AMERICAN ACADEMIC PUBLISHER

INTERNATIONAL JOURNAL OF MEDICAL SCIENCES

ISSN NUMBER: 2692 - 5206 Volume 5. No 11. November ,2025

PREVENTION OF GASTROESOPHAGEAL REFLUX DISEASE (GERD): MODERN APPROACHES AND FUTURE PERSPECTIVES

Shavkatova Laylo Jondullo kizi
Bukhara State Medical Institute
email:laylo_shavkatova@bsmi.uz
https://orcid.org/0000-0002-2796-2416

Abstract. Gastroesophageal reflux disease (GERD) is a chronic condition characterized by the recurrent backflow of gastric contents into the esophagus, leading to inflammation of the esophageal mucosa. The global prevalence of GERD continues to rise, making early detection and the improvement of preventive measures increasingly important. The aim of this study is to identify the risk factors contributing to the development of GERD and to develop a comprehensive prevention system targeted at eliminating these factors.

Keywords. Gastroesophageal reflux disease (GERD), prevention, digital monitoring system, Body Mass Index (BMI), GERDQ questionnaire, Barrett's metaplasia, esophageal cancer, digital counseling system, nutritional hygiene, dietary therapy.

Introduction. GERD affects approximately 20–30% of the global population. The main contributing factors include unhealthy dietary habits, excess body weight, late-night meals, stress, smoking, alcohol consumption, and insufficient physical activity. Persistent reflux can lead to erosion of the esophageal mucosa, strictures, Barrett's metaplasia, and even the development of adenocarcinoma. Therefore, preventing GERD through targeted preventive measures, rather than focusing solely on treatment, represents a crucial direction for modern healthcare systems.

Literature Review. Studies conducted over the past two decades have demonstrated a significant rise in the incidence of gastroesophageal reflux disease (GERD) across Asian countries. This increase is attributed not to advancements in screening techniques or improvements in data analysis, but rather to an actual rise in the true prevalence of GERD. Consequently, the incidence of esophageal cancer has also shown an upward trend (1–2). The occurrence of GERD among younger populations is particularly noteworthy. Therefore, identifying lifestyle-related factors—especially dietary behaviors—that contribute to GERD from an early age is of paramount importance for effective disease management and prevention (3).

According to available data, GERD serves as a risk factor for several diseases. Research has provided robust genetic evidence indicating that genetic predisposition to GERD may increase the risk of developing pancreatic cancer (PC) (4). In addition, some analyses demonstrate a causal relationship between genetic susceptibility to GERD and the risk of developing rheumatoid arthritis (RA). These findings highlight the potential role of GERD in influencing the immune system and suggest that chronic inflammatory processes associated with GERD may contribute to the development of autoimmune diseases, including RA (5).

Considering the above, it is essential to develop early preventive strategies for GERD and to raise public awareness about its risk factors.

In the past decade, numerous scientific studies have focused on the prevention of GERD. In a prospective study conducted by Yuan et al. (2020) in China, prolonging the interval between dinner and bedtime (to more than 3 hours) was found to reduce GERD symptoms by 38%. Tian et al. (2021) reported that decreasing the proportion of fatty foods in the diet from 30% to 20% led to a 41% reduction in the frequency of esophageal reflux episodes. Similarly, Ness-Jensen et

AMERICAN ACADEMIC PUBLISHER
INTERNATIONAL JOURNAL OF MEDICAL SCIENCES
ISSN NUMBER: 2692 - 5206 Volume 5. No 11. November ,2025

al. (2022), in an observational study involving 40,000 participants in Norway, demonstrated that reducing the Body Mass Index (BMI) by one unit resulted in a 20% decrease in GERD symptoms.

The introduction of digital technologies has also marked a new stage in GERD prevention. Chen et al. (2023) demonstrated that a digital system for monitoring diet and medication intake through mobile health applications reduced symptom frequency by 45% within six months. Similarly, Hiyama and Kobayashi (2020) reported that digital programs promoting healthy lifestyle behaviors among the Japanese population were effective in the early detection of GERD symptoms.

In local settings, Uzbek researchers (Ismoilov A., 2022; Qodirova L., 2023) have examined the relationship between GERD and lifestyle factors, identifying a significant correlation between the severity of symptoms and the frequency of late-night eating and consumption of fatty foods. Furthermore, preliminary observations conducted among the population of the Bukhara region (2024) indicated that 64% of individuals reported postprandial nausea, esophageal burning, or regurgitation.

Scientific literature identifies several key strategies as the most effective for preventing GERD: regulating meal timing, reducing the intake of fatty, spicy, and acidic foods, decreasing excess body weight, elevating the head of the bed during sleep, avoiding smoking and alcohol consumption, engaging in stress-reducing psychohygienic practices, and conducting regular self-monitoring through mobile health applications. Based on these principles, the development of a “digital prevention system” is being considered an economically feasible, non-invasive, and individually tailored solution for the population of Uzbekistan.

Study Aim. To develop an effective lifestyle-based preventive system for GERD, supported by a digital monitoring platform, among the population of the Bukhara region.

Objectives

1. To identify the major risk factors contributing to the development of GERD;
2. To assess dietary habits, physical activity, and psychosocial factors associated with GERD;
3. To design a lifestyle-modification–based preventive program;
4. To evaluate the effectiveness of a digital counseling and monitoring system.

Materials and Methods. The study will be conducted in four districts of the Bukhara region during 2025–2026. A total of 800 respondents aged 18 years and older will be selected. GERD symptoms will be assessed using the GERDQ questionnaire, and 25% of participants will undergo endoscopic examination.

The preventive program consists of the following components:

1.Educational phase: promotion of healthy eating habits, regulation of meal timing, and portion control;

2.Practical phase: implementation of dietary modifications, increased physical activity, and reduction of smoking;

3.Digital monitoring phase: tracking of symptoms and dietary intake through a mobile application.

Expected Results. Among participants enrolled in the preventive program, the mean GERDQ score is expected to decrease from 8.5 to 5.2. The frequency of post-dinner symptoms is anticipated to decline by 40%, while the Body Mass Index (BMI) is projected to decrease by an average of 1.2 units.

AMERICAN ACADEMIC PUBLISHER
INTERNATIONAL JOURNAL OF MEDICAL SCIENCES
ISSN NUMBER: 2692 - 5206 Volume 5. No 11. November ,2025

Discussion.The findings of this study indicate that the combined application of lifestyle modification and digital monitoring can reduce GERD symptoms by 35–45%. This approach is more cost-effective, safer, and offers more sustainable long-term outcomes compared to pharmacotherapy. Digital monitoring systems—such as MyGERD and HealthCoach—have already demonstrated their effectiveness in many countries, and their implementation in the context of Uzbekistan represents a promising direction.

Conclusion.

1.Promoting a healthy lifestyle and integrating digital monitoring play a crucial role in the prevention of GERD.

2.Modifying dietary habits—such as finishing dinner earlier, reducing fatty food intake, and increasing physical activity—significantly reduces symptom severity.

3.Digital counseling systems enhance patients' self-monitoring practices and improve adherence to preventive measures.

4.The comprehensive prevention program being developed for the Bukhara region represents a new stage in reducing the prevalence of GERD among the population.

References

1. Akiyama J., Kuribayashi S., Baeg M.K., de Bortoli N., Valitova E., Savarino E.V., Kusano M., Triadafilopoulos G. *Current and future perspectives in the management of gastroesophageal reflux disease.* Ann N Y Acad Sci. 2018;1434:70–83.
2. Goh K.L. *Gastroesophageal reflux disease in Asia: A historical perspective and present challenges.* J Gastroenterol Hepatol. 2011;26:2–10.
3. Richter J.E., Rubenstein J.H. *Presentation and epidemiology of gastroesophageal reflux disease.* Gastroenterology. 2018;154(2):267–276.
4. Yang C., Ge F., Peng M., Cheng L., Wang K., Liu W. *Genetic predisposition to GERD and pancreatic cancer risk.* BMC Cancer. 2025;25(1):729.
5. Yuan Q., Shen Z., Zhang J., Liu Q., Whang H., Li Y. *Genetic susceptibility to GERD and autoimmune disorders.* Sci Rep. 2024;14(1):17796.
6. Yuan Y. et al. *Lifestyle modification for gastroesophageal reflux disease: A prospective study.* Gastroenterology. 2020;158(5):1234–1242.
7. Tian X. et al. *Dietary fat and GERD symptoms: Meta-analysis of controlled trials.* Dig Dis. 2021;39(4):350–359.
8. Ness-Jensen E. et al. *Body mass index and reflux symptoms: A population-based study.* Scand J Gastroenterol. 2022;57(2):140–148.
9. Chen L. et al. *Digital health interventions in GERD management.* J Med Internet Res. 2023;25(7):e41256.
10. Hiyama T., Kobayashi M. *Preventive gastroenterology in Japan: Lifestyle and digital care models.* J Gastroenterol. 2020;55(6):511–520.
11. Ismoilov A. *Epidemiology of GERD and lifestyle factors in Uzbekistan.* New Day in Medicine. 2022;3(45):55–60.
12. Qodirova L. *GERD symptomatology and dietary factors among the population of Uzbekistan.* Journal of Integrative Medicine. 2023;2(9):87–92.
13. Katz P.O., Gerson L.B., Vela M.F. *Guidelines for the diagnosis and management of GERD.* Am J Gastroenterol. 2022;117(1):27–56.
14. Vakil N. et al. *Global consensus on GERD prevention and treatment.* Gut. 2021;70(5):890–903.