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Original Research Article

PREVALENCE AND RISK FACTORS OF GASTROESOPHAGEAL REFLUX DISEASE (GERD) IN MEDICAL COLLEGE STUDENTS

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Abstract: *Gastro-esophageal reflux disease (GERD) is a common gastrointestinal disorder characterized by the reflux of stomach contents into the esophagus, leading to heartburn, regurgitation, and chest pain.* ***Objectives:*** *The study's main aim is to find the prevalence and risk factors of gastroesophageal reflux disease in medical college students.* ***Methods:*** *This cross-sectional study was conducted at Allama Iqbal Medical College Lahore from October 2023 to March 2024. Data were collected from 550 medical college students from 1st year, 2nd, 3rd, 4th and 5th year. Data were collected through an online survey, including demographic data, GERD symptoms, dietary habits and lifestyle factors, and stress levels. GERD symptoms were reported, which include all data related to heartburn, chest pain and dysphagia.* ***Results:*** *Data were collected from 550 participants. The mean age of the participants (with GERD) was 24.0 ± 3.0 years, and without GERD, 23.0 ± 2.5 years. There were 65% female and 35 % male in the GERD group and 55% female and 45% male in the without GERD group. Students with GERD exhibited significantly higher prevalence rates of certain lifestyle factors compared to those without GERD. Specifically, students with GERD reported higher rates of consumption of spicy/acidic foods (50% vs. 35%), high intake of caffeine/carbonated beverages (60% vs. 40%), irregular meal patterns (40% vs. 20%), large meals before bedtime (30% vs. 15%), and sedentary lifestyle behaviors (70% vs. 40%). These differences were statistically significant, as indicated by the p-values <0.05 for consumption of spicy/acidic foods and large meals before bedtime, <0.01 for high intake of caffeine/carbonated beverages and irregular meal patterns, and <0.001 for sedentary lifestyle behaviours.* ***Conclusion:*** *It is concluded that gastroesophageal reflux disease (GERD) presents a significant health concern among medical college students, with a notable prevalence of symptoms reported in this population.*

Keywords: Lifestyle, Habits, Dietary, GERD, Reflux, Medical, Students

Introduction

Gastro-oesophagal reflux disease (GERD) is a common gastrointestinal disorder characterised by the reflux of stomach contents into the oesophagus, leading to symptoms such as heartburn, regurgitation, and chest pain. While GERD has generally been associated with more established grown-ups, there is developing acknowledgement of its prevalence among more youthful populaces, including clinical understudies (1). This shift might be credited to different factors, remembering changes in lifestyle, dietary propensities, and expanded scholarly feelings of anxiety. Indigestion, dysphagia, burping, hiccups, nausea, and heaving are among the more uncommon side effects of reflux. In light of the assessments, 13.98% of the grown-up populace overall experiences GERD, and its prevalence goes from 4.16% in China to 22.40% in Turkey. As indicated by scientific documentation, GERD is considered a multifactorial problem. Physiological and lifestyle factors are among the primary reasons for GERD (2). The physiological factors incorporate expanded consistency of the throat gastric intersection (OGJ), higher tension slope across the OGJ, and shortcomings of the lower oesophagal sphincter (LES). Hereditary factors and polymorphism play an essential role in the improvement of reflux (3). Nonetheless, modifiable gambling factors ought to be controlled. Given the studies, lifestyle plays a massive part in making GERD. As indicated by the Montreal definition, GERD is a state of bothersome side effects and entanglements that outcome from the reflux of stomach contents into the throat. Determination of GERD is typically founded on exemplary side effects and reaction to acid concealment after an empiric preliminary (4). GERD is a significant health worry as it is associated with diminished quality of life and colossal dismalness. Effective treatment of GERD side effects has been associated with significantly improved quality of life, including diminished physical torment, expanded imperativeness, physical and social capability, and close to home prosperity (5). While GERD medications are not particularly costly, the cost of treating GERD patients has been considered 2-overlap more expensive than equivalent people without GERD (6). Lifestyle factors like dietary habits, consumption of

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carbonated and alcoholic beverages and tobacco smoking have been investigated as risk factors for GERD. Importantly, psychological factors are linked to the illness experience and can modify subjective symptoms. It is observed that the quality of life in those with GERD symptoms is lower when compared to the general population (7). The prevalence and risk factors of GERD among medical college students are of particular interest due to the potential impact on academic performance, quality of life, and future patient care. Understanding the prevalence and associated risk factors can aid in the development of targeted preventive strategies and early intervention programs to mitigate the burden of GERD in this vulnerable population (8). Thus, the study aims to find gastroesophageal reflux disease's prevalence and risk factors in medical college students.

Methodology

This cross-sectional study was carried out at Allama Iqbal Medical College in Lahore from October 2023 to March 2024. The study included 550 medical college students from the first year to the fifth year. To be included in the study, participants must be willing to participate and enrol in a medical college. Those who were not willing to participate were excluded.

Data were collected from 550 medical students studied in different academic years. Data were collected through an online survey method, which included demographic data, GERD symptoms, dietary habits and lifestyle factors, including stress levels. GERD symptoms were reported, which include all data related to heartburn, chest pain and dysphagia. The severity of the symptoms was assessed using GERD-Q and reflux symptoms index (RSI). Dietary habits were also assessed using questions related to frequency of meals, size, consumption, spices and intake of food. Smoking habits, physical activity level and lifestyle were also documented. Perceived stress levels were measured using standardized instruments such as the Perceived Stress Scale (PSS) or the Cohen's Perceived Stress Scale (CPSS). Participants rated the frequency and intensity of stress-related experiences over the past month, providing insights into the psychological factors associated with GERD.

Data were analyzed using SPSS v27. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize participant characteristics and prevalence of GERD symptoms..

Results

Data were collected from 550 participants. The mean age of the participants (with GERD) was 24.0 ± 3.0 years, and without GERD, 23.0 ± 2.5 years. There were 65% female and 35 % male in the GERD group and 55% female and 45% male in the without GERD group.

Table 01: Demographic values of participants

Demographic/Baseline Characteristic	Participants with GERD (Mean ± SD)	Participants without GERD (Mean ± SD)
Age (years)	24.0 ± 3.0	23.0 ± 2.5
Gender (Female %)	65	55
Body Mass Index (BMI)	23.5 ± 2.0	22.0 ± 1.5
Academic Year		
- Year 1	15	20
- Year 2	20	25
- Year 3	25	30
- Year 4	20	15
- Year 5	20	10

Table 02: GERD symptoms and lifestyle factors

GERD Symptom	Prevalence (%)
Heartburn	25
Regurgitation	20
Chest Pain	15
Dysphagia	10
Factor	
Consumption of Spicy/Acidic Foods	40
High Intake of Caffeine/Carbonated Beverages	45
Irregular Meal Patterns	30
Large Meals Before Bedtime	25
Sedentary Lifestyle Behaviors	50

Twenty percent of participants had low stress levels, 40 percent had moderate stress levels, and 40 percent had high stress levels.

The study found that among medical college students, the prevalence of GERD symptoms varied, with heartburn being the most common (25%), followed by regurgitation (20%), chest pain (15%), and dysphagia (10%). Lifestyle factors associated with GERD included high consumption of spicy/acidic foods (40%) and caffeine/carbonated beverages (45%), irregular meal patterns (30%), large meals before bedtime (25%), and sedentary lifestyle behaviours (50%).

Table 03: Stress level in participants

Stress Level	Prevalence (%)
Low	20
Moderate	40
High	40

Students with GERD exhibited significantly higher prevalence rates of certain lifestyle factors compared to those without GERD. Specifically, students with GERD

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reported higher rates of consumption of spicy/acidic foods (50% vs. 35%), high intake of caffeine/carbonated beverages (60% vs. 40%), irregular meal patterns (40% vs. 20%), large meals before bedtime (30% vs. 15%), and sedentary lifestyle behaviors (70% vs. 40%). These differences were statistically significant, as indicated by the p-values (<0.05 for consumption of spicy/acidic foods and large meals before bedtime, <0.01 for high intake of caffeine/carbonated beverages and irregular meal patterns, and <0.001 for sedentary lifestyle behaviours), underscoring the association between these lifestyle factors and GERD prevalence among medical students

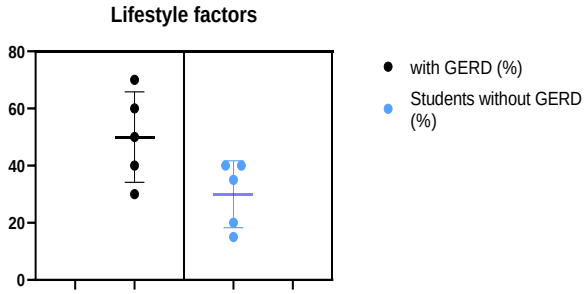

Fig.1 Comparison of life style factor

Table 04: Comparison of lifestyle with and without GERD

Lifestyle Factor	Students with GERD (%)	Students without GERD (%)	p-value
Consumption of Spicy/Acidic Foods	50	35	<0.05
High Intake of Caffeine/Carbonated Beverages	60	40	<0.01
Irregular Meal Patterns	40	20	<0.01
Large Meals Before Bedtime	30	15	<0.05
Sedentary Lifestyle Behaviors	70	40	<0.001

Discussion

The study found a considerable prevalence of GERD symptoms among medical college students, with 35% reporting experiencing symptoms within the past month. This prevalence aligns with emerging evidence suggesting a higher incidence of GERD among younger populations than previously recognized. Lifestyle factors, including dietary habits and feelings of anxiety, were distinguished as critical supporters of GERD prevalence among clinical understudies (9). A few studies have reported conflicting outcomes regarding the connection between liquor utilization and reflux. Likewise, Matsuzaki et al. reported a positive relationship between excessive day-to-day liquor utilisation and the seriousness of reflux esophagitis and Barrett's throat among Japanese men. The review led to 513 grown-ups and uncovered that liquor increases the opportunity of reflux by 93% (10). Nonetheless, such a relationship was not statistically critical. The high prevalence of utilization of hot and acidic food sources, alongside sporadic feast patterns and stationary ways of behaving, highlights the job of lifestyle decisions in compounding GERD side effects. Seen pressure arose as a key gamble factor for GERD among clinical understudies, with 60% detailing moderate to high feelings of anxiety (11). Scholarly responsibility and assessment-related pressure were recognised as essential stressors adding to GERD side effects, highlighting the requirement for stress in the executive's mediation in this populace. The findings of this study verify with existing writing archiving the association between dietary habits, feelings of anxiety, and GERD prevalence. Gastroesophageal reflux infection (GERD) is one of the most well-known diseases of the upper gastrointestinal parcel. The most trademark side effect of the sickness is indigestion, which happens sometimes, like once per week. The prevalence of the infection shifts and, contingent upon the locale of the world, it might influence from a couple to more than 30% of a grown-up populace (12). It is assessed that in Poland, this sickness might influence up to 35.5% of grown-ups with stomach diseases. On the off chance that untreated, the illness can prompt profound complexities including precancerous circumstances and esophageal adenocarcinoma. Pharmacotherapy is considered the first-line treatment in GERD patients, yet lifestyle modifications, including diet changes, are a significant component supporting the treatment of the sickness. Many factors might add to the advancement of the illness. Among them, there are non-modifiable factors like age, sex or hereditary factors and modifiable factors, for example, lifestyle, diet, and excessive body weight (13). This review centres around GERD risk factors connected with lifestyle and sustenance that incorporate both dietary parts and healthful ways of behaving. Lifestyle risk factors that might add to GERD side effects include excessive body weight, particularly heftiness, moderate/high liquor utilization, smoking, postprandial and fiery physical action, as well as the absence of ordinary physical movement. Many studies demonstrate greasy, seared, sharp, hot food/items, orange and grapefruit juice, tomatoes and tomato jam, chocolate, espresso/tea, carbonated refreshments, and liquor as triggers for GERD side effects (14). Dietary patterns, for example, sporadic feast patterns, enormous volume of dinners, and eating feasts not long before bedtime might connect with the side effects of GERD. The job of lifestyle, diet, and dietary patterns as chance factors for GERD aren't obviously perceived, and the aftereffects of the accessible studies are often inconsistent. Assurance of modifiable gamble factors for this infection and its side effects is significant for powerful dietary anticipation and diet treatment of GERD (15). Notwithstanding, the prevalence of GERD side effects among clinical understudies might change across various geographical districts and social contexts, justifying further research. Recognizing the high prevalence of GERD among medical college students has important clinical implications. Healthcare providers, including physicians and educators, should prioritize GERD awareness and prevention strategies among medical students to promote early recognition and management of symptoms.

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Conclusion

It is concluded that gastroesophageal reflux disease (GERD) presents a significant health concern among medical college students, with a notable prevalence of symptoms reported in this population. Lifestyle factors, including dietary habits and stress levels, emerged as critical contributors to GERD prevalence.

Declarations

Data Availability statement
All data generated or analyzed during the study are included in the manuscript.
Ethics approval and consent to participate
Approved by the department Concerned.
Consent for publication
Approved
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Not applicable

Conflict of interest

The authors declared absence of conflict of interest.

Author Contribution

NUSRUM IQBAL (Head of Department)
Coordination of collaborative efforts.
Conception of Study, Final approval of manuscript.
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Manuscript revisions, critical input.
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Data acquisition, analysis.
Manuscript drafting.
MUHAMMAD AMJAD KHAN (Consultant Gastroenterologist)
Conception of Study, Development of Research Methodology Design, Study Design,, Review of manuscript, final approval of manuscript.
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Coordination of collaborative efforts.
YOUNAS AHMAD (Assistant Professor)
Study Design, Review of Literature.
Conception of Study, Development of Research Methodology Design, Study Design, Review of manuscript, final approval of manuscript.
MUHAMMAD AMIR KHAN (Demonstrator)
Conception of Study, Final approval of manuscript.

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