in people with higher educations in Iran: An inequality analysis. *Epidemiol Health.* 2017; 39: e2017005.
5. Wani FA, Almaeen AH, Bandy AH, Thirunavukkarsu A, Al-Sayer TA, Flah A, et al. Prevalence and risk factors of IBS among medical and nonmedical students in the jounf university. *Niger J Clin Pract.* 2020; 23(4): 555-60.
6. Alaqeel MK, Alowaimer NA, Alonezan AF, Almegbel NY, Alaujan FY. Prevalence of irritable bowel syndrome and its association with anxiety among medical students at King Saud bin Abdulaziz University for Health Sciences in Riyadh. *Pak J Med Sci.* 2017; 33(1): 33-6.
7. Sorouri M, Pourhoseingholi MA, Vahedi M, Safaee A, Moghimi-Dehkordi B, Pourhoseingholi A, et al. Functional bowel disorders in Iranian population using Rome III criteria. *Saudi J Gastroenterol.* 2010; 16(3): 154-60.
8. 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(10): 908-17.
9. Semnani S, Abd Elahi N, Roushandel GR, Besharat S, Keshtkar AA, Moradi A, et al. Irritable bowel syndrome in students of Golestan University of Medical Sciences. *Govareh.* 2007; 11(4):249-254.
10. Jahangiri P, Jazi MS, Keshteli AH, Sadeghpour S, Amini E, Adibi P. Irritable bowel syndrome in Iran: SEPAHAN systematic review No. 1. *Int J Prev Med.* 2012; 3(Suppl 1): S1-S9.
11. Cancarevic I, Rehman M, Iskander B, Lalani S, Malik BH. Is there a correlation between irritable bowel syndrome and lactose intolerance? *Cureus.* 2020; 12(1): e6710.
12. Saha L. Irritable bowel syndrome: pathogenesis, diagnosis, treatment, and evidence-based medicine. *World J Gastroenterol.* 2014; 20(22): 6759-73.
13. Yakoob J, Jafri W, Jafri N, Khan R, Islam M, Beg MA, et al. Irritable bowel syndrome: in search of an etiology: Role of Blastocystis hominis. *Am J Trop Med Hyg.* 2004; 70(4): 383-5.
14. Reza Hosseini O, Seyedmirzaee SM, Sayadi AR, Mokhtari S. Frequency of irritable bowel syndrome

- among students of Rafsanjan University of Medical Sciences 2008-2009. *J Rafsanjan Univ Med Sci.* 2012; 11(2): 137-44.
15. Rey E, Locke GR, III, Jung HK, Malhotra A, Choung RS, Beebe TJ, et al. Measurement of abdominal symptoms by validated questionnaire: A 3-month recall timeframe as recommended by Rome III is not superior to a 1-year recall timeframe. *Aliment Pharmacol Ther.* 2010; 31(11): 1237-47.
 16. Song KH, Jung HK, Min BH, Youn YH, Choi KD, Keum BR, et al. Development and validation of the Korean Rome III Questionnaire for diagnosis of functional gastrointestinal disorders. *J Neurogastroenterol Motil.* 2013; 19(4): 509-15.
 17. Ngoenmak T, Yimyam P, Treepongkaruna S. Reliability and validity of Thai version ROME III questionnaire for children with functional gastrointestinal disorders. *J Med Assoc Thai.* 2013; 96(7): 790-3.
 18. Mansour-Ghanaei F, Fallah MS, Heidarzadeh A, Jafarshad R, Joukar F, Ghasemipour R, et al. Prevalence and characteristics of irritable bowel syndrome (IBS) amongst medical students of Gilan northern province of Iran. *Middle East Journal of Digestive Diseases.* 2011; 1(2): 100-5.
 19. 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.
 20. Chu L, Zhou H, Lu B, Li M, Chen MY. An epidemiological study of functional bowel disorders in Zhejiang college students and its relationship with psychological factors. *Zhonghua Nei Ke Za Zhi.* 2012; 51(6): 429-32.