

Gastroesophageal Reflux Disease: Population-Based Study in Tertiary Care Hospital, Karachi

Humaira Zakir¹, Waqas Manzoor², Shafi Muhammad Wassan³, Syed Muhammad Hasan⁴,
Huma Ahsan Ali⁵ and Amel Hanan Zehra⁶

ABSTRACT

Objective: A population-based study to determine the prevalence of GERD as well as the correlation of symptoms of GERD with Gender.

Study Design: Cross-sectional analytical study

Place and Duration of Study: This study was conducted at the Al-Tibri medical college and Hospital from November 2021 to November 2022.

Materials and Methods: 300 patients were selected for the study which took place in three different clinical settings. Data was obtained through non-probability sampling technique in which patients with a positive symptomatic history of gastroesophageal reflux disease were included after obtaining verbal consent from them. Data was collected through a validated adopted questionnaire. Data was analyzed using SPSS version 24.0 with the Chi-square test being used for evaluation of the correlation. The level of significance was set at $P < 0.05$.

Results: In the study 59% were Male participants with a mean age of 42.34 ± 1.21 , and 42% were female with a mean age of 49.64 ± 2.31 . Most of the participants fall in the middle-class status. Male population showed a positive correlation and significant difference when correlated with symptoms of heart burn ($p=0.035$) and regurgitation ($p=0.011$), similarly significant difference was seen with the female population when correlated with heart burn ($p=0.041$) and regurgitation ($p=0.057$). Patients experienced symptoms of mild regurgitation the most (68%), while moderate level of heart burn (55%) was experienced in the sample size.

Conclusion: A positive association was observed between the presence of heartburn symptoms and regurgitation symptoms in patients diagnosed with gastroesophageal reflux disease (GERD), irrespective of their gender.

Key Words: Gastroesophageal Disease, Reflux, Population-Based Study, Tertiary Care Hospital

Citation of article: Zakir M, Manzoor W, Wassan SM, Hasan SM, Ali HA, Zehra AH. Gastroesophageal Reflux Disease: Population-Based Study in Tertiary Care Hospital, Karachi. Med Forum 2023;34(5):84-87.

INTRODUCTION

A disease pertaining to the Gastrointestinal tract motility is termed as Gastroesophageal reflux disease (GERD), in which the gastric contents of the stomach are regurgitated back into the esophagus. GERD is a very common clinical issue faced by millions of people across the globe.²

Only in North America, is there a prevalence of 18.1%-27.8%, with almost half of all the adult population reporting symptoms of reflux during their adulthood.³ GERD occurs basically due to an issue with the lower esophageal sphincter of the GI tract. Factors which affect the sphincter can either be pathological or physiological. The most common symptom of GERD is said to be heartburn, with some interpreting the symptoms of GERD as a sign of an ongoing heart attack. That's why GERD is the most common cause of chest pain which is not related to any cardiac pathology.⁴ It's not necessary that all the reflux incidents are symptomatic, however, if reflux does take place, it leaves the patient with a sour taste in the mouth. If this is left untreated, GERD can result in many undesirable consequences which include Esophagitis and Barrett's esophagus.^{5,6} GERD is a manageable disease, with treatment commencing from medications and lifestyle modifications, followed by more aggressive and interventional treatment options which includes magnetic sphincter augmentation, laparoscopic fundoplication, and endoscopic therapy.⁷ The prevalence of GERD in Pakistan is said to be between 24-35%.^{8,9} Symptoms aside, GERD really tends to impact the quality of life. The effect on quality

¹. Department of Medicine / Gastroenterology², Al-Tibri Medical College Karachi.

³. Department of Community Medicine GMMC Sukkur.

⁴. Department of Medicine. National Institute of Diabetes and Endocrinology. Dow University of Health Sciences, Karachi.

⁵. Consultant, Private Practice

⁶. Dr. Ruth Pfau K.M. Civil Hospital, Karachi

Correspondence: Dr. Humaira Zakir, Assistant Professor of Medicine, Al-Tibri Medical College Karachi.

Contact No: 03333066824

Email: humairazakir59@gmail.com

Received: January, 2023

Accepted: March, 2023

Printed: May, 2023

of life due to GERD has been assessed multiple times, with many individuals having to seek time off work and also reduce physical activity due to the disease.¹⁰ Considering the prevalence of GERD in Pakistan, and the number of epidemiological researches associated with GERD in Pakistan being scarce, a cross-sectional analytical study was conducted to determine the prevalence of the disease as well as to find any correlation associated with its symptoms..

MATERIALS AND METHODS

Total 300 numbers of patients were included in this study. The study was done from November 2021 to November 2022. This cross-sectional analytical study was performed after taken an ethical approval from ethical committee. The study was performed at three different clinical settings, major portion of the study was performed at Al-Tibri medical college and Hospital. Data were collected though non-probability sampling technique, and positive symptomatic patients with gastroesophageal reflux disease were included in this study. Patients with age of 20 and above from different socioeconomical status and both genders were included. Patients refused to participate while taking a verbal consent, patient on treatment and other metabolic disease were excluded along with other autoimmune related conditions. The well-designed questionnaire was adopted for data collection and descriptive statistical analysis was done on SPSS version 24.0. Chi-square test was used to evaluate the correlation and the level of significance was set at $P < 0.05$.

RESULTS

Table No. 1: Represents the demographic data of the study which includes the number of male and female that participated in the study as well as the socioeconomic status of the participants of the study represented in frequency. The mean age of the male and female participants is represented in the form of mean and standard deviation.

Table No. 1: Demographic Data of the study

	Male	Female	
Total Sample size (300)	59%	41%	100%
Socioeconomical Status			
High	21%	Mean Age	
Middle	42%	Male	42.34± 1.21
Low	37%	Female	49.64 ± 2.31

Table No. 2: Represents the correlation between gender and symptoms. Positive correlation and significance difference was seen in Male and Female when

correlated with heart burn, as well as when correlated with regurgitation.

Figure No. 1: Shows the percentage of Gastroesophageal reflux diseases-based symptoms.

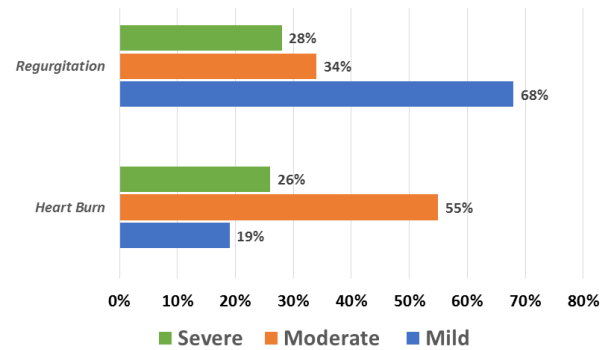


Figure No. 1: shows Percentage of GRE based symptoms

Table No. 2: Correlation between Gender & symptoms

Male	Heart Burn	0.035	Positive correlation
Female	Heart Burn	0.041	
Male	Regurgitation	0.011	
Female	Regurgitation	0.057	
Chi-square test applied $P < 0.05$			

DISCUSSION

Our study had 59% male participants and 41% female participants. A similar study to our one included 308 participants out of which 55.2% were female and 44.8% were male.¹¹ The very same study mentioned earlier found that a high BMI, history of chronic smoking, past diseases, constant use of NSAIDs for medication, carbonated drinks, and lastly consumption of spicy food has a significantly strong association with GERD. A sedentary lifestyle in which the amount of physical activity being done, along with having late nights, less sleep, smoking excessive, and immediately lying after dinner was also associated with GERD by another study.¹² The mean ages of both male and female population were more than 40. An epidemiological study showed that there isn't any increase in symptoms of GERD with increasing age, but did went onto mention that ageing does lead to a much more severe level of reflux esophagitis and acid reflux. The study by Becher et al also mentioned further in the study that symptoms that are in line with GERD are less in severity and become more specific with ageing, ultimately being that prevalence of GERD may as well increase with age.¹³ Another study carried out in Iran also mentioned the same finding that the prevalence of GERD tends to increase with age.¹⁴ GERD is no longer

just a serious and unresolving problem of the western countries of the world, but it's now at large effecting the entire world and major attention needs to be placed towards this disease if its prevalence is to be halted. The most threatening consequence that can arise with GERD is the eventual development of adenocarcinoma of the esophagus. The reflux of acid from the stomach due to the reduced tonicity of the lower esophageal sphincter leads to two common and troublesome symptoms of GERD, one being heartburn and the other being regurgitation.¹⁵ Heartburn is characterized by burning in the chest which also occurs in adjunct to bitter or sour taste in the mouth, medically heartburn is termed as pyrosis. Regurgitation, however, is the backflow of the contents of the stomach back into the throat or even the mouth. Unlike vomiting, regurgitation is a passive process in which there is no forceful contractions taking place which is typically seen in vomiting. In both male and female participants of our study, a positive and significant correlation was found to be associated with both heartburn and regurgitation. A study by KIM showed similar findings to ours, but also stated that symptoms of regurgitation and heartburn are more frequently reported by woman than by men, also showing that gender does play a role in the perception of symptoms when it comes to patients suffering from GERD.¹⁶ Another study also found that both the severity and the frequency of symptoms are said to be greater in female than in males. Although the major symptoms of GERD with which mostly the patients tend to visit the doctors are heartburn and regurgitation, which is what we evaluated in this study, there are also extraesophageal symptoms seen in patients with GERD that include cough, asthma, laryngitis, aspiration pneumonia sleep apnea, arrhythmias, and dental erosions.¹⁷ These extra-esophageal symptoms should be looked at in future studies. In our study, most of the participants belong to the middle-class status of the society. Studies do show that there is a positive association between socioeconomic status and GERD.¹⁸

CONCLUSION

Males affected with GERD were more than female, with the middle-class sector being most affected with GERD. Regardless of gender a positive correlation existed between symptoms of heartburn and regurgitation in patients suffering from GERD.

Author's Contribution:

Concept & Design of Study: Humaira Zakir
 Drafting: Waqas Manzoor, Shafi Muhammad Wassan
 Data Analysis: Syed Muhammad Hasan, Huma Ahsan Ali, Amel Hanan Zehra
 Revisiting Critically: Humaira Zakir, Waqas

Manzoor

Final Approval of version: Humaira Zakir

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. Kellerman R, Kintanar T. Gastroesophageal reflux disease. Primary Care: Clinics in Office Practice 2017;44(4):561-73.
2. Clarrett DM, Hachem C. Gastroesophageal reflux disease (GERD). Missouri Med 2018;115(3):214.
3. El-Serag HB, Sweet S, Winchester CC, Dent J. Update on the epidemiology of gastro-oesophageal reflux disease: a systematic review. Gut 2014; 63(6):871-80.
4. Bredenoord AJ, Weusten BL, Curvers WL, Timmer R, Smout AJ. Determinants of perception of heartburn and regurgitation. Gut 2006; 55(3):313-8.
5. Shaheen NJ, Richter JE. Barrett's oesophagus. The Lancet 2009;373(9666):850-61.
6. Ronkainen J, Aro P, Storskrubb T, Johansson SE, Lind T, Bolling-Sternevald E, et al. High prevalence of gastroesophageal reflux symptoms and esophagitis with or without symptoms in the general adult Swedish population: a Kalixanda study report. Scandinavian J Gastroenterol 2005; 40(3):275-85.
7. Gyawali CP, Fass R. Management of gastroesophageal reflux disease. Gastroenterol 2018;154(2):302-18.
8. Karim S, Jafri W, Faryal A, Majid S, Salih M, Jafri F, et al. Regular post-dinner walk: Can be a useful lifestyle modification for gastroesophageal reflux. J Pak Med Assoc 2011;61:526-30.
9. Jafri N, Jafri W, Yakoob J, Islam M, Manzoor S, Jalil A, et al. Perception of gastroesophageal reflux disease in urban population in Pakistan. J Coll Physicians Surg Pak 2005;15:532-4.
10. Lail G, Hanif FM, Lail A, Haque MM, Tasneem AA, Luck NH. Factors influencing quality of life in patients with gastroesophageal reflux disease in a tertiary care hospital in Pakistan. J Coll Physicians Surg Pak. 2019 Sep 1;29(9):882-5.
11. Rasool MF, Sarwar R, Arshad MS, Imran I, Saeed H, Majeed A, et al. Assessing the Frequency and Risk Factors Associated with Gastroesophageal Reflux Disease (GERD) in Southern Punjab, Pakistan. Risk Management and Healthcare Policy 2021;11:4619-25.
12. Ahmed S, Jamil S, Shaikh H, Abbasi M. Effects of Life style factors on the symptoms of gastro esophageal reflux disease: a cross sectional study in a Pakistani population. Pak J Med Sci 2020; 36(2):115.

13. Becher A, Dent J. Systematic review: ageing and gastro-oesophageal reflux disease symptoms, oesophageal function and reflux oesophagitis. *Alimentary Pharmacology Therapeutics* 2011; 33(4):442-54.
14. Ehsani MJ, Maleki I, Mohammadzadeh F, Mashayekh A. Epidemiology of gastroesophageal reflux disease in Tehran, Iran. *J Gastroenterol Hepatol* 2007;22(9):1419-22.
15. Mahfouz R, Barchuk A, Obeidat AE, Mansour MM, Hernandez D, Darweesh M, et al. The relationship between obstructive sleep apnea (OSA) and gastroesophageal reflux disease (GERD) in inpatient settings: a nationwide study. *Cureus* 2022;14(3).
16. Kim YS, Kim N, Kim GH. Sex and gender differences in gastroesophageal reflux disease. *J Neurogastroenterol Motility* 2016;22(4):575.
17. Asreah RH, Abdullhameed A. Risk factors of erosive esophagitis and barrett's esophagus in patients with reflux symptoms. *Med J Islamic Republic Iran* 2021;35:75.
18. Jansson C, Nordenstedt H, Wallander MA, Johansson S, Johnsen R, Hveem K, et al. A population-based study showing an association between gastroesophageal reflux disease and sleep problems. *Clin Gastroenterol Hepatol* 2009; 7(9):960-5.