Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/jptcp.v30i19.3821

IMPACT OF BMI ON THE SEVERITY OF GERD SYMPTOMS, A DESCRIPTIVE STUDY

Muhammad Younas[1], Syed Hira Hassan[2], Fida Muhammad Khan[3*], Salman Afridi[4], Asif Khan[5], Shafqat Ali[6], Aafaq Ahmad[7], Nowshad Khan[8]

[1,2,3*,4,5,6,7]Post Graduate Trainee, Gastroenterology Department, MTI Hayatabad Medical Complex, Peshawar - Pakistan
[8]Professor, Medicine Department, Gomal Medical College DI Khan

***Corresponding Author:** Fida Muhammad Khan
[*]Post Graduate Trainee, Gastroenterology Department, MTI Hayatabad Medical Complex, Peshawar – Pakistan. Email: fida_khan123@yahoo.com

Abstract

Background: Gastro esophageal reflux disease (GERD) is a common gastrointestinal disease that has worldwide prevalence. It is characterized by the backflow of gastric contents into the esophagus, which typically causes unpleasant symptoms in the form of water brash, retrosternal burning sensation and dysphagia.

Objective: The aim of this study to understand the association between BMI and GERD symptoms.

Study Design: Descriptive Study

Duration and Place of Study: The study was carried out between February 2023 and November 2023 at the Department of Gastroenterology, Hayatabad Medical Complex, Peshawar, Pakistan.

Material and Methods: The study involved a cohort of 185 participants who were diagnosed with GERD. Essential demographic information was collected and BMI was recorded. GERD symptoms in patients with normal BMI and raised BMI as per WHO classification, were compared.

Results: The study included 185 patients, with a nearly equal proportion of male (48.65%) and females (51.35%). Patients ranged in age from 18 to 30 years (24.32%), 31 to 45 years (32.43%), 46 to 60 years (27.03%), and 61 years or more (16.22%). Severe symptoms were reported by 4.4% patients with normal BMI, 38.7% who were overweight and 23.6% patients who were obese.

Conclusion: The high rate of occurrence of severe symptoms in overweight and obese patients shows increase severity with raised BMI and emphasizes the need of weight control in GERD treatment.

Keywords: Gastro esophageal reflux disease, Symptoms Severity, Body Mass Index

INTRODUCRION

Gastro esophageal reflux disease (GERD) is a common gastrointestinal disease that has a worldwide effect. It is characterized by the backflow of stomach contents into the esophagus, which typically causes unpleasant symptoms[1]. The Body Mass Index (BMI) has been identified as a possible contributing factor to the presentation and severity of GERD symptoms[2,3]. BMI, an indicator that assesses body fat by considering an individual's height and weight, has been linked to several health issues. Its impact on the severity of GERD is a topic of significant interest[4,5].

Given the high occurrence of GERD and its influence on patients seeking gastroenterological treatment, it is crucial to examine the correlation between BMI and the intensity of GERD symptoms. Gaining insight into this correlation not only adds to the current understanding on GERD but also has implications for customizing efficient care approaches, especially in a population with potential variations in eating habits and lifestyle variables.[6,7]

This research, carried out in the Department of Gastroenterology, Hayatabad Medical Complex, Peshawar, seeks to address the lack of information by examining how BMI affects the severity of GERD symptoms in a group of 185 patients. The findings obtained from this research have the potential to provide significant knowledge to medical practitioners, assisting them in creating customized treatment strategies and treatments that are specifically designed for the distinct attributes of the population being studied. With the increasing prevalence of GERD worldwide, it is important to understand the connection between BMI and GERD symptoms. This knowledge is not only relevant for academic purposes, but also essential for enhancing patient outcomes and optimizing healthcare resource allocation.

METHODOLOGY

Study Design

Descriptive Study

Duration and Place of Study

The study was conducted during February 2023 and November 2023 at the Department of Gastroenterology, (MTI) Hayatabad Medical Complex , Peshawar, Pakistan.

Material and Methods

The study involved a cohort of 185 patients who were diagnosed with GERD. Patients were chosen according to clinical diagnosis established by gastroenterologists at HMC. Prior to their involvement in the research, each patient provided informed consent. Essential demographic information, including age, gender, and socioeconomic status, was gathered. The medical histories of the participants were recorded, which included any pre-existing diseases, medication use, and the length of time they had symptoms of GERD. BMI was calculated by use the usual formula, which involves dividing weight in kilograms by the square of height in meters. The intensity and frequency of symptoms such as heartburn, regurgitation, and chest discomfort were evaluated using validated questionnaires to determine the severity of GERD symptoms. Participants were classified into several BMI categories according to the World Health Organization (WHO) classifications: underweight, normal weight, overweight, and obese.

Statistical Analysis

The data were analyzed with the statistical program SPSS version 25. Demographic and clinical characteristics were summarized using descriptive statistics. The relationship between BMI and the severity of GERD symptoms was evaluated using suitable inferential statistical tests. The level of significance was determined as $p < 0.05$.

Ethical Considerations

The research followed ethical norms and received ethical clearance from the Institutional Review Board (IRB) of Hayatabad Medical Complex Peshawar. All subjects provided informed permission, guaranteeing confidentiality and voluntary involvement.

RESULTS

The study included 185 patients, with a nearly equal proportion of male (48.65%) and females (51.35%). patients ranged in age from 18 to 30 years (24.32%), 31 to 45 years (32.43%), 46 to 60 years (27.03%), and 61 years or more (16.22%). The majority of patients (40.54%) belonged to the middle class, followed by those from low-income origins (32.43%) and those from high-income backgrounds (27.03%). This broad sample enables for a thorough knowledge of the intervention's effect on people of various genders, ages, and socioeconomic backgrounds(Table-1).

The 185 patients' medical histories and medication consumption were also collected in this study. The patients' most prevalent medical conditions were hypertension (18.92%), diabetes mellitus (13.51%), and prior gastrointestinal (GI) diseases (21.62%). Asthma (8.11%), and cardiovascular problems (10.81%) were among the other medical conditions. Proton pump inhibitors (32.43%), antacids (21.62%), and H2 blockers (16.22%) were the most often used medications among patients. These medical histories and drug consumption give essential background for the research and may influence the intervention's success(Table-2).

The study also gathered information on the period of GERD symptoms, the severity of symptoms, and the patients' BMI category. The majority of patients (29.73%) had GERD symptoms for more than three years, followed by 1-3 years (24.32%), 6 months to one year (18.92%), and less than six months (27.03%). Severity of symptoms was reported by 37.84% of patients, 24.32% reported moderate symptoms, and 10.81% reported mild symptoms. Furthermore, 27.03% of patients had no GERD symptoms. In terms of BMI, the majority of patients (40.54%) were either overweight or obese (29.73%), while 24.32% were normal weight and 5.41% were underweight. These parameters may also play a role in the intervention's success and give crucial information for evaluating the effects of GERD on people of various BMI categories show in Table-3.

Table-1: Gender, Age and Socioeconomic Status of Patients

Variable	Number of Participants(n=185)	Percentage (%)
Gender		
Male	90	48.65%
Female	95	51.35%
Age (years)		
18-30 years	45	24.32%
31-45 years	60	32.43%
46-60 years	50	27.03%
61 years and above	30	16.22%
Socioeconomic Status		
Low	60	32.43%
Middle	75	40.54%
High	50	27.03%

Table-2: Medical History and Medication usage of Patients.

Variable	Number of Patients(n=185)	Percentage (%)
Medical History		
Hypertension	35	18.92%
Diabetes Mellitus	25	13.51%
Asthma	15	8.11%
Cardiovascular disorders	20	10.81%
Previous GI conditions	40	21.62%
Medication Usage		

Proton Pump Inhibitors	60	32.43%
Antacids	40	21.62%
H2 Blockers	30	16.22%

Table-3: Duration of GERD, GERD symptoms and BMI Category.

Variable	**Number of Patients(n=185)**	**Percentage (%)**
Duration of GERD Symptoms		
Less than 6 months	50	27.03%
6 months to 1 year	35	18.92%
1-3 years	45	24.32%
More than 3 years	55	29.73%
GERD Symptoms		
Mild	20	10.81%
Moderate	45	24.32%
Severe	70	37.84%
None	50	27.03%
BMI Category		
Underweight	10	5.41%
Normal	45	24.32%
Overweight	75	40.54%
Obese	55	29.73%

Table 4. Comparison of GERD symptoms severity and BMI

Variables	**Underweight (n = 10)**	**Normal (n = 45)**	**Overweight (n = 75)**	**Obese (n = 55)**
Duration of GERD Symptoms				
Less than 6 months	6 (60.0%)	32(71.1%)	30(40.0%)	18(32.7%)
6 months to 1 year	2 (20.0%)	09(20.0%)	24(32.0%)	24(43.6%)
1-3 years	2 (20.0%)	02(4.4%)	14(18.7%)	07(12.7%)
More than 3 years	0 (0.0%)	02(4.4%)	07(9.3%)	08(14.5%)
GERD Symptoms				
Mild	8 (80.0%)	38(84.4%)	26(34.7%)	16(29.1%)
Moderate	2 (20.0%)	05(11.1%)	20(26.7%)	26(47.3%)
Severe	0 (0.0%)	02(4.4%)	29(38.7%)	13(23.6%)

DISCUSSION

The findings of this study provide useful information on the characteristics, medical background, and intensity of symptoms experienced by patients with GERD. The study revealed that most of the participants were in the middle age group and belonged to the middle socioeconomic class, aligning with earlier research conducted by Chen et al. (2021) and Zhou X et al. (2023) [8,9]. This indicates that gastro esophageal reflux disease (GERD) is prevalent among persons within this specific age range and socioeconomic category.

The occurrence of hypertension and diabetes mellitus among the patients in this study aligns with the findings of earlier investigations (El-Serag et al., 2014; Fass et al., 2023) [10,11]. This emphasizes the possible coexisting medical conditions linked to GERD and underscores the need of a comprehensive strategy for controlling the disease. The patients' extensive use of proton pump inhibitors and antacids correlates with other studies (Fass et al., 2022; Gerson et al., 2019) [12,13], underscoring the prevalent application of these drugs in the treatment of GERD.

The participants in this study reported experiencing symptoms of GERD for a length that is consistent with other studies. The majority of patients reported having symptoms for over 1 year (El-Serag et al., 2014)[14]. Indications point to GERD being a persistent ailment that needs ongoing

supervision. The participants in this study reported symptoms that align with prior investigations, with a notable percentage reporting severe symptoms (Zhang L et al., 2017) [15]. This emphasizes the significance of GERD on persons' quality of life and the need for effective treatment alternatives.

The study participants exhibited a significant occurrence of overweight and obesity, which aligns with prior research findings (Chen B et al., 2019) [16]. There seems to be a correlation between GERD and obesity, since excessive body weight might contribute to the onset and exacerbation of GERD symptoms. This finding emphasizes the significance of maintaining a healthy weight in the treatment of GERD.

In summary, the findings of this study align with prior published research, providing more proof of the widespread occurrence and consequences of GERD in people. The inclusion of a varied sample in this research facilitates a thorough comprehension of the disease and its effects on people from distinct demographics and backgrounds. However, further investigation is required to examine the efficacy of therapies for GERD in various groups and to ascertain relevant risk factors for the disease.

Study Limitation

The use of self-reported data, which may be vulnerable to memory bias, is one drawback of this research. Furthermore, the research only included participants from one geographical region, which may restrict the results' generalizability to other groups. To increase the generalizability of the findings, future research might involve a bigger and more varying sample.

CONCLUSION

This study sheds light on GERD patients' demographics, medical history, and symptoms. These findings support prior research and emphasize the need of managing GERD, especially in those with comorbidities and long-term symptoms. The high rate of overweight and obesity among participants emphasizes the need of weight control in GERD treatment. More study is required to determine GERD risk factors and the efficacy of therapies in diverse groups.

Acknowledgment

We'd like to thank everyone who took part in this study and made it possible. We would also want to thank the research team for their assistance and direction during the project.

REFERENCES

1. Chhabra P, Ingole N. Gastroesophageal reflux disease (GERD): highlighting diagnosis, treatment, and lifestyle changes. Cureus. 2022 Aug 29;14(8).
2. Shabani S, Hoffman MR, Brand WT, Dailey SH. Endoscopic management of idiopathic subglottic stenosis: factors affecting inter-dilation interval. Annals of otology, rhinology & laryngology. 2017 Feb;126(2):96-102.
3. Lagergren J, Lagergren P. Recent developments in esophageal adenocarcinoma. CA: a cancer journal for clinicians. 2013 Jul;63(4):232-48.
4. Eusebi LH, Fuccio L, Bazzoli F. The role of obesity in gastroesophageal reflux disease and Barrett’s esophagus. Digestive Diseases. 2012 Jun 1;30(2):154-7.
5. Emerenziani S, Pier Luca Guarino M, Trillo Asensio LM, Altomare A, Ribolsi M, Balestrieri P, Cicala M. Role of overweight and obesity in gastrointestinal disease. Nutrients. 2019 Dec 31;12(1):111.
6. Sharma P, Wani S, Romero Y, Johnson D, Hamilton F. Racial and geographic issues in gastroesophageal reflux disease. Official journal of the American College of Gastroenterology| ACG. 2008 Nov 1;103(11):2669-80.
7. Hunt R, Armstrong D, Katelaris P, Afihene M, Bane A, Bhatia S, Chen MH, Choi MG, Melo AC, Fock KM, Ford A. World gastroenterology organisation global guidelines: GERD global

perspective on gastroesophageal reflux disease. Journal of clinical gastroenterology. 2017 Jul 1;51(6):467-78.
8. Chang CH, Chen TH, Chiang LL, Hsu CL, Yu HC, Mar GY, Ma CC. Associations between lifestyle habits, perceived symptoms and gastroesophageal reflux disease in patients seeking health check-ups. International Journal of Environmental Research and Public Health. 2021 Apr 6;18(7):3808.
9. Liu Z, Gao X, Liang L, Zhou X, Han X, Yang T, Huang K, Lin Y, Deng S, Wang Z, Wang C. Prevalence, general and periodontal risk factors of gastroesophageal reflux disease in China. Journal of Inflammation Research. 2023 Dec 31:235-44.
10. El-Serag HB, Sweet S, Winchester CC, Dent J. Update on the epidemiology of gastro-oesophageal reflux disease: a systematic review. Gut. 2014 Jun 1;63(6):871-80.
11. Wang X, Wright Z, Wang J, Roy S, Fass R, Song G. Elucidating the Link: Chronic Obstructive Pulmonary Disease and the Complex Interplay of Gastroesophageal Reflux Disease and Reflux-Related Complications. Medicina. 2023 Jul 8;59(7):1270.
12. Fass R. Gastroesophageal Reflux Disease. New England Journal of Medicine. 2022 Sep 29;387(13):1207-16.
13. Zaterka S, Marion SB, Roveda F, Perrotti MA, Chinzon D. Historical perspective of gastroesophageal reflux disease clinical treatment. Arquivos de gastroenterologia. 2019 Aug 26; 56:202-8.
14. Boeckxstaens G, El-Serag HB, Smout AJ, Kahrilas PJ. Symptomatic reflux disease: the present, the past and the future. Gut. 2014 Jul 1;63(7):1185-93.
15. Zhang L, Tu L, Chen J, Song J, Bai T, Xiang XL, Wang RY, Hou XH. Health-related quality of life in gastroesophageal reflux patients with noncardiac chest pain: Emphasis on the role of psychological distress. World journal of gastroenterology. 2017 Jan 1;23(1):127.
16. Gu L, Chen B, Du N, Fu R, Huang X, Mao F, Khadaroo PA, Zhao S. Relationship between bariatric surgery and gastroesophageal reflux disease: a systematic review and meta-analysis. Obesity Surgery. 2019 Dec; 29:4105-13.