The Scientific Journal of University of Benghazi

SJUOB (2023) 36 (2) Medical Sciences: 145 – 149
Ferjani and Ferjani
http://journals.uob.edu.ly/sjuob

Prevalence of Irritable Bowel Syndrome Symptoms Among Medical Students at University of Benghazi

Safaa Farag Ferjani [1 *], Marwa Farag Ferjani [1]

1 Faculty of Medicine-University of Benghazi.

Received: 02 / 10 / 2023, Accepted: 21 / 11 / 2023

الملخص:

أهداف البحث: تهدف الدراسة لتحديد نسبة انتشار متلازمة القولون العصبي بين طلبة الطب في جامعة بنغازي باستخدام معايير روما 4 ومقارنة النتائج وفقًا للجنس والسنة الأكاديمية.

طرق البحث: دراسة مستعرضة تم إجراؤها بين طلبة الطب في جامعة بنغازي باستخدام معايير روما 4. البيانات تم تجميعها ما بين 10 يونيو 2022 إلى 31 أغسطس 2022 وتم استخدام استبانة من النوع المغلق المفتوح. وتضمنت العينة طلبة من السنة الأولى حتى السنة الخامسة من كلية الطب.

النتائج: هذه الدراسة تضمنت بيانات من 381 طالب طب، أعمارهم تتراوح ما بين 19-39. نسبة انتشار متلازمة القولون العصبي كانت 16.01%. في دراستنا لم نجد ارتباط بين الجنس وأعراض متلازمة القولون العصبي (القيمة الاحتمالية تساوي 0.79). إضافة إلى ذلك لم نجد ارتباط ملحوظ بين السنة الأكاديمية وأعراض متلازمة القولون العصبي (القيمة الاحتمالية تساوي 0.076). وكذلك استهلاك القهوة وأعراض متلازمة القولون العصبي (القيمة الاحتمالية تساوي 0.4)، وأيضًا التدخين وأعراض متلازمة القولون العصبي (القيمة الاحتمالية تساوي 0.9).

الاستنتاجات: نسبة انتشار متلازمة القولون العصبي كانت أكثر في الإناث، ولكن لم يكن هناك فرق إحصائي ذو أهمية بين الذكور والإناث في انتشار متلازمة القولون العصبي في دراستنا. إضافة إلى ذلك لم يكن هناك فرق إحصائي ذو أهمية في انتشار متلازمة القولون العصبي بين طلاب الطب سواءً كانوا في السنوات الأولى الأساسية من الطب أو السنوات السريرية. بالإضافة إلى ذلك في دراستنا متلازمة القولون العصبي لم تكن مرتبطة بشرب القهوة والتدخين.

الكلمات المفتاحية: متلازمة القولون العصبي، طلبة الطب، معايير روما 4، جامعة بنغازي.

Abstract

Aim: To determine the prevalence of irritable bowel syndrome among medical students at the University of Benghazi using Rome IV criteria, and to compare the results between students based on their gender and academic year, whether basic (from the first to the third year) or clinical (fourth and fifth years).

Material and Methods: A cross-sectional observational study was carried out among medical students at the University of Benghazi using Rome IV criteria. Data was collected from June 10th, 2022, to August 31st, 2022, and a semi-structured questionnaire was used. The sample included students from the first year to the fifth year of medicine.

Results: This study included data from 381 medical students, whose ages ranged from 19 to 39. The prevalence of irritable bowel syndrome was found to be 16.01%. Our study found no association between IBS symptoms and gender (p = 0.79). Additionally, no association was observed between IBS symptoms and academic year (p = 0.076), coffee consumption (p = 0.4), as well as smoking (p = 0.9).

Conclusion: The prevalence of irritable bowel syndrome was more observed in females in this study; however, we did not find a significant statistical difference between males and females in the prevalence of IBS. Additionally, there was no significant statistical difference in the prevalence of IBS among medical students whether they were in their basic years or clinical years. Furthermore, in our study, IBS was related neither to coffee nor to cigarette smoking.

Keywords: irritable bowel syndrome, medical students, Rome IV criteria, university of Benghazi.

1. INTRODUCTION

Irritable bowel syndrome (IBS) is a disorder of Gut-Brain interaction defined by abdominal pain associated with defecation. It was previously called functional gastrointestinal disorder because of the absence of structural pathology in most patients[1].

*Correspondence: Safaa Farag Ferjani.

Safaafarag42@gmail.com

The cause of this disorder is related to disturbances in motility, visceral hypersensitivity, mucosal and immune function alteration, altered microbiota, and central nervous system processing. All of these are possible causes[2].

We used Rome (IV) criteria[2] for diagnosis, which defines IBS as recurrent abdominal pain at least one day per week in the last three months associated with two or more of the following:

- Related to defecation instead of relieved by defecation.
- Associated with a change in the frequency of stool.
- Associated with a change in the form of stool.

©2023 University of Benghazi. All rights reserved. ISSN:Online 2790-1637, Print 2790-1629; National Library of Libya, Legal number : 154/2018

In addition to the previous criteria, there are common symptoms that vary in severity from one patient to another as bloating, belching, tenesmus, urgency and straining. The presence of these symptoms could support the diagnosis of irritable bowel syndrome.

After reviewing previous studies [3-4], we noticed a high prevalence of IBS among medical students. Therefore, this study aims to investigate the prevalence of irritable bowel syndrome symptoms among medical students at UOB using Rome IV criteria.

2. MATERIALS AND METHODS:

A cross-sectional observational study was carried out among medical students at UOB; the data was collected from June 10 th to August 31st, 2022.

The study included UOB medical students from the first year to the fifth year; the total number of targeted students was 4537 (3207 females and 1330 males), which represents the total number of medical students at UOB.

Data was collected by using a semi-structured questionnaire administrated on official channels of medical departments and UOB medical students' groups on Telegram to be easily accessible for all targeted students; 4537 students. The questionnaire was utilized only to be filled out one time to avoid duplicate responses from the same sample.

The questionnaire consists of 32 questions covering six parts:

- The first part related to personal and socio-demographic data (academic year, gender, age).
- The second part was concerned with the previous diagnosis of IBS by a physician and how long has been diagnosed.
- The third part was related to the Rome IV criteria and common IBS symptoms like (bloating, belching, urgency, straining, tenesmus, change in form of stool, presence of mucus, change in bowel habits, and character of abdominal pain).
- The fourth part covered some of the red flag symptoms (presence of blood in stool, abdominal pain awakening from sleep), history of gastrointestinal diseases for example: celiac disease, and inflammatory bowel disease.
- The fifth part was asking about any chronic illness and chronic use of medications.
- The sixth part was related to personal habits (smoking, Rate of coffee consumption).

Inclusion criteria for the diagnosis: we include any student who meets Rome IV criteria and has common IBS symptoms.

Exclusion criteria: we exclude any student with another gastrointestinal disease or who has red flag symptoms.

The study was approved on 1st June, 2022 by the Residents' Research Day Scientific Committee, Benghazi Medical Centre.

All participants were informed that the questionnaire was required for a medical research study.

Statistical Analysis:

The data were analyzed by using the statistical software program SPSS version 26, descriptive statistics and inferential statistics were carried out, a chi-square test was conducted to observe and quantify the association between IBS symptoms (according to Rome IV criteria) and gender, and the association between IBS symptoms (according to Rome IV criteria) and academic year (whether basic or clinic). Additionally, personal habits (coffee consumption and smoking) and their association with IBS. All calculated p-values were > 0.05, which is considered not statistically significant.

3. RESULTS:

The total number of medical students who participated in the study was (n = 381), and the mean age = 23.8, SD = 2.269.

The response rate among females was 9.4% (303 out of 3207 total female students) and was much lower among males 5.8% (78 out of 1330 total male students).

The prevalence of IBS among the students was 16.01%, (61 out of 381), the prevalence of IBS among females was 16.83%, (51 females out of 303 female participants), while among males was 12.82%, (10 males out of 78 male participants), (p = 0.79), which suggests no association between IBS symptoms and gender. Chi-square value = 1.05.

The Number of affected students from basic years was 41 out of 214 students (19.15%), while the number of affected students from clinical years was 20 out of 167 students (11.97%), (p = 0.076) which suggests no association between IBS symptoms and academic years (basic and clinical years), chi-square value = 6.89.

The percentage of suspected cases that needed follow-up to prove the diagnosis was 10.2% (39 out of 381). The percentage of self-reported cases was 11.81% (45 out of 381). Figure 1

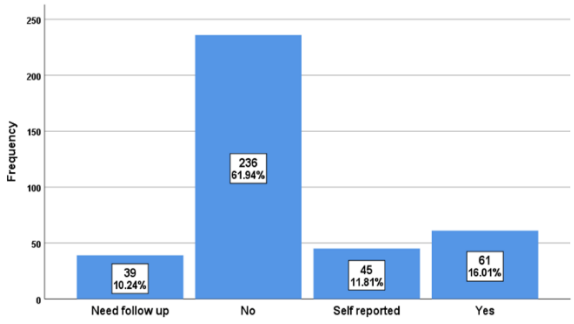


Figure 1: Classification of participants in our study.

There are students who have already been affected but are unaware that they have IBS, although they met Rome IV criteria, those students represent 16.39% (10 out of 61). Only one third (22 out of 61) have been diagnosed by doctors.

We excluded any student who did not meet Rome IV criteria in the following tables 1, 2, 3, and 4.

The Majority of the affected students suffer from pain 2-4 times per week (Table 1). Additionally, most of the affected students get better after defecation (Table 2). However, most of

©2023 University of Benghazi. All rights reserved. ISSN:Online 2790-1637, Print 2790-1629; National Library of Libya, Legal number : 154/2018

the affected students have normal stool frequency, which ranges from more than three times a week to 2 times per day (Table 3). Furthermore, most of the affected students have an alternating form of stool (Table 4).

Most of the affected students consume one to two cups of coffee per day, (P = 0.4), which indicates no association between IBS and coffee consumption.

The percentage of smokers among affected students was 3.27% (2 out of 61), while 96.7% (59 out of 61) of the affected students were not smokers, (p = 0.9), which shows no association between IBS and smoking.

Table 1: Number of times abdominal pain occurred among the affected students.

	n	Percentage
Once a week	22	36
2-4 Times weekly	33	54
Every day	6	10
Total	**61**	**100.0**

Table 2: The relationship of pain to defecation among the affected students.

	n	Percentage
Not associated with defecation	7	11.47
Worse after defecation	6	9.8
Better after defecation	48	78.68
Total	**61**	**100.0**

Table 3: Frequency of defecation among the affected students.

	n	Percentage
Less than three times a week	23	37.7
More than three times a week	17	27.86
1-2 times per day	20	32.78
More than three times per day	1	1.63
Total	**61**	**100.0**

Table 4: Form of stool among the affected students.

	n	Percentage
Loose watery stool	5	8.19
hard lumps that are difficult to pass	20	32.7
Sausage-shaped ideal stool	3	4.9
alternating between hard stool and loose stool	33	54.09
Total	**61**	**100.0**

4. DISCUSSION:

In this study, we provide a comprehensive picture of the prevalence of IBS among medical students at UOB. We found the prevalence of IBS among the studied medical students (n = 381) was 16.01%.

In comparison to a previous study that was conducted on medical students by using a self-administrated questionnaire, which suggested a high prevalence of 31.8%[3], the prevalence in a similar study was 30.9%[4] and another one was 21%[5], but Rome III criteria were utilized to conduct these studies.

Another study that applied the Rome IV criteria, suggested a low prevalence range from (4.4%- 4.8%)[6], and another similar one in Saudi Arabia 7.9%[7], but they were conducted on the general population.

In Malaysia the prevalence was 14.7%[8], the Rome IV criteria were utilized to conduct this study on medical students.

According to another study, the global prevalence of IBS was found to be 11.2%[9], this study aimed to assess the worldwide prevalence of IBS through a meta-analysis.

According to a previous study that compared Rome IV and Rome III criteria, it was found that the prevalence decreased by half when using the Rome IV criteria[6].

The prevalence among males and females is not significantly different in our study. However, most previous studies suggested that the prevalence was higher in females than in males[3,5,10,11] We hypothesize that this may be due to the fact that females tend to participate in questionnaires more frequently than males and seek medical services earlier than males.

A similar study applying the Rome IV criteria in Saudi Arabia revealed no association between IBS and gender[12].

In contrast, there is another study carried out on medical students in Korea using the Rome III criteria that suggested a higher prevalence of IBS in males than females[13]. Additionally, a similar study was conducted in Niger[14].

The prevalence of IBS among medical students is not significantly different between those in their basic years and those in their clinical years according to our study. This result is similar to a previous study carried out on medical students to determine the association between overnight calls and IBS, which found no association[15]. In contrast, another study demonstrated a higher prevalence in senior students compared to junior students[16].

In our study, we found that IBS with alternating forms of stool was more prevalent than IBS with hard or loose stool separately. A previous study carried out in China, reported that IBS with mixed bowel habits was the most common form[17]. Additionally, a study involving medical students revealed that IBS with diarrhea-predominant was more prevalent in both males and females[18]. However, in another study in China, it was found that IBS with constipation-predominant was more prevalent[19]. A previous study carried out on Iranian adults, reported that IBS with constipation-predominant was more prevalent among females, while IBS with diarrhea-predominant and mixed type was more common among males[20].

©2023 University of Benghazi. All rights reserved. ISSN:Online 2790-1637, Print 2790-1629; National Library of Libya, Legal number : 154/2018

Coffee consumption among affected medical students was 78.68%, although the relationship between coffee consumption and IBS was not significant in our study. A similar study conducted on medical students using Rome III criteria found a higher prevalence among students who consume coffee, but the relationship was not statistically significant[21]. In contrast, a previous study carried out on Egyptian medical students suggested a significant relationship between coffee consumption and IBS[22]. Additionally, another study conducted on Iranian adults revealed a significant positive association between IBS and coffee intake[23].

The relationship between IBS and cigarette smoking in our study was not statistically significant. This could be attributed to the fact that smoking is uncommon among medical students in our country, particularly among females, only 3.27% of affected students were smokers. A study conducted on medical students suggested a higher prevalence of IBS among smokers compared to nonsmokers[14]. A previous systematic review studying the relationship between IBS and smoking, no association between IBS and smoking was found[24]. Additionally, in another study carried out in Turkey, it was found that cessation of smoking relieved gastrointestinal symptoms but did not affect IBS status[25]. In contrast, another study considered smoking as a protective factor for IBS[26].

This suggests that our prevalence figures are likely to be reasonably close approximations of the true national prevalence of IBS according to Rome IV criteria.

This study is the first study that used Rome IV criteria as a diagnostic tool among medical students at the University of Benghazi. Therefore, we hope this study will serve as a reference for future researchers.

Our study has some limitations: the response rate among students is considered low compared to the total number of targeted students, and the sample was collected in a convenience manner, which makes the sample less representative.

5. CONCLUSION:

The prevalence of irritable bowel syndrome among medical students at UOB was 16.01%, which is considered high. There was no significant statistical difference between males and females in the prevalence of IBS in our study. Additionally, there was no significant statistical difference in the prevalence of IBS among medical students, whether they were in their basic years or clinical years. Furthermore, was related neither to coffee nor to cigarette smoking, in our study.

Ethical approval:

This research was approved by Residents' Research Day Scientific Committee, Benghazi Medical Centre.

Authors' contributions:

SFF contributed to the design of the study, collection and analysis of data. MFF contributed to interpret the data, literature search and drafting of the manuscript. Both authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

Acknowledgements:

We would like to acknowledge **Residents' Research Day Scientific Committee, Benghazi Medical Centre** for approval, and **all medical students** who participated in our study. We would also like to give our warmest thanks to **Dr. Abdelhakim Elbarsha** for his mentorship and his brilliant suggestions. We are also grateful to **Dr. Amal Elfakhri** for helping in the analysis and interpretation of the data for the study.

6. REFERENCES:

1. Burns GL, Talley NJ, Keely S. Immune responses in the irritable bowel syndromes: time to consider the small intestine. BMC Medicine 2022;20. https://doi.org/10.1186/s12916-022-02301-8.
2. Drossman DA. Functional Gastrointestinal Disorders: History, Pathophysiology, Clinical Features, and Rome IV. Gastroenterology 2016;150:1262-1279.e2. https://doi.org/10.1053/j.gastro.2016.02.032.
3. Ibrahim NKR, Battarjee WF, Almehmadi SA. Prevalence and predictors of irritable bowel syndrome among medical students and interns in King Abdulaziz University, Jeddah. Libyan Journal of Medicine 2013;8:21287. https://doi.org/10.3402/ljm.v8i0.21287.
4. Jadallah KA, Khatatbeh MM, Sarsak EW, Sweidan AN, Alzubi BF. Irritable bowel syndrome and its associated factors among Jordanian medical students: A cross-sectional study. Medicine 2022;101:e30134. https://doi.org/10.1097/md.0000000000030134.
5. Alaqeel MK, Alowaimer NA, Alonezan AF, Almegbel NY, Alaujan FY. Prevalence of Irritable Bowel Syndrome and its Association withAnxiety among Medical Students at King Saud bin Abdulaziz University for Health Sciences in Riyadh. Pakistan Journal of Medical Sciences 2017;33. https://doi.org/10.12669/pjms.331.12572.
6. Palsson OS, Whitehead W, Törnblom H, Sperber AD, Simren M. Prevalence of Rome IV Functional Bowel Disorders Among Adults in the United States, Canada, and the United Kingdom. Gastroenterology 2020;158:1262-1273.e3. https://doi.org/10.1053/j.gastro.2019.12.021.
7. Amin H, Irfan F, Karim S, Almeshari S, Aldosari K, Alzahrani A, et al. The prevalence of irritable bowel syndrome among Saudi population in Riyadh by use of Rome IV criteria and self-reported dietary restriction. Saudi Journal of Gastroenterology 2021;27:383. https://doi.org/10.4103/sjg.sjg_43_21.
8. Seger S, Binti Nasharuddin NN, Fernandez SL, Binti Md Yunus SR, Teh Mae Shun N, Agarwal P, et al. Prevalence and factors associated with irritable bowel syndrome among medical students in a Malaysian private university: a cross sectional study. Pan African Medical Journal 2020;37. https://doi.org/10.11604/pamj.2020.37.151.21716.
9. Lovell RM, Ford AC. Global Prevalence of and Risk Factors for Irritable Bowel Syndrome: A Meta-analysis. Clinical Gastroenterology and Hepatology 2012;10:712-721.e4. https://doi.org/10.1016/j.cgh.2012.02.029.

©2023 University of Benghazi. All rights reserved. ISSN:Online 2790-1637, Print 2790-1629; National Library of Libya, Legal number : 154/2018

10. Elhosseiny D, Mahmoud NE, Manzour AF. Factors associated with irritable bowel syndrome among medical students at Ain Shams University. Journal of the Egyptian Public Health Association 2019;94. https://doi.org/10.1186/s42506-019-0023-8.

11. 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 Research Notes 2012;5. https://doi.org/10.1186/1756-0500-5-255.

12. Hasosah MY, Alamri SA, et al. Prevalence of irritable bowel syndrome among medical students and interns in Jeddah, Saudi Arabia. J Clin Med Case Stud. 2017;2(4):1-5.

13. Jung HJ, Park MI, Moon W, Park SJ, Kim HH, Noh EJ, et al. Are Food Constituents Relevant to the Irritable Bowel Syndrome in Young Adults? - A Rome III Based Prevalence Study of the Korean Medical Students. Journal of Neurogastroenterology and Motility 2011;17:294–9. https://doi.org/10.5056/jnm.2011.17.3.294.

14. 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 jouf university. Niger J Clin Pract 2020;23:555–60. https://doi.org/10.4103/njcp.njcp_512_18.

15. Wells M, Roth L, McWilliam M, Thompson K, Chande N. A Cross-Sectional Study of the Association between Overnight Call and Irritable Bowel Syndrome in Medical Students. Canadian Journal of Gastroenterology 2012;26:281–4. https://doi.org/10.1155/2012/865915.

16. Almutairi M, Almalki A, et al. Prevalence of irritable bowel syndrome and its associated factors among medical students. Int J Med Res Health Sci. 2017;6(2):1-10.

17. Liu Y, Liu L, Yang Y, He Y, Zhang Y, Wang M, et al. A School-Based Study of Irritable Bowel Syndrome in Medical Students in Beijing, China: Prevalence and Some Related Factors. Gastroenterology Research and Practice 2014;2014:1–8. https://doi.org/10.1155/2014/124261.

18. Wang Y, Jin F, Chi B, Duan S, Zhang Q, Liu Y, et al. Gender differences in irritable bowel syndrome among medical students at Inner Mongolia Medical University, China: a cross-sectional study. Psychology, Health & Medicine 2016;21:964–74. https://doi.org/10.1080/13548506.2016.1144890.

19. Dong Y-Y. Prevalence of irritable bowel syndrome in Chinese college and university students assessed using Rome III criteria. World Journal of Gastroenterology 2010;16:4221. https://doi.org/10.3748/wjg.v16.i33.4221.

20. Keshteli AH, Dehestani B, Daghaghzadeh H, Adibi P. Epidemiological features of irritable bowel syndrome and its subtypes among Iranian adults. Ann Gastroenterol. 2015;28(2):253–8.

21. Alsuwailm WA, AL-Qahtani MM, AL-Hulaibi AA, AL-Hadi MA, Busa'ad WT, Ali SI, et al. Irritable Bowel Syndrome among Medical Students and Interns in King Faisal University. Open Journal of Preventive Medicine 2017;07:235–46. https://doi.org/10.4236/ojpm.2017.711019.

22. El Sharawy SM, Amer IF, Elkadeem MZ. Irritable bowel syndrome in Egyptian medical students, prevalence and associated factors: a cross-sectional study. Pan African Medical Journal 2022;41. https://doi.org/10.11604/pamj.2022.41.311.28228.

23. Koochakpoor G, Salari-Moghaddam A, Keshteli AH, Esmaillzadeh A, Adibi P. Association of Coffee and Caffeine Intake With Irritable Bowel Syndrome in Adults. Frontiers in Nutrition 2021;8. https://doi.org/10.3389/fnut.2021.632469.

24. Sirri L, Grandi S, Tossani E. Smoking in Irritable Bowel Syndrome: A Systematic Review. Journal of Dual Diagnosis 2017;13:184–200. https://doi.org/10.1080/15504263.2017.1322226.

25. Mercan Başpınar M, Basat O. Frequency and severity of irritable bowel syndrome incigarette smokers, Turkey 2019. Tobacco Induced Diseases 2022;20:1–8. https://doi.org/10.18332/tid/145925.

26. Ramírez-Amill R, Torres EA. Prevalence of irritable bowel syndrome among medical students of Puerto Rico. P R Health Sci J. 2021;40(1):38–44.

©2023 University of Benghazi. All rights reserved. ISSN:Online 2790-1637, Print 2790-1629; National Library of Libya, Legal number : 154/2018