



**PREVALENCE OF SYMPTOMS FOR UNDIAGNOSED IRRITABLE BOWEL
SYNDROME AMONG MEDICAL STUDENTS IN RIYADH, SAUDI ARABIA**

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ABSTRACT

Irritable Bowel Syndrome (IBS) is a digestive disorder which is associated with risk factors of physical stress, disorganised life style and unhealthy dietary pattern. The main aim of this study is to investigate the prevalence of IBS among medical college students of Al- Imam Mohammad Ibn Saud Islamic University, Saudi Arabia. This is a cross-sectional study which was conducted in year 2019 to investigate the prevalence of self reported early symptoms of undiagnosed IBS among medical students. Total of 183 medical students participated in this study who were of first to fifth year and interns. An online survey through a structured questionnaire was done to collect the responses of medical students. Overall IBS symptom prevalence was 71.58%. Junk food was consumed by 91.8% of students, often eating in restaurant was found in 74.9% of students, breakfast was usually skipped by 50.8% of students. Most of the IBS symptoms were found to be significantly more ($p < 0.05$) among students of age group 22-26 years as compared to students of age group 19-21 years. Some of the IBS symptoms were found to be significantly more ($p < 0.05$) among students of weight < 80 as compared to students of weight > 80 . More than

half of the students reported some of the symptoms of IBS which was found to be more among high age group students and also in non obese students. This study suggests that awareness of IBS, good and stressless life style and healthy dietary pattern could help in reducing the IBS symptoms among medical students.

Keywords: Irritable bowel syndrome, medical students, Saudi Arabia

INTRODUCTION

Since past few recent years Irritable Bowel Syndrome (IBS) has emerged to be a common disorder in medical students according to the several studies from many countries [1]. Irritable bowel syndrome is a disease that is heterogeneous in nature and affects the digestive system by affecting the colon due to large bowels and their improper movement. Medically it is defined as chronic biopsychological disorder that is mostly characterized by feeling abdominal pain or discomfort due to altered bowels habits [1]. Several researchers have shown that, IBS is ranging widely among all societies and socio-economic classes. The prevalence of IBS is approximately 10% in Western countries and due to its chronic relapsing course up to 50% of patients consult a physician for these symptoms [2]. In educational field, several researchers shows that IBS is quite common for medical students compared to other faculty students, this may be due to medical students get involved in high stressful academic environment [3]. Most of them undergo

psychological stress, a lot of physical stress as well as, having sleepless nights. since each of them is required to carry a huge career responsibility. In addition to all these, the medical student's high prevalence of IBS is triggered by their eating habits and lifestyle accompanied by very hectic academic environment [4].

Although IBS is not life-threatening, but it is a disease causing heavy economic burden due to increased work or school absenteeism and impaired quality of life in affected people as well as increased use of health care services [5, 6]. The classification of IBS is determined by the mainly bowel habit. There are three subcategories of IBS, according to the principal symptoms, which are pain associated with diarrhea (IBS-D); pain associated with constipation (IBS-C); pain associated with constipation and with mixed diarrhoea and constipation (IBS-M) [7]. The World Gastroenterology Organisation has reported that up to one-third of cases are IBS-C, one third are IBS-D and a third to a half of cases are IBS-M [8]. Rome IV criteria

for IBS diagnosis is considered as the most appropriate and most used diagnostic tool in research using symptoms of stool inconsistency that shows an accurate diagnosis of IBS [8].

IBS is considered as a very common disorder in the world, however in Saudi Arabia it is a disorder with limited researches especially among medical students, so our aim in this study is to explore the prevalence of self-reported symptoms of undiagnosed IBS among medical students of Al-Imam Mohammad Ibn Saud Islamic University, Riyadh, Saudi Arabia and to investigate the associated life style and dietary risk factors.

MATERIALS AND METHODS

Study design:

This is a cross-sectional study which was conducted in year 2019 to investigate the prevalence of IBS among medical students from the first to fifth year and interns of Al-Imam Mohammad Ibn Saud Islamic University, Riyadh, Saudi Arabia.

Sample size and sampling methods:

A structured questionnaire was designed for the IBS survey which consists of three sections, physical characteristic data of medical students, life style and dietary pattern risk factors of IBS, symptoms of IBS based on Rome IV criteria. Questionnaire

was validated to confirm its content and also reviewed to make sure it is understandable for participants. Data were collected by a single technique by sending the online survey weblink of questionnaire on Google Form to the medical students and the interns through several social media platforms. The sample size of this study was 183 medical students and interns who participated by filling the responses on online questionnaire. Participants with chronic diseases were excluded from the study, thus their data were not included in the final analysis. The prevalence of IBS is valued with the 95% confidence interval. The participants filled the consent form before filling the questionnaire. Data of participants were kept completely confidential. The ethics committee, Institutional Review Board (IRB) of the College of Medicine at Al-Imam Mohammad Ibn Saud Islamic University approved this study.

Statistical analysis:

Quantitative descriptions were presented by descriptive statistics which was used to characterize the responses in the questionnaire. Frequencies and percentages have been shown for all the categorical parameters. Chi-square test has been incorporated for comparison of the categorical outcomes (with symptoms and

without symptoms). The criterion for significance was set at $p < 0.05$. All the statistical analysis has been performed using an online QuickCalcs version of the GraphPad software, 2018, California, USA.

RESULTS

Personal characteristics of medical students:

Table 1 represents the personal characteristics of medical students who participated in this study. Mean age of medical students was 22.03 ± 1.74 years, ranging from 19 years to 25 years. 60-80 kg. of weight was found among most of the students (44.3%). Most of the students were never married (95.1%). Most of the students were residing in Riyadh (97.7%).

Prevalence of overall IBS symptoms and life style characteristics of medical students:

Table 2 exhibits the prevalence of overall IBS symptoms and life style characteristics of participated medical students. Overall IBS symptom prevalence was 71.58%. Exercise was performed regularly by 94.53% of students. Sleeping hours of 5-8 hours was found in most of the students (61.2%). Junk food was consumed by 91.8% of students. Often eating in restaurant was found in 74.9% of students. Fibrous food was consumed by 73.2% of students. Salad was

consumed by 59% of students. Among all the meals, breakfast was usually skipped by 50.8% of students.

Prevalence of self reported symptoms of undiagnosed IBS on the basis of age of medical students:

Table 3 represents the prevalence of self reported symptoms of undiagnosed IBS on the basis of age of medical students. Symptom of often abdominal pain or discomfort during the last 3 months was found to be significantly more ($p < 0.05$) among students of age group 22-26 years as compared to students of age group 19-21 years. Symptom of often discomfort or pain gets better or stops after bowel movement was found to be more among students of age group 22-26 years as compared to students of age group 19-21 years, but not found to be statistically significant. Symptom of often more frequent bowel movements after discomfort or pain started was found to be significantly more ($p < 0.05$) among students of age group 22-26 years as compared to students of age group 19-21 years. Symptom of often less frequent bowel movements after discomfort or pain started was found to be more among students of age group 22-26 years as compared to students of age group 19-21 years, but not found to be statistically significant. Symptom of often stools (bowel

movements) are looser after discomfort or pain started was found to be significantly more ($p < 0.05$) among students of age group 22-26 years as compared to students of age group 19-21 years. Symptom of often have harder stools after discomfort or pain started was found to be more among students of age group 22-26 years as compared to students of age group 19-21 years, but not found to be statistically significant. Symptom of often have hard or lumpy stools during the last 3 months was found to be significantly more ($p < 0.05$) among students of age group 22-26 years as compared to students of age group 19-21 years.

Prevalence of self reported symptoms of undiagnosed IBS on the basis of body weight of medical students:

Table 4 exhibits the prevalence of self reported symptoms of undiagnosed IBS on the basis of body weight of medical students. Symptom of often abdominal pain or discomfort during the last 3 months was found to be significantly more ($p < 0.05$) among students of weight < 80 as compared to students of weight > 80 . Symptom of often discomfort or pain gets better or stops after bowel movement was found to be more

among students of weight < 80 as compared to students of weight > 80 , but not found to be statistically significant. Symptom of often more frequent bowel movements after discomfort or pain started was found to be more among students of weight < 80 as compared to students of weight > 80 , but not found to be statistically significant. Symptom of often less frequent bowel movements after discomfort or pain started was found to be significantly more ($p < 0.05$) among students of weight < 80 as compared to students of weight > 80 . Symptom of often stools (bowel movements) are looser after discomfort or pain started was found to be more among students of weight < 80 as compared to students of weight > 80 , but not found to be statistically significant. Symptom of often have harder stools after discomfort or pain started was found to be more among students of weight < 80 as compared to students of weight > 80 , but not found to be statistically significant. Symptom of often have hard or lumpy stools during the last 3 months was found to be more among students of weight < 80 as compared to students of weight > 80 , but not found to be statistically significant.

Table 1: Personal characteristics of medical students

Variables	(N = 183) n (%)
Age (yrs.) [Mean ± SD]	22.03± 1.74
Range of Age (yrs.)	19-25
Weight	
Below 60kg	24 (13.1)
60-80kg	81 (44.3)
Above 80kg	78 (42.6)
Marital status	
Single	174 (95.1)
Married	9 (4.9)
Divorced	0 (0)
Residence	
In Riyadh	177 (97.7)
Outside Riyadh	6 (3.3)

Table 2: Prevalence of overall IBS symptoms and life style characteristics of medical students

Variables	(N = 183) n (%)
Overall IBS symptom prevalence	71.58%
Performing exercise	173 (94.53)
Sleeping hours	
3-5 hr	38 (20.8)
5-8 hr	112 (61.2)
8-10 hr	33 (18)
Consuming junk food	168 (91.8)
Often eating in restaurant	137 (74.9)
Consuming fibrous food	134 (73.2)
Consuming salad	108 (59)
Skipping meals	
Breakfast	93 (50.8)
Lunch	14 (7.7)
Dinner	23 (12.6)

Table 3: Prevalence of self reported symptoms of undiagnosed IBS on the basis of age of medical students

IBS symptoms	Age 19-21 yrs. (N = 82) n (%)	Age 22-26 yrs. (N = 101) n (%)	p value
Often abdominal pain or discomfort during the last 3 months	59 (71.95)	87 (86.14)	0.02 (p<0.05; significant)
Often discomfort or pain gets better or stops after bowel movement	52 (63.41)	75 (74.26)	0.14 (NS)
Often more frequent bowel movements after discomfort or pain started	48 (58.54)	75 (74.26)	0.02 (p<0.05; significant)
Often less frequent bowel movements after discomfort or pain started	35 (42.68)	53 (52.48)	0.23 (NS)
Often stools (bowel movements) are looser after discomfort or pain started	46 (56.10)	73 (72.28)	0.02 (p<0.05; significant)
Often have harder stools after discomfort or pain started,	40 (48.78)	62 (61.39)	0.10 (NS)
Often have hard or lumpy stools during the last 3 months	51 (62.20)	80 (79.21)	0.01 (p<0.05; significant)

*NS=Not Significant

Table 4: Prevalence of self reported symptoms of undiagnosed IBS on the basis of body weight of medical students

IBS symptoms	Weight<80 (N = 105) n (%)	Weight>80 (N = 78) n (%)	p value
Often abdominal pain or discomfort during the last 3 months	88 (83.81)	54 (69.23)	0.03 (p<0.05; significant)
Often discomfort or pain gets better or stops after bowel movement	75 (71.43)	50 (64.10)	0.33 (NS)
Often more frequent bowel movements after discomfort or pain started	69 (65.71)	50 (64.10)	0.87 (NS)
Often less frequent bowel movements after discomfort or pain started	59 (56.19)	31 (39.74)	0.03 (p<0.05; significant)
Often stools (bowel movements) are looser after discomfort or pain started	63 (60.00)	53 (67.95)	0.28 (NS)
Often have harder stools after discomfort or pain started,	61 (58.10)	39 (50.00)	0.29 (NS)
Often have hard or lumpy stools during the last 3 months	76 (72.38)	53 (67.95)	0.51(NS)

*NS=Not Significant

DISCUSSION

This study investigates the prevalence of early symptoms of IBS and its associated life style and dietary risk factors reported by medical students. However the IBS was not diagnosed by the clinical investigation in any of the medical students, but symptoms reported by some of the medical students were similar to IBS symptoms according to Rome IV criteria. The accurate measurement of IBS prevalence is quite difficult as it depends on various factors, including age, sex, ethnicity, etc. The prevalence of IBS in Asia is around 5% - 10%, which is surprisingly lower compared to Western societies [9].

Earlier there were some studies conducted in different countries on the prevalence of IBS symptoms among medical students. In Saudi Arabia, a study from King Abdulaziz University in Jeddah examined 597

medical students and interns using the Rome III criteria, which revealed an IBS prevalence of about 31.8% in all participants [10]. In Pakistan, a study from one medical school in Karachi reported the prevalence of IBS to be 28.3% using the Rome III criteria [11]. The results of these studies showed that the high prevalence of IBS is associated with low awareness levels towards seeking medical attention. This can further enhance the adverse outcomes of a poor primary health care system for treating this disorder which may lead to unexpected fatal consequences, if not adopted the preventive health examination.

Alsuwailm et al, 2017 conducted a cross sectional study among 173 medical students and interns at (KFU) in Al-Hasa, Saudi Arabia, in which they found that IBS was present significantly higher among students who experience emotional stress in the past

6-month (25.4%) and also it was associated with a decrease in the academic performance [12]. Another cross sectional study conducted by Almezani et al, 2018 in Hail University in Hail city, of Saudi Arabia among 133 medical students in which they found that 18% of the participants have been diagnosed with IBS and 28.5% fit Rome IV criteria for the diagnosis of IBS and stress with a percentage of 69.2% and lack of exercise 75.9% being the highest risk factors of IBS [13]. These findings of these studies were not similar with our study since emotional stress, decrease in academic performance and lack of exercise were found in very few students in this study. One more cross sectional study was carried out by Almutairi et al, 2017 among 511 medical students in three local universities in Qassim region; Qassim University, Unizah as well as Alrajhi colleges of medicine, in which they found 13.7% had IBS and senior medical students more likely to have IBS than juniors which shows some agreement with our findings, since in our study significantly more symptoms of IBS were reported by high age group senior students than low age group junior students [14].

In our study we found that many symptoms of IBS were significantly more among students of age group 22-26 years as

compared to students of age group 19-21 years which may be implicated with the fact that the academic burden and stress is more among senior medical students which might be leading to IBS symptoms. We found symptoms of often abdominal pain or discomfort during the last 3 months and often have hard or lumpy stools during the last 3 months as most common symptoms among the medical students reporting IBS symptoms.

In this study, unhealthy dietary practices were adopted by many medical students which is a very important risk factor of IBS. We found that junk food was consumed by 91.8% of students and often eating in restaurant was found in 74.9% of students, among all the meals, breakfast was usually skipped by 50.8% of students. Interestingly, we found that many IBS symptoms were more common in students having body weight below 80 kg but less common in students having body weight above 80 kg which is a new finding showing that obesity is not associated with IBS and this finding has not been reported elsewhere as best of our information. In our study, the overall prevalence of symptoms for undiagnosed IBS was 71.58% among medical students which in some cases associated with unhealthy dietary pattern and disorganised life style. So,

medical students need to be aware about seeking preventive medical care and improve their dietary pattern and life style to combat the IBS symptoms.

CONCLUSION

In conclusion, this cross sectional survey based study reports the prevalence of symptoms for undiagnosed IBS and its associated life style and dietary risk factors among medical students of Al-Imam Mohammad Ibn Saud Islamic University. More than half of the students reported some of the symptoms of IBS which was found to be more among high age group students and also in non obese students. Many students having IBS symptoms follow unhealthy dietary pattern and disorganised life style. This study suggests that awareness and preventive medical consultation for IBS, good and stressless life style and healthy dietary pattern could help in minimizing the prevalence of IBS among medical students.

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