

## Research article

## Gastrointestinal Conditions Among Medical Students: a Single Center Study

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**Abstract**

**Background/Aims:** Medical students go through many stressful situations and suffer from various gastrointestinal (GI) conditions. The aim was to assess the prevalence of GI conditions among medical students, the variability among gender and race, and what effects they have on their daily life. **Methods:** A survey was emailed to every medical student at the medical college via a link from surveymonkey.com. The survey was then analyzed in Microsoft Excel. **Results:** 209 students answered the survey. 62 of them had GI conditions. 54.84% were female and 45.16% male. 62.2% were aged between 21-25 and 37.8% aged between 26-30. Among different ethnicities, 80.65% - Caucasians, 12.90% - Asians, 4.83% - African Americans and 1.61% - Middle-Easterns. Family history was positive in 32.69% of the medical students. The different GI conditions reported were gastroesophageal reflux disease – 32.39%, irritable bowel syndrome – 30.98%, ulcerative colitis – 5.63%, lactose intolerance – 4.22%, eosinophilic esophagitis – 2.81%, and Crohn's disease – 1.40%. Regarding treatment, 59.3% of students were not taking any medication, 23.7% of students were receiving only medication, 3.40% both medication and psychotherapy, 1% psychotherapy, and 13.6% wrote "other." The gastrointestinal conditions affected daily life mildly (rated 1-3) in 71.8% of students, moderately (rated 4-7) in 21.8% of students and severely (rated 8-10) in 6.4% of students. **Conclusion:** A significant number of medical students suffered from gastrointestinal disorders and were taking medications. GERD was the most common disorder followed by IBS, both of which were prevalent in almost one-third of students with a GI condition. The disorders were more common in females than in males. A significant number of students had positive family history of the disorder. Most of the patients had disease onset within the last 5 years. Most of the students who had these disorders had mild to moderate effects on their day-to-day life activities.

**Keywords:** medical students and gastrointestinal conditions, medical students and irritable bowel syndrome, medical students and gastroesophageal reflux disease, medical students, and inflammatory bowel disease.

**Introduction**

Medical students experience many stressful conditions during their study in the medical school. Even before entering into the medical school, they go through rigorous tests and processes as it is a highly competitive field. Their psychological stress is higher than their age-matched peers (1). As psychological stress is associated with many physical and mental illness, medical students are vulnerable to develop certain diseases. Many gastrointestinal conditions affect the younger population. These include gastro-esophageal reflux disease (GERD), peptic ulcer disease (PUD), irritable bowel syndrome (IBS), non-ulcer dyspepsia (NUD), chronic nausea and vomiting, inflammatory bowel disease (IBD), cholelithiasis, appendicitis, hemorrhoids, chronic idiopathic constipation, acute or chronic diarrhea, anorectal dyssynergia, celiac disease, chronic viral hepatitis, autoimmune hepatitis, primary sclerosing cholangitis (PSC), non-alcoholic and alcoholic fatty liver disease. Some of the conditions

like NUD and IBS are stress related. Some of the conditions like GERD and IBD can get flared up under stressful situations. The prevalence of GI and hepatobiliary conditions among medical students is not known. It is also not known how badly these conditions can affect their medical student life. As we notice that a significant number of medical students come to our gastroenterology clinic for various gastrointestinal conditions, we conducted this study to find out the prevalence of these conditions among the medical students and also to assess the impact of these conditions on their day to day medical student life.

**Materials and Methods**

This was a prospective study. The study was done through the Internet survey tool surveymonkey.com via a link. By clicking the link and completing the survey, they agreed to participate in the research study. A set of questionnaires (Table 1) was made

**Table 1.** Questionnaire

1.	Age:
	a. 21-25:
	b. 26 – 30:
2.	Sex:
3.	Ethnicity:
4.	Name of gastrointestinal and hepatobiliary disorders they are suffering from:
5.	How long they have the gastrointestinal and hepatobiliary disorders?
6.	Treatment currently taking:
7.	How badly their gastrointestinal and hepatobiliary conditions affecting their life? On a scale of
	1 to 3: mildly interfering with studies and psychosocial life
	4 to 7: moderately interfering with studies and psychosocial life
	8 to 10: severely interfering with studies and psychosocial life

The questionnaires were validated by the IRB.

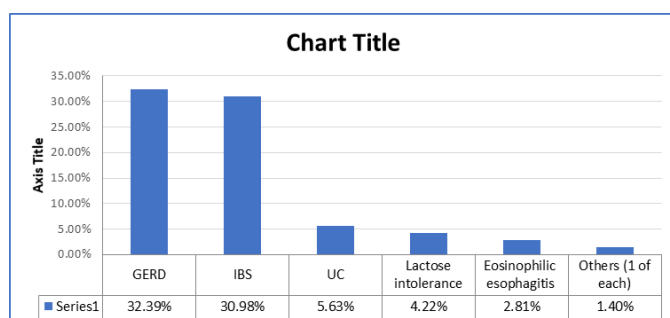
and emailed to each medical student. Answering to the questionnaire was completely voluntary, anonymous, and unpaid. The data was then calculated in Microsoft excel software. The study was determined to be exempt from the Institutional Review Board (IRB). The duration of the study was about 3 months.

## Results

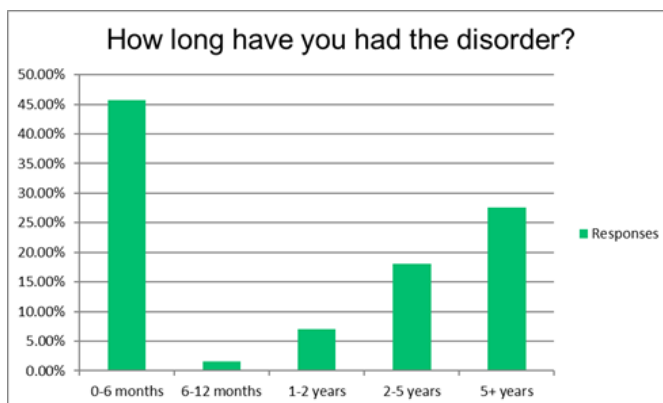
The survey questionnaire was emailed to all medical students. 209 students responded to the survey. 62 of them stated that they had GI and hepatobiliary conditions. Of these 62 medical students, 54.84% were males. The distribution of different ethnicities of medical students are shown in Table 2. The medical students answered the following GI conditions in their response (Figure 1): gastroesophageal reflux disease (GERD) – 32.39%, irritable bowel syndrome (IBS) – 30.98%, ulcerative colitis – 5.63%, lactose intolerance - 4.22%, eosinophilic esophagitis – 2.81%, and Crohn's disease -1.40%. No medical student reported any hepatobiliary condition. The duration of their GI disorders was variable as shown in Figure 2. Most of the medical students had disease duration with the last 6 months but a significant proportion of them had their disease for 5 years or more.

Medical students were receiving different medications for their underlying conditions. These included:

1. Acid suppressive medications: ranitidine, omeprazole, pantoprazole, lansoprazole, dexlansoprazole, antacids, bismuth salicylate.
2. Anti-diarrheal agents: loperamide, diphenoxylate/atropine.
3. Anti-depressive medications: sertraline, nortryptiline.
4. Antibiotics: ciprofloxacin, and metronidazole.
5. Anti-spasmodic: hyoscyamine.
6. Probiotics

**Figure 1.** GI conditions among medical students**Table 2.** Ethnicities of medical students

Ethnicity	Percentage
Caucasians	80.65
Asians	12.90
African-Americans	4.83
Middle Easterns	1.61

**Figure 2.** Duration of the disorder: 5 plus years – 28%, 2 to 5 years – 19%, 1 to 2 years – 7.8%, 6 to 12 months 1.7%, 0 to 6 months – 44%.

7. Tumor necrosis factor inhibitor: adalimumab.
8. Fiber supplement: psyllium
9. Anti-hemorrhoidal agent: Preparation H.

Medical students were asked about whether they were receiving any treatment. A significant number of patients (59.3%) suffering from GI disorders were non-compliant. Less than quarter (23.7%) of them were taking medications regularly. A small number (3.40%) of them were taking both medications and psychotherapy and only 1% of them were taking psychotherapy alone.

Medical students were also asked about how their GI and/or hepatobiliary conditions affecting their life. Most of them (71.8%) had mild effect on their day-to-day life. Less than quarter of them (21.8%) had moderate effect and a small number (6.4%) had severe effect on their daily life.

## Discussion

Medical profession in the United States is a highly respected field and to get into the medical profession, a student has to go through many competitive tests. Not only that, a medical student has to study hard, participate in many clinical activities, and involve in research and publication. As a result, many medical students are under lot of academic stress. Other factor is that they are young at the prime time of their life. So diseases which are more prevalent in younger population and related to stressful situations are common among medical students. Medical students also go through life-style changes due to inadequate sleep, decreased physical activity and improper diet [2]. Another important condition to consider is 'medical students' disease' also called medical studentitis or second year syndrome in which medical students perceive that they may be experiencing the symptoms of a disease they are studying. Emotional distress may be related to medical students. One study found that there was a significant rise in emotional distress process when the medical students entered the clinical years followed by a significant decrease later

on [3]. These imagined illnesses can cause real problem to their student life [4]. For example, sometimes they may develop infectious diarrhea and come to the gastroenterology clinic considering in their mind that they have inflammatory bowel disease. The real illnesses may vary among different ethnicities. In our study, we found that the cohort was multi-ethnic although majority of them are Caucasians. GERD and IBS were the most prevalent GI conditions among the medical students. These were followed by IBD, lactose intolerance and eosinophilic esophagitis. Although most of the medical students suffering from GI disorders had their disease started while they were in the medical school, many of them developed their disease prior to entering into the medical school. They were taking different medications as per their need. Most of them had stable GI conditions with mild effect on their daily routine. The prevalence of IBS has been studied globally in different medical schools. It ranged from 9.3% to 43.5% [5]. Another study showed that the prevalence of GERD symptoms was 25% among medical students [6]. Almadani et al did a study on college students with IBD and found that they had hard time in keeping up with their academic work and they did not adjust well to college for their academic success [7]. In our study about one quarter of the medical students suffering from GI disorders had moderate to severe effects on their daily life. A minority of the medical students suffering from GI conditions were compliant in taking their medications. The limitation of the study is that all medical students in the medical college did not participate in our study because the participation in the study was not mandatory. Another limitation is that the medical students acquire some of these conditions prior to entering the medical school and some of them during their medical student life.

### Conclusion

Although medical studentitis is frequently seen, chronic gastrointestinal diseases are not uncommon in medical students. These include GERD, IBS, IBD, lactose intolerance and eosinophilic esophagitis. Less than quarter of the medical students who suffer from these diseases take their medications regularly.

Majority of the students suffering from GI diseases have their diseases under control and have mild effect on their studies and psychosocial life. But one quarter of them have moderate to severe effects on their studies and psychosocial life. Female predominance, positive family history and recent onset of illness in the medical student life can be seen. These diseases can definitely flare up with psychosomatic stress. Strict adherence to the treatment, stress relief as well as emotional and social support are important in the management of this special category of patients. A multicenter study should be done to evaluate further this important clinical problem among medical students.

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