



Original Article

Prevalence and Risk Factors of Gerd Among Undergraduate Medical Students in I.Q City Medical College: A Cross Sectional Study

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ABSTRACT

BACKGROUND: Gastro esophageal reflux disease (GERD) is a prevalent gastrointestinal condition that has a deleterious impact on one's quality of life because of acid reflux causing damage to the esophagus. Primary symptoms consist of heartburn and regurgitation, although patients may also encounter chest pain, nausea, and dysphagia. Medical students may be particularly susceptible due to stressful lifestyles and unhealthy habits. **AIMS AND OBJECTIVE:**

To Study the prevalence and risk factors of GERD among undergraduate medical students. **MATERIALS AND METHODS:** A cross sectional observational study was conducted which included the patients admitted in tertiary care centre presenting with clinical diagnosis. This study investigates the prevalence of GERD among medical students in and explores associated risk factors. The study was conducted over period of one year from April 2024 to March 2025 after approving the ethical committee approval from the ethical committee of I.Q City Medical College, Durgapu West-Bengal. A total sample size of 250 medical students was included. Both genders were enrolled in the study with the written consent. Ethical approval for the study was obtained and a detailed history such as family history, alcohol consumption, and presence and severity of abdominal pain was recorded. All the patients were subjected to a thorough clinical examination, routine hematologic and biochemical investigations and diagnosis was established accordingly. **RESULTS:** The study included a total of 250 individuals with GERD, demonstrating a prevalence of 32.8%. Among the GERD group, 140 (56%) were males and 110 (44%) were females. In comparison, the non-GERD group comprised 152 (60.8%) males and 98 (39.2%) females. Participants were categorized based on their BMI into two groups: those with a BMI less than 25 kg/m² and those with a BMI of 25 kg/m² or higher. In the GERD group, 147 (58.8%) had a BMI less than 25 kg/m², while 103 (41.2%) had a BMI of 25 kg/m² or higher. The prevalence of GERD was found to be 32.6%, with heartburn and regurgitation being the most prevalent symptoms among participants. Univariate and multivariate logistic regression revealed family history of GERD and stress after medical school enrollment as significant predictors of GERD symptoms. **CONCLUSION:** GERD has become increasingly common among medical students. Contributing factors include medical students' stressful lifestyles and familial predispositions. To address this, it is essential to implement counseling programs and raise awareness as initial steps toward reducing GERD prevalence.

Keywords: GERD, medical students, risk and factor.

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INTRODUCTION

Gastro esophageal reflux disease (GERD) is a widespread gastrointestinal condition that raises the risk of complications and reduces the quality of life [1]. GERD occurs when there is an imbalance between the normal defense mechanisms of the esophagus and offensive factors such as acid and other digestive juices and enzymes in the stomach [2]. Patients with GERD typically complain of heartburn and postprandial regurgitation. The frequency of these main symptoms, such as the occurrence of heartburn at least twice a week, is used as the basis for diagnosing the disease in most uncomplicated cases [3, 4]. Patients may also present with other symptoms such as chest pain, nausea, dysphagia, burping, water brash, and vomiting [4]. The prevalence of GERD in adults is found to be ranging from 8.7% to 33.1% in the Middle East and North African region, which is a significant increase since 1995 [5]. When left untreated, acid reflux may cause esophageal mucosal damage and erosive esophagitis, which may be associated with prolonged cases of GERD. Other extra-esophageal disorders, including difficulties sleeping, respiratory issues, coronary artery disease, and metabolic syndrome, have all been linked to GERD [6, 7]. Reflux symptoms are more common among medical students because of the rigorous MBBS program and the unhealthy lifestyle developed throughout the years of studying medicine, such as excessive caffeine consumption and unbalanced diets [8]. Research on the prevalence of GERD among students is limited, with even fewer studies conducted. Therefore, we conducted this study to determine the prevalence of GERD among medical students in I.Q City Medical College, Durgapur, West Bengal and identify potential risk factors.

AIMS AND OBJECTIVE

To Study the prevalence and risk factors of GERD among undergraduate medical students in a Medical College of different Phases of MBBS

MATERIAL AND METHODS

Study Design

This research is a cross-sectional study aimed at assessing the prevalence and associated risk factors of GERD among medical students in. This study was written in compliance with the STROBE guidelines.

Study Population

Undergraduate 250 medical students from different phases of MBBS participated in the study.

Data Collection and Duration

Data was collected over twelve month's period, **from April-2024 to March 2025**. A Google Forms questionnaire was distributed via medical groups online. This study was approved by the Research Ethics Committee. Informed consent was obtained from all participants before administering the questionnaire. All research has been conducted in accordance with the Declaration Sociodemographic data. This section gathered basic information about the participants, including age, gender, university, and year of study.

Association Risk Factors and Lifestyle

This section included questions about potential risk factors and lifestyle factors associated with GERD, such as dietary habits, smoking, family history, daily habits and sleep, medical habits, physical activity and stress levels.

METHOD OF STUDY: A cross sectional observational study.

STUDY PERIOD: April 2024 to March 2025

Inclusion criteria:

1. Patients are generally included if they meet clinical and functional indicators
2. Age 25 to 55 years
3. Willingness to participate and provision of informed consent
4. Students across all academic years (typically Year 1 to final year/interns)
5. Actively registered undergraduate medical students (MBBS or equivalent medical degree program).

Exclusion criteria:

1. Age more than 55 years
2. Partially filled questionnaires or missing vital risk factor/demographic data.
3. Refusal or withdrawal of consent to participate in the study
4. Known structural or organic gastrointestinal diseases (e.g., diagnosed peptic ulcer disease, esophageal strictures, or inflammatory bowel disease)

STATISTICAL ANALYSIS

Data was analyzed using The Statistical Package for Social Science Program-SPSS 29. Descriptive statistics were used to summarize the sociodemographic characteristics and prevalence of GERD among the participants. Inferential statistics,

including chi-square tests for categorical variables and independent t tests for normally distributed continuous variables, were used for group comparison.

RESULTS

A total of 250 medical students of different phases of MBBS participate. Heartburn (48.4%) and regurgitation (51.6%) were the most prevalent symptoms, regardless of whether they were occurring once per week, 2–3/week, and 4–7/week, followed by chest pain and nausea. Sleep disruption due to GERD symptoms and the use of over the counter (OTC) medications, antacids, H₂ blockers, or proton pump inhibitors (PPI)] were less frequent among participants, as demonstrated in Table 1.

Table 1: Frequency of GERD Symptoms per Week

Symptoms	Frequency (N=250)
Heartburn	176
Regurgitation	42
Chest pain	14
Nausea	18

The study included a total of 250 individuals with GERD, demonstrating a prevalence of 36.8%. Among the GERD group, 140 (56%) were males and 110 (44%) were females. In comparison, the non-GERD group comprised 152 (60.8%) males and 98 (39.2%) females. Participants were categorized based on their BMI into two groups: those with a BMI less than 25 kg/m² and those with a BMI of 25 kg/m² or higher. In the GERD group, 147 (58.8%) had a BMI less than 25 kg/m², while 103 (41.2%) had a BMI of 25 kg/m² or higher. In the non-GERD group, 185 (74%) had a BMI less than 25 kg/m², and 65 (26%) had a BMI of 25 kg/m² or higher. Regarding residence, 185 (74%) of the GERD group lived in urban areas and 65 (26%) in rural areas. Conversely, 195 (78%) of the non-GERD group resided in urban areas, while 55 (22%) lived in rural areas.

Table 2: Sociodemographic Data in Relation to GERD

Parameters	GERD	NO GERD	p value
Age (mean ± SD)	25 ±1.31	25.1 ±1.32	0.561
Sex			
Males	140 (56%) males	152 (60.8%) males	0.31
Females	110 (44%) females	98 (39.2%) females	
BMI			
< 25 kg/m ²	147 (58.8%)	185 (74%)	0.10
> 25 kg/m ²	103 (41.2%)	65 (26%)	
Residence			
Urban	185 (74%)	195 (78%)	0.29
Rural	65 (26%)	55 (22%)	

DISCUSSION

GERD is a widespread gastrointestinal disorder that is accompanied by an array of complications. The aim of this study was to evaluate the prevalence of gastro esophageal reflux disease (GERD) within the medical student community and to establish a correlation between GERD and specific critical variables, including lifestyle and a variety of risk factors. Our study showed that 37.6% of medical students suffer from GERD, which is deemed a relatively high percentage. These results are significantly lower than a similar study carried out in Taif and Riyadh that revealed a prevalence of 53.2% and 34.6%, respectively [14,15]. Adding to that, another study in Abha found the prevalence of GERD to be up to 67.8% [16]. However, another similar study carried out in Oman found the prevalence of GERD among their students to be 10.3% [17], which is notably lower than our findings. Both similar studies used the GERD to evaluate the likelihood of GERD and frequency of its symptoms, which concurs with our study. The prevalence of GERD where only one research published in 2024 addressed this phenomenon. This research revealed 17.1% of the Egyptian medical student population experienced GERD and its symptoms [18]. The difference in prevalence of GERD between our study and this study could be due to the difference in the number of covered universities, as they only covered 6 universities across Egypt compared to our [21]. Nevertheless, both results fall into the calculated prevalence of GERD in the Middle East of 8.7%–33.1% as found by a systematic review in 2013 [5]. The results of the current study indicated no significant correlation between age or sex and the frequency of GERD amongst participants. This coincides with the results of a population-based study in Arar City, Northern Saudi Arabia [19]. Nonetheless, a study carried out in India demonstrated a significant correlation between males and GERD [20]. University year was another sociodemographic variable that showed no association with the prevalence of GERD symptoms among medical students in the current study, which is supported by a recent study [21]. In relation to participants having a BMI higher than 25 kg/m², our study showed no correlation with the increased prevalence of GERD.

This is contrary to the findings of a study in India that discovered a positive correlation between a high BMI and the frequency of GERD symptoms [22]. The absence of a substantial correlation between GERD and a BMI higher than 25 kg/m² in our study may be ascribed to various causes. These factors encompass the dependence on weight measurements given by individuals themselves or the likelihood that weight fluctuations among university students may not accurately mirror those of the wider community. Regarding the elevated risk of GERD in participants with a positive family history of the disease revealed by our study, these results are in line with earlier studies conducted in Saudi Arabia amongst the student population [23]. Another study in Saudi Arabia investigating the prevalence of GERD among a more diverse population group and not only restricted to students also revealed a correlation between a positive family history and risk of GERD [24]. These findings indicate genetic variables could be attributed to cause GERD in some patients, which is also supported by a meta-analysis study on a Northern European population [25].

A notable risk factor for GERD is mental stress, which has been shown to exacerbate GERD symptoms in several ways in a Korean study [26]. This is also proven through the findings of the current study showing that 94.2% of participants that had GERD reported experiencing higher levels of stress after enrollment in medical school. Medical students are highly affected by psychological stress due to the demanding lifestyle that requires constant studying and frequent exams [27]. In addition, a study found that patients with GERD, especially those who also experienced chest pain, exhibited notably elevated levels of depression and anxiety [28]. These factors put the medical student population at a higher risk of developing GERD due to stress and consequently suffering from anxiety and depression.

CONCLUSION

GERD is one of many common medical problems that have been rampant amongst the medical student population in Egypt in recent times. This condition can impose a substantial health and financial burden given the high frequency of GERD, its impact on daily life, and the possibility of future complications. The rise in its prevalence can be attributable to many factors, including the stressful lifestyle adopted by many medical students and previous family history. This makes it necessary to introduce counseling programs for students that help them manage stress and spread awareness on this important topic through public health campaigns as our first step towards a GERD-free world

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