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Prevalence and Predictors of Irritable Bowel Syndrome among Medical Students

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Abstract

Irritable bowel syndrome (IBS) is one of the most common functional gastrointestinal disorders, and medical students are at a higher risk for this disorder, given their stressful lives. This study aims to identify the prevalence of IBS and the associated risk factors among MS. A cross-sectional study was conducted among medical students at all academic levels. Data were collected from January to September 2018 using a validated, self-administered, and anonymous questionnaire. Five hundred eighty-five students were included, and an IBS diagnosis was made in 37 students. Older students and those in higher clinical years are at greater risk for developing IBS (*P* <.02 and.001, respectively). The factors associated with IBS (adjusting for known confounders) included a family history of IBS [adjusted odds ratio (AOR): 7.06 (95% CI: 2.923 - 17.069)], rare use of over-the-counter pain medications, [AOR: 2.806; 95% CI: 0.004-0.431; *P* <.003] and students experiencing high levels of anxiety [AOR : 3.33 (95% CI: 1.392 -7.981); *P*<.002]. In this study, the risk of IBS among medical students was 6.6%.

Keywords: Irritable bowel syndrome, medical students, Family history, Hospital Anxiety and Depression Scale (HADS).

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Background

Irritable bowel syndrome (IBS) is one of the most common functional medical disorders that affect the gastrointestinal system. IBS is common worldwide, having a prevalence of 11% [1]. Patients can present with a range of symptoms that affect their quality of life. These symptoms include recurrent episodes of abdominal pain, alterations in bowel habits, and abdominal distention [2]. Rome IV criteria, revised in 2016, was used to diagnose IBS with excellent specificity and sensitivity without alarming symptoms for a patient's age group [3]. The burden of IBS on patients can be quite significant. In the United States, it was found that approximately 70% of IBS patients do not seek medical attention [4-5]. As a result, the health cost is immense, both directly and indirectly. For example, there are costs related to work absenteeism since IBS patients are three times more likely to miss workdays than healthy individuals. In addition, they used more antidepressants daily to cope with their symptoms [6].

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Although the pathophysiology of IBS is unclear, gender, diet, lifestyle, and sleep problems have been considered as risk factors. In addition, early adverse life events (such as childhood sexual abuse), family history, stress, and physical activity status are also considered potential causes of IBS. The relationship between psychological disorders and IBS is well established. Patients with this condition typically suffer from anxiety and depression, which may affect their symptoms [7-15], which is related to the fact that the large intestine is partially controlled by the autonomic nervous system, which is affected by stress.

Medical students (MS) are unique because they are constantly exposed to stress, long study hours, heavy workloads, sleep deprivation, scarcity of exercise, and difficulty in maintaining their social lives. Several studies estimate the prevalence of IBS in MS ranges from 9.3 to 43.5% [8-15]. However, there is little data regarding the prevalence of IBS in MS, specifically in Jordan.

This study aims to identify the prevalence of IBS and associated risk factors among a group of MS from the University of Jordan. Additionally, we will compare our data with statistics from neighboring countries.

Materials and Methods

We conducted a cross-sectional study at the University of Jordan from January 8 to September 9, 2018.

The University of Jordan School of Medicine is located in Amman, the capital of Jordan, and is one of the oldest universities in the country. It is characterized by the diversity of its students from different locations in Jordan and neighboring countries. The online, self-administered, and anonymous questionnaire was sent to 2,000 medical students in basic and clinical years, and they were asked to complete it. Six hundred eighteen students responded to the questionnaire, and ten were excluded due to their alarming symptoms. After a thorough literature review of previous studies conducted, the researchers developed the questionnaire to identify the prevalence of IBS and its associated risk factors among medical students. The questionnaire was pre-tested for readability and clarity. The well-validated GI symptom questionnaire was expanded to incorporate all symptoms defined by the Rome IV criteria for IBS, used when the study was initiated. In this study, we did not target or measure the severity or quality of life related to IBS. Written informed consent was obtained from the participants.

The IBS diagnosis was based on Rome IV criteria. Students who met IBS criteria were marked as IBS positive and included in the study cohort, while those students with alarming symptoms were excluded from the study. The study was approved by the Institutional Review Board of the affiliated institutions and was conducted following the latest update of the Helsinki Declaration**.**

Questionnaire Structure

The questionnaire consists of four main sections. The first section gathered information regarding the individual's sociodemographic information, including age, gender, current year of study, living arrangements, and grade point average (GPA).

The second section includes information about lifestyle factors. The participants were classified according to their physical activity status and were separated by intense, moderate, frequent, or little exercise. Hours of sleep options were: 4-5, 6-8, 9-11, and 12+ hours daily. Participants' drinking behavior was classified as regular, occasional, or no alcohol. Smoking status included being a smoker or a nonsmoker. Finally, participants were asked about their frequency of over-the-counter pain medications, ranging from more than three times per week, two to three times per month, once every couple of months, or rarely.

The third section of the questionnaire contained questions based on the Rome 4 criteria and the participant's current history and past medical and family history of IBS. This section included the following questions to determine the presence of any underlying alarming symptoms, and if these symptoms were present, the students were excluded. Symptoms checked were unintended weight

loss of more than 5% body weight, anemia, or blood in the stool. Patients with histories of inflammatory bowel disease, celiac disease, diabetes mellitus, undiagnosed allergy, or duodenal ulcer were excluded.

The fourth section of the questionnaire included the Hospital Anxiety and Depression Scale (HADS) [16]. The questionnaire has 14 questions with two 7-item subscales and was used to estimate anxiety and depression status in patients. For each subscale, results were classified into the following three levels: normal cases (0–7), borderline cases (8–10), and severe cases (over 11). The HAD was used in the UK and the USA.

Statistical Analysis

Data were analyzed using the IBM SPSS of Window 20. Descriptive statistics were used to summarize the data and factors associated with IBS based on the level of measurement.

Logistic regression was used to determine the odds ratio of clinically significant data. A *P* value of < .05 was used to determine statistically significant differences.

Results

Table 1 shows the descriptive analysis of the study variables and their relation to irritable bowel syndrome (IBS). The current study included 558 students, 331 (59.3%) males and 227 (40.7%) females; 24 (7.3%) males and 13 (5.7%) females were diagnosed with IBS. There was no significant difference in IBS prevalence across gender (*P*=.477). Participants' ages ranged from 18 to 26 years, and the age distribution was as follows: 29.7% were 18 – 20; 60.0% were 21-23, and 9.3% were 24 – 26 years old, and participants with IBS were 3%, 7.4%, and 13.5%, respectively (*P* < .02). Regarding over-the-counter (OTC) medication used for pain control, 35.1% took OTCs more than three times per week; 26.3% took OTCs two to three times per month; 32.8% took OTCs once every couple of months, and 5.7% rarely took OTCs. However, participants taking medications less frequently were more likely to have IBS (*P* < .001). Of the participants studied, 58.6% had a negative family history of IBS; 13% of the students who had IBS had positive IBS family history, and 2.1% of the students with IBS had a negative IBS family history (*P* < .001) (Table 2).

The studied population included 79% nonsmokers and 20.8% smokers; however, the difference in IBS rates in both groups was not statistically significant (*P* < .897). A total of 88% did not drink alcohol, and there was no significant difference in terms of IBS diagnosis between the groups. Regarding their level in medical school, 42.1% of the students were in their basic years, and 57.9% were in their clinical years. Higher IBS percentages were found in clinical years students compared to basic years, 9% and 3.4 %, respectively (*P* <. 009). Physical activity level, living with family, and GPA were not associated with IBS prevalence.

The results of the Hospital Anxiety and Depression Scale (HADS) showed the following: For anxiety, 40.9% of all participants were at a normal level of anxiety, 23.1% were borderline, and 36.0% were determined to have a severe level of anxiety; rates of positive IBS increased with the anxiety rates: 3.9%, 3.1%, and 11.9%, respectively (*P* <.001). However, for depression, among all participants, 69% were considered normal, 16.5% were borderline, and 14.5% were found to be severe cases. Positive IBS rates associated with depression were not statistically significant (*P*<.591) (Table 1).

Further analysis was conducted using logistic regression to determine the effects of age group, OTC medications, family history of IBS, basic versus clinical years of study, and anxiety. The logistic regression model was statistically significant, χ^2 (9) = 71.871, *P* <.001. The model determined 31.3% (Nagelkerke R^2) of the variance in the presence of IBS and correctly classified 93.4% of the cases. Only three were statistically significant of the five predictor variables and included family history of IBS, medications, and anxiety. Family history of IBS had a significant association (*P* < .001). Students with positive IBS family history were found to have a 7.06 (95% CI: 2.923 - 17.069; *P* <.001) times greater chance of suffering from the

syndrome than students with no IBS family history. Students who rarely took painkillers were 20.8 (95% Cl: 0.004-0.431; $P < .003$) times more likely to have IBS than students with frequent intake (two to three times per week). Students with anxiety had a 3.33 (95% CI: 1.392 -7.981) times greater chance of having IBS than students with no anxiety ($P<.002$) (Table 2).

Discussion

The global prevalence of IBS is around 11% [1]. However, in our study, the prevalence of IBS was 6.6% among MS at the University of Jordan, based on Rome IV criteria. The result is lower than the results reported in the study conducted in Saudi Arabia, in which the IBS was 21% [10]. In contrast, in another study on MS including interns, the prevalence was 31.8% [15]. Similarly, other studies from China, Iran, and Lebanon showed IBS prevalence among MS as 33.3%, 28.3%, and 10.6%, respectively [11,12, 17]. A study from Japan conducted on medical and nursing students showed that 35.5% of the subjects had IBS [18]. A cross-sectional study from Lebanon showed IBS prevalence was 20% among university students [19]. The differences in the prevalence of IBS may be attributed to the differences in the geographical location, the sample size, the variability of living conditions, dietary habits, and the criteria used to exclude the diagnosis, as the Rome IV criteria lead to lower IBS prevalence in population-based studies.

A report from the University of Science and Technology in Jordan found an IBS prevalence among MS, 22.4%. The study included 160 students and showed that males were more affected than females, and many students reported worsening symptoms at the time of exams [13].

The current study included many students with different backgrounds, as 34% of medical students at the University of Jordan are from different countries (the Middle East, Asia, Europe, and North America).

Our results demonstrated that IBS is more prevalent among males (contrary to other studies), revealing that (7.3%) of males compared to (5.7%) of females had IBS. This result corresponded with a study conducted at the University of Science and Technology in Jordan [13]. On the contrary, a study from Saudi Arabia determined that more females had IBS than males, 25.9% versus 18.6%, respectively [15]. Another study from Pakistan also showed a female predominance of IBS, with 29.3% of females having IBS, compared to 17.5% of male students [12]. Furthermore, a study completed in China showed a prevalence of females with IBS (36.1%), while only 25% of males had IBS [11].

We also found a significant association between over-the-counter pain medication intake frequency and IBS in the present study. As we see in the data, people who rarely take pain killer medication are 2.08 times more likely to have symptoms of IBS. Multiple studies conducted worldwide have not found or not included data that reveals this correlation between pain medication intake and IBS in medical students. Nonetheless, a case-controlled study from 2012 showed that patients with IBS were exposed more to NSAIDs, and these results are inconsistent with our findings [20]. This negative relationship between the amount of over-the-counter pain medication taken and IBS may result from the masking effects of pain medication on IBS symptoms. Alternatively, pain medications may result in a placebo effect.

We found that a positive family history of IBS is significantly associated with IBS ($P <.001$), as students with positive IBS family history, were 7.152 (95% CI: 2.923 - 17.069) times more likely to exhibit IBS symptoms than students with no IBS family history. Our results are similar to those reported in a study conducted in Saudi Arabia, wherein the family history of IBS was found to be statistically associated with incidences of IBS, i.e., 53.4% of the participants were found to have a positive IBS family history [14]. Genetic factors may explain the positive association found between IBS and having a family history of IBS, and determining these genetic factors may help establish therapeutic strategies and personalized treatments.

Students in the clinical years were found to

have a higher percentage of IBS (9%) than those during the basic years. These results are similar to a study conducted among 697 medical students and interns from Saudi Arabia, which showed that the prevalence of IBS was generally higher in advanced (clinical) academic year students [15]. It could be related to the increased clinical workload. Overall, higher educational levels seem to contribute to IBS prevalence among medical students. However, no clear-cut pattern has been firmly established across levels. A study showed an insignificant difference between preclinical and clerkship students' levels, with 19.1% of preclinical students and 22.0% of the clerkship students having IBS in Ontario, Canada [21].

The Hospital Anxiety and Depression Scale provided evidence of a significant association between IBS and anxiety. However, no significant association was found with depression. These results are consistent with several other studies worldwide. A study among medical students and interns in Saudi Arabia showed that emotional stress was one predictor of IBS, and students with morbid and borderline anxiety had higher rates of IBS (40.1%). Concerning depression, a study showed that medical students with morbid depression had higher IBS disease prevalence (41.9%) compared to students with borderline depression (29.5%) and students with no depression (31.5%) [15]. Similar results concerning anxiety were also reported in a study among medical students at King Saud University from Saudi Arabia [10]. Furthermore, a study conducted among Pakistani medical students showed that 55.8% of IBS cases were associated with anxiety [12]. However, on the contrary, a study from China found no statistical differences between IBS patients and controls in association with anxiety and depression scores [11].

Several studies have reported no correlation of smoking status with IBS, similar to our findings [22]. However, another study showed the prevalence of IBS is significantly less among the smoking population, whereas the non-smoking population has an increased incidence of IBS [23].

Physical activity has an excellent benefit for health; however, limited data with conflicting results links physical activity to IBS. Previous studies have reported that spending more time doing moderate physical activity is associated with improved symptoms of IBS [24]. However, this contradicts the current study results.

This study does have some limitations. First, the survey was limited to one medical school; therefore, our findings cannot be generalized to all medical students. Second, the use of self-reporting questionnaires may result in recall bias.

Conclusion

Our findings show that using the Rome IV criteria, irritable bowel syndrome among medical students was 6.6% and predominantly affected males. IBS was positively associated with a family history of IBS, occasional use of pain medications, and students with high anxiety levels. Therefore, we recommend IBS screening to all medical students. Future prospective studies are recommended to identify the underlying etiology of IBS, research how to best deal with the syndrome, and focus on how to prevent it.

Abbreviations

Irritable bowel syndrome (IBS), Medical students (MS), grade point average (GPA), Hospital Anxiety and Depression Scale (HADS)

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Ethics statement: This cross-sectional study was approved by our Institutional Review Board. All the procedures performed followed the ethical standards of the institutional and national research committee and with the World Medical Association Declaration of Helsinki principles for this type of study.

Data Availability: The data available with the author upon request

Authors contributions: Nadia A. Khamis, Awni Abu Sneineh, Yaser M. Rayyan, conception, design, and supervision; Randa I.

Farah, Aseil E. Khatib, Sophia S. Haddadin, Mohammad J. Darwish: collection and processing, analysis and interpretation of the data; Randa I. Farah, Nadia A. Khamis , Aseil E. Khatib, and Sophia S. Haddadin: review literature and drafting of the article; Randa I. Farah, Nadai A. Khamis and Yaser M. Rayyan critical revision of the article for important intellectual content; Randa I. Farah, Awni Abu Sneineh and Yaser M. Rayyan: final approval of the article.

Table 1: Descriptive Analysis of Study Variables and the Relation to Irritable Bowel Syndrome IBS (n=558)

Variables	Category	Total Number	Percentage%				p Value°
				Normal	IBS	Percentage%	
Gender	Male	331	59.3%	307	24	7.3%	0.477
	Female	227	40.7%	214	13	5.7%	
Age Group	18-20	166	29.7%	161	5	3%	0.02*
	21-23	340	60.6%	315	25	7.4%	
	24-26	52	9.3%	45	7	13.5%	
OTC Medication	Rarely	32	5.7%	28	4	10.8%	<0.001*
	Once every couple of months	183	32.8%	160	23	12.6%	
	2-3 times per month	147	26.3%	146	1	0.7%	
	More than 3 times a week	196	35.1%	187	9	4.6%	
Smoking	Non-smoker	442	79.2%	413	29	6.6%	0.897
	Smoker	116	20.8%	108	8	6.9%	
Alcohol	No	491	88%	459	32	6.5%	0.770
	Yes	67	12%	62	5	7.5%	
Anxiety	Normal	228	40.9%	219	9	3.9%	<0.001*
	Borderline	129	23.1%	125	4	3.1%	
	Severe	201	36.0%	177	24	11.9%	
Depression	Normal	389	69.0%	359	26	6.8%	0.519
	Borderline	92	16.5%	88	4	4.3%	
	Severe	81	14.5%	74	7	8.6%	

Variables	Category	Total Number	Percentage%				p Value°
				Normal	IBS	Percentage%	
Physical Activity	Minimal Activity	346	62%	322	24	6.9%	.711
	Moderate to Heavy Activity	212	38%	199	13	6.1%	
Family History	No	327	58.6%	320	7	2.1%	< .001*
	Yes	231	41.1%	201	30	13.0%	
Basic vs Clinical	Basic	235	42.1%	227	8	3.4%	.009*
	Clinical	323	57.9%	294	29	9%	
Living	With Family	411	73.7%	384	27	6.6%	.922
	Without Family	147	26.3%	137	10	6.8%	
GPA	2-2.99	204	36.6%	189	15	7.4%	.459
	3.00-3.6	233	41.8%	216	17	7.3%	
	3.6-4.0	121	21.7%	116	5	4.1%	

° According to the chi-square test (χ^2), * indicates statistically significant differences (P <.05).

Table 2: Logistic Regression Analysis of Study Variables concerning Irritable Bowel Syndrome (IBS)

				95% CI		
Variables		**Frequency**	**Odds Ratio**	**Lower**	**Upper**	***P***
Age group						.404
	18-20	166	1	Reference		
	21-23	340	2.358	0.491	11.315	
	24-26	52	3.424	0.569	20.601	
Family IBS						< .001*
	No	231	1	Reference		
	Yes	327	7.063	2.923	17.069	
OTC medications						.003*
	Rarely	32	1	Reference		

				95% CI		
Variables		**Frequency**	**Odds Ratio**	**Lower**	**Upper**	***P***
	Once every couple of months	183	1.264	.358	4.455	
	2-3 times per month	147	0.048	.004	.431	
	More than 3 times a week	196	0.481	.123	1.882	
Basic vs. clinical						.382
	Basic	235	1	Reference		
	Clinical	323	1.801	0.482	6.725	
Anxiety						.002*
	Normal	228	1	Reference		
	Borderline	129	0.007	0.183	2.226	
	Case	201	3.334	1.392	7.981	
Nagelkerke $R^2 = 0.313$, * indicates statistically significant differences ($p < 0.05$).						

References

1. Canavan C, West J, Card T. The epidemiology of irritable bowel syndrome. *Clin Epidemiol*. 2014 February 4; **6**: 71-80. DOI: 10.2147/CLEP.S40245. PMID: 24523597; PMCID: PMC3921083.
2. Ikechi R, Fischer BD, DeSipio J, Phadtare S. Irritable Bowel Syndrome: Clinical Manifestations, Dietary Influences, and Management. *Healthcare (Basel)*. 2017 Apr 26; **5**(2):21. doi: 10.3390/healthcare5020021. PMID: 28445436; PMCID: PMC5492024.
3. Schmulson MJ, Drossman DA. What Is New in Rome IV. *J Neurogastroenterol Motil*. 2017 Apr 30;**23**(2):151-163. DOI: 10.5056/jnm16214. PMID: 28274109; PMCID: PMC5383110.
4. Drossman, DA, Sandler, RS, McKee, DC, Lovitz, AJ. Bowel patterns among subjects not seeking health care. Use of a questionnaire to identify a population with bowel dysfunction. Gastroenterology. 1982; **83**: 529–534
5. Thompson, WG and Heaton, KW. Functional bowel disorders in apparently healthy people. Gastroenterology. 1980; **79**: 283–288
6. Drossman DA, Camilleri M, Mayer EA, Whitehead WE: AGA technical review on irritable bowel syndrome. Gastroenterology. 2002, **123**:2108–31.
7. Henningsen P, Herzog W. Irritable bowel syndrome and somatoform disorders. *J Psychosom Res.* 2008; 64(6):625–629. doi:10.3748/wjg.v20.i20.6024.
8. Ibrahim NK, Battarjee WF, Almehmadi SA. Prevalence and predictors of irritable bowel syndrome among medical students and interns in King Abdulaziz University, Jeddah. *Libyan J Med*.

2013 September 19; **8**: 21287. DOI: 10.3402/ljm.v8i0.21287. PMID: 24054184; PMCID: PMC3779356.

9. Qureshi SR, Abdelaal AM, Janjua ZA, Alasmari HA, Obad AS, Alamodi A, et al. Irritable Bowel Syndrome: A Global Challenge Among Medical Students. *Cureus*. 2016 Aug 1;**8**(8):e721. DOI: 10.7759/cureus.721. PMID: 27625907; PMCID: PMC5010380.
10. 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 Jan-Feb; **33**(1): 33-36. Doi: 10.12669/pjms.331.12572. PMID: 28367168; PMCID: PMC5368325.
11. 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. *Gastroenterol Res Pract*. 2014;2014:124261. Doi: 10.1155/2014/124261. Epub 2014 October 13. PMID: 25371668; PMCID: PMC4211179.
12. 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 May 24;**5**:255. DOI: 10.1186/1756-0500-5-255. PMID: 22624886; PMCID: PMC3434121.
13. E Altamimi, H Alnawayseh, A 42 IRRITABLE BOWEL SYNDROME IN JORDANIAN MEDICAL STUDENTS , *Journal of the Canadian Association of Gastroenterology*, Volume **1**, Issue suppl_2, February 2018, Page 69, https://doi.org/10.1093/jcag/gwy009.042
14. Adnan Meteb Mohamed Almezani, Abdullah Ahmed Alkhalaf , Majid Naif Khalaf Alharbi, Saud Abdulaziz Alhuwayfi, Hamoud Meshal Alshammari, Mohammad Salem Alshammari, et al. Prevalence of Irritable Bowel Syndrome among Medical Students in Hail University, Saudi Arabia. The Egyptian Journal of Hospital Medicine April 2018. **71**. 2581-2584. 10.12816/0045659.
15. Ibrahim NK, Battarjee WF, Almehmadi SA. Prevalence and predictors of irritable bowel syndrome among medical students and interns in King Abdulaziz University, Jeddah. *Libyan J Med*. 2013 September 19; **8** :21287. DOI: 10.3402/ljm.v8i0.21287. PMID: 24054184; PMCID: PMC3779356.
16. Bocéréan, C., Dupret, E. A validation study of the Hospital Anxiety and Depression Scale (HADS) in a large sample of French employees. BMC Psychiatry **14,** 354 (2014) doi:10.1186/s12888-014-0354-0
17. Shahryar Semnani, Nafiseh Abdolahi , Gholamreza Roshandel , Sima Besharat , Abbas-Ali Keshtkar , Ali Jabbari , et al. Irritable Bowel Syndrome in Iranian Young Adults: A Survey among Medical Students. Journal of Medical Sciences, 2006**, 6**: 974-978.
18. Okami Y, Kato T, Nin G, Harada K, Aoi W, Wada S, Higashi A, Okuyama Y, Takakuwa S, Ichikawa H, Kanazawa M, Fukudo S: Lifestyle and psychological factors related to irritable bowel syndrome in nursing and medical school students. J Gastroenterol. 2011, **46** (12): 1403-1410. 10.1007/s00535-011-0454-2.
19. Costanian C, Tamim H, Assaad S. Prevalence and factors associated with irritable bowel syndrome among university students in Lebanon: findings from a cross-sectional study. *World J Gastroenterol*. 2015 March 28; **21** (12): 3628-35. DOI: 10.3748/wjg.v21.i12.3628. PMID: 25834330; PMCID: PMC4375587.
20. Keszthelyi D, Dackus GH, Masclee GM, Kruimel JW, Masclee AA. Increased proton pump inhibitor and NSAID exposure in irritable bowel syndrome: results from a case-control study. *BMC Gastroenterol*. 2012 September 5;**12**:121. DOI: 10.1186/1471-230X-12-121. PMID: 22950677; PMCID: PMC3482574.
21. Okami Y, Kato T, Nin G, Harada K, Aoi W, Wada S, et al. Lifestyle and psychological factors related to irritable bowel syndrome in nursing and medical school students. J Gastroenterol. 2011 Dec;**46** (12):1403-10. DOI: 10.1007/s00535-011-0454-2.

22. Locke GR 3rd, Zinsmeister AR, Talley NJ, Fett SL, Melton LJ. Risk factors for irritable bowel syndrome: role of analgesics and food sensitivities. Am J Gastroenterol. 2000 Jan;95(1):157-65. DOI: 10.1111/j.1572-0241.2000.01678.x. PMID: 10638576.
23. Mahmood, K., Riaz, R., Ul Haq, M. S., Hamid, K., & Jawed, H. (2020). Association of cigarette smoking with irritable bowel syndrome: A cross-sectional study. *Medical journal of the Islamic Republic of Iran*, *34*, 72. https://doi.org/10.34171/mjiri.34.72
24. Johannesson E, Simren M, Strid H, Bajor A, Sadik R. Physical activity improves symptoms in irritable bowel syndrome: a randomized controlled trial. The American Journal of gastroenterology. 2011; 106(5): 915–22. pmid:21206488.

انتشار والتنبؤات لمتلازمة القولون العصبي بين طلبة الطب

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[6] كلية الطب، مستشفى الجامعة الأردنية.

[7] قسم الطب الباطني، كلية الطب، الجامعة الأردنية، عمان، الأردن.

الملخص

تعد متلازمة القولون العصبي واحدة من أكثر اضطرابات الجهاز الهضمي الوظيفية شيوعًا، وطلبة الطب أكثر عرضة للإصابة بهذا الاضطراب نظرًا لحياتهم المرهقة، والهدف من هذه الدراسة هو تحديد مدى انتشار متلازمة القولون العصبي وعوامل الخطر المرتبطة بها بين طلبة الطب، علمًا أنَّ هذه دراسة مقطعية تم إجراؤها على طلبة الطب في جميع المستويات الأكاديمية، وتم جمع البيانات من كانون الثاني (يناير) إلى أيلول (سبتمبر)(2018) باستخدام استبيان تم التحقق من صحته مسبقًا بحيث تم تعبئة الاستبيانات بشكل ذاتي، ومن قبل أشخاص لم يعرفوا بأنفسهم، وتم تضمين خمسمئة وخمسة وثمانين طالبًا، تم تشخيص سبعة وثلاثين طالبا بأنهم يعانون من متلازمة القولون العصبي، والطلبة الأكبر سنًّا والطلبة في السنوات السريرية المتقدمة معرضون بشكل أكبر لمتلازمة القولون العصبي (P<0.02 و P = 0.001)، على التوالي، وتضمنت العوامل المرتبطة بمتلازمة القولون العصبي؛ حيث تم اعتبار المربكات المعروفة، مثل: التاريخ العائلي لمتلازمة القولون العصبي{نسبة الأرجحية المعدل 2.923)} (AOR) 7.06 [95% CI(17.069 -والاستخدام النادر لأدوية الألم بدون وصفة طبية، { (AOR) : 2.806 ؛ 95 CL ٪ 0.004-0.431؛ P <0.003 } والطلبة الذين يعانون من مستويات عالية من القلق { (AOR): 3.33 ; 95٪ CL 1.392) ; : (7.981- p < 0.002}، وفي هذه الدراسة كان خطر الإصابة بمتلازمة القولون العصبي بين طلبة الطب(6.6٪).

الكلمات الدالة: متلازمة القولون العصبي، طلبة الطب، التاريخ العائلي، مقياس القلق والاكتئاب في المستشفى (HADS).