

Assessment of demographic characteristics and common potential causes of gut symptoms experienced among community population in Pathanamthitta District, Kerala

Anjali S ^{1,*}, Nissy Mariam Reji ¹, Febrin Saji ¹ and Elesy Abraham ²

¹ Department of Pharmacy Practice, Nazareth College of Pharmacy, Othara, Thiruvalla, Kerala.

² Department of pharmacology, Nazareth college of pharmacy, Othara, Thiruvalla, Kerala.

World Journal of Biology Pharmacy and Health Sciences, 2026, 26(03), 232-237

Publication history: Received on 07 May 2026; revised on 13 June 2026; accepted on 16 June 2026

Article DOI: <https://doi.org/10.30574/wjbphs.2026.26.3.0355>

Abstract

Gastrointestinal (GI) symptoms such as abdominal pain, bloating, heartburn, constipation, and diarrhea are common in community populations and can affect daily life and well-being. This study aimed to assess the demographic characteristics and common potential causes of GI symptoms among adults in Pathanamthitta district, Kerala. A community-based cross-sectional study was conducted among 300 participants using a structured questionnaire.

The study found a high prevalence of GI symptoms (83.67%), with females and younger adults being more affected. Symptom patterns varied with age, where older adults reported more heartburn and constipation, while younger individuals experienced more abdominal pain and vomiting. Unhealthy diet (55.78%) and stress (55.38%) were the most common contributing factors. Around 65.34% of participants reported that certain foods worsened their symptoms, and more than half experienced symptoms during stressful periods. Inadequate sleep and physical inactivity were also widely observed. Additionally, medication use and comorbid conditions such as diabetes and cardiovascular diseases showed a possible association with GI symptoms.

Overall, the findings indicate that GI symptoms are common and influenced by multiple lifestyle and health-related factors. Improving diet, reducing stress, ensuring proper sleep, and increasing physical activity can help reduce symptoms and improve quality of life.

Keywords: Gastrointestinal symptoms; Community-based population; Lifestyle determinants; Dietary patterns; Psychological stress; Sleep quality; Physical activity; Comorbidities; Cross-sectional study; Kerala

1. Introduction

Gastrointestinal (GI) symptoms like abdominal pain, bloating, heartburn, constipation, and diarrhea are the most prevalent health issues people face in community settings. These symptoms' occurrences can be attributed to a combination of several reasons including diet, lifestyles, psychological stress, and underlying medical issues, and they can greatly affect a person's physical comfort, mental health, and overall quality of life. Despite being so prevalent, many people overlook, under-report, or misinterpret these symptoms, which leads to delays in recognition and treatment. Understanding who is affected and what factors contribute to these symptoms is important for creating effective preventions and treatment plans ^[1,2].

Adults in community settings make up a heterogeneous group that faces different lifestyle patterns, including irregular diets, lack of sleep, lack of exercise, and higher stress levels, all of which may influence gastrointestinal health. By

* Corresponding author: Anjali S

identifying the most common potential causes and how they relate to demographic features, we can better be recognizing the vulnerable groups and developing targeted health interventions [3,4].

This study aimed to identify the demographic characteristics and the most prevalent potential causes of gastrointestinal symptoms among the community population in Pathanamthitta district, Kerala.

Objective

Assessment of demographic characteristics and common potential causes of gut symptoms experienced among community population in Pathanamthitta district, Kerala.

2. Materials and methodology

A community-based prospective cross-sectional study was conducted to determine the common potential causes of gastrointestinal symptoms and demographic characteristics among the community population in Pathanamthitta district, Kerala. The study was carried out over six months (December 2024 to May 2025) after obtaining approval from the Institutional Review Board of Nazareth College of Pharmacy. A total of 300 participants aged 18 years and above were included. Individuals willing to participate and able to understand English or Malayalam were enrolled. Participants with incomplete responses, those unwilling to provide consent, pregnant and lactating women, and women during menstruation were excluded. Written informed consent was obtained prior to data collection. Data were collected using a pre-designed structured questionnaire through community surveys and selected colleges. The tool included sections on demographic details, gastrointestinal symptoms, and potential contributing factors such as diet, stress, sleep, physical activity, medication use, smoking, and alcohol intake. Data were analyzed using Microsoft Excel, and descriptive statistics were used to summarize findings as frequencies and percentages.

3. Results

3.1. Age based comparison of gut symptom frequency

The comparison of gastrointestinal symptoms across different age groups (18–39, 40–59, and ≥60 years) shows varying patterns of prevalence. Older adults (≥60 years) exhibited a higher burden of symptoms, particularly heartburn (49.06%), bloating (45.28%), and constipation (33.96%). Younger adults (18–39 years) also showed notable prevalence, with abdominal pain (38.66%) and vomiting (38.66%) being the most common. In middle-aged adults (40–59 years), symptom frequency was relatively lower overall, although bloating (50.67%) was the most predominant symptom in this group.

3.2. Gender based comparison of symptoms frequency

In gender-based comparison of gut symptom frequency, females were the more prevalent gender as compared to males also our data shows that symptoms such as heartburn (41.18%) and bloating (45.30%) are more common in both genders. This comparison highlights the gender related difference in the presentation of gut symptoms.

3.3. Distribution of potential causes of gut symptoms

The distribution of various potential causes of gut symptoms include stress, anxiety, physical inactivity, disease, medicine, food, smoking, alcohol consumption, obesity. Among these factors, unhealthy food intake 140(55.78%) and stress 139(55.38%) were frequently reported as contributors to gut symptoms.

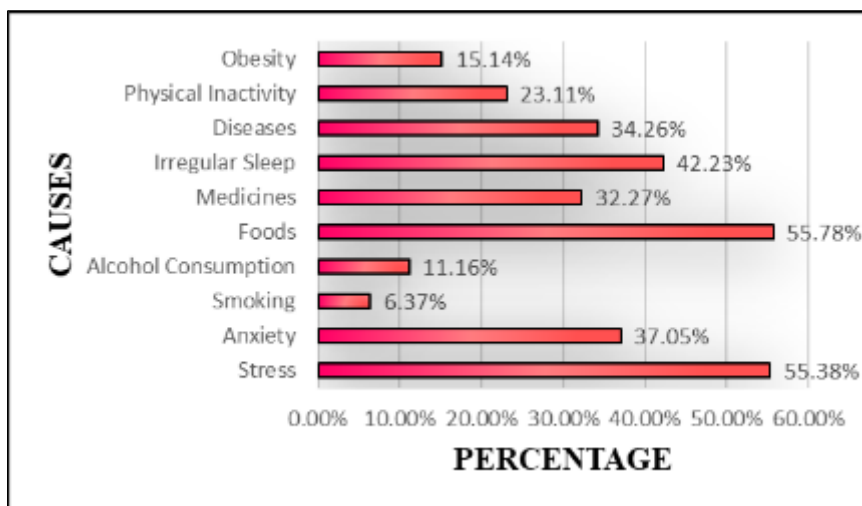


Figure 1 Distribution of potential causes of gut symptoms

3.4. Distribution of relation between consuming certain food and gut symptoms

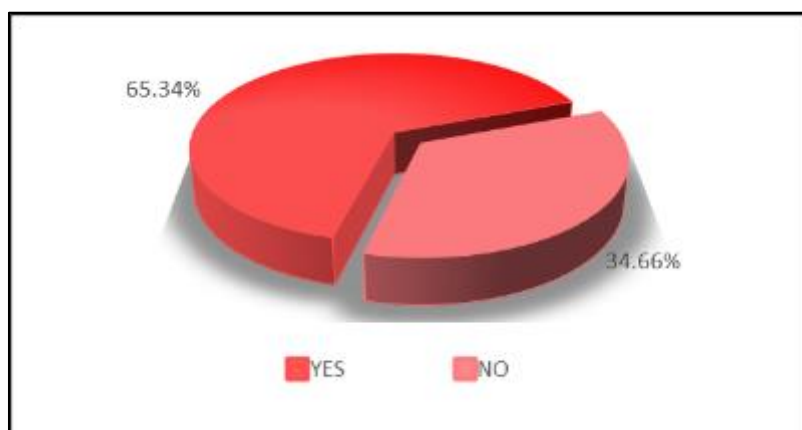


Figure 2 Distribution of relation between consuming food and gut symptoms

About 164(65.34%) said that certain foods make their gut symptoms worse, while 87(34.66%) did not notice any effect. These distributions elucidate that for many participants; dietary choices may significantly influence gut symptoms.

3.5. The distribution of relationship between hours of sleep per night and gut symptoms

The distribution of sleeping hours 104 (41.43%) participants reported that they have a sleeping between 5-6 hrs, also shows that majority of the participants have a sleeping hour less than 7 hours.

3.6. Distribution of relation between stress and gut symptoms

The results indicated that 54.98% of the participants experienced a link between stress and gut symptoms, meaning over half of those studied had noticeable gut issues during stressful times. Among which the most prevalent symptom reported was abdominal discomfort and 45.82% had more severe symptoms.

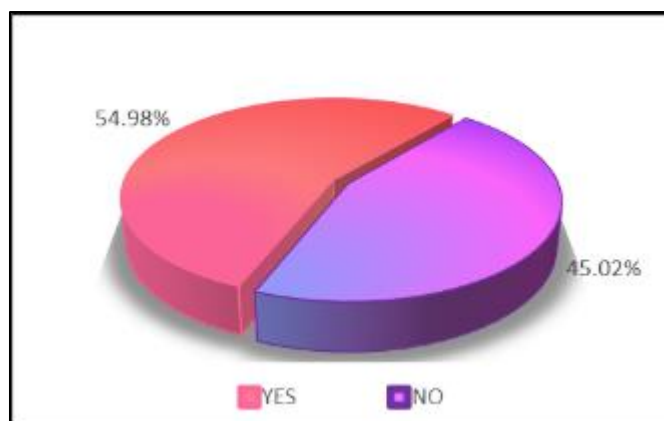


Figure 3 Distribution of relation between stress and gut symptoms

3.7. Distribution of long-term medication use for other health conditions

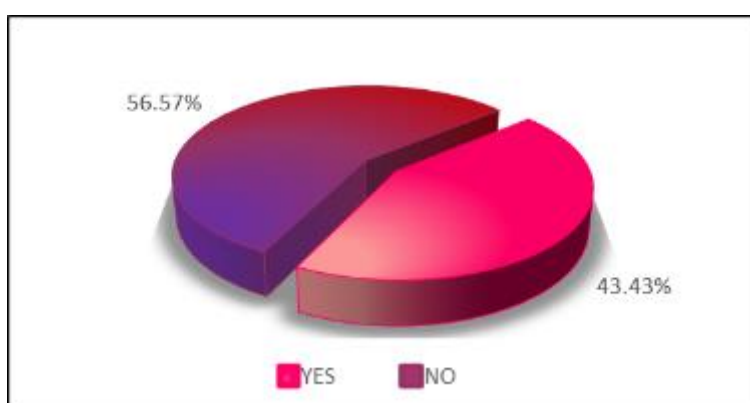


Figure 4 Distribution of long- term medication use for other health conditions

A significant proportion of the response 33.47%, reported a correlation (Yes), while an additional 17.93% were unsure. Thus, it represents 51.4% of participants, suggesting a potential link between medication use and onset of gut symptoms. Only less than over half of the respondents denied any correlation. This result indicates that there is a notable correlation between gut symptoms and medications.

3.8. Distribution of relation between history of co-morbidity and gut symptoms

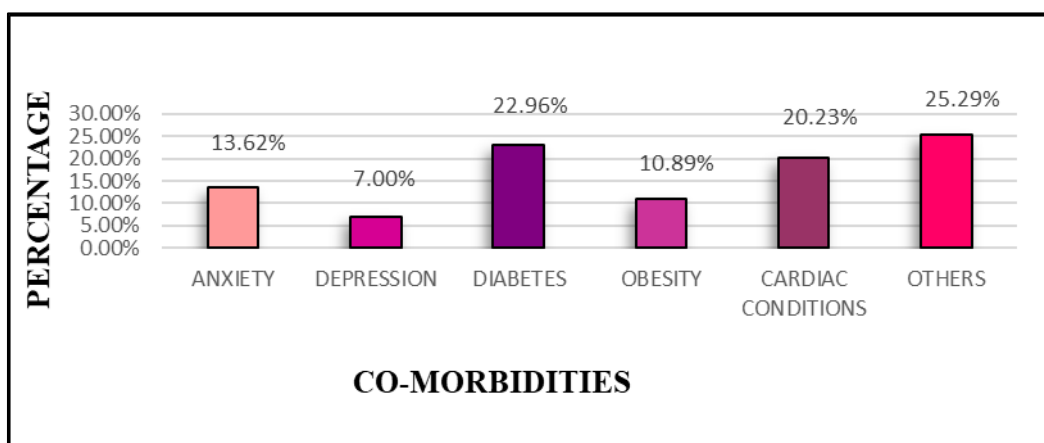


Figure 5 Distribution of relation between history of co-morbidity and gut symptoms

Among 251 individuals with symptoms, the most common co-morbidities reported were diabetes 59(22.96%), cardiac conditions 52(20.23%), anxiety 35(13.62%), obesity, depression, and various unspecified issues, were also noted and 25.29% reported other comorbidities such as DLP, skin disease, DVT, stroke, allergy, asthma, PCOD, thyroid disorder.

3.9. Distribution of relation between frequency of activities and gut symptoms

Table 1 Distribution of relation between frequency of activities and gut symptoms

Activities	Daily	2-3 times/week	Once a month	Rarely/never
Physical Activity	52(20.72%)	51(20.32%)	11(4.38%)	137(54.58%)
Smoking	5(1.99%)	8(3.19%)	3(1.20%)	235(93.63%)
Alcohol Consumption	7(2.79%)	16(6.37%)	6(2.39%)	222(88.45%)

The findings of the study suggest that physical inactivity is a major lifestyle factor contributing to gut symptoms. More than half of the respondents 137(54.58%) reported rarely or never engaging in any form of physical activity.

4. Discussion

This study aimed to assess the prevalence and potential causes of gastrointestinal (GI) symptoms among adults in a community setting in Pathanamthitta district, Kerala. A high prevalence (83.67%) of GI symptoms was observed, which is higher than the 62% reported by Megana L. Ballal et al. (2019) [3]. Both studies showed a higher occurrence among females and younger adults. Our study identified multiple contributing factors such as stress, diet, anxiety, sleep disturbances, physical inactivity, medications, and comorbidities, consistent with Chen Chen et al. (2024) [4].

Among these, diet (55.78%) and stress (55.38%) were the most common, similar to findings by Hans Tornblom et al. (2019) [5] and Firdous Jahan et al. (2020) [6], which highlighted the role of food and psychological stress in GI symptoms.

Sleep disturbances (42.23%) and anxiety (37.05%) were also significant contributors, aligning with studies by Wei-Yi Lei et al. (2019) [7] and Tangen Haug et al. (2009) [8]. Physical inactivity (23.11%) further supported previous findings that active lifestyles reduce GI symptoms. Obesity, smoking, and alcohol consumption were less frequent but still relevant factors, consistent with earlier studies.

Medication use (32.27%), particularly antidiabetics and antibiotics, was associated with GI symptoms, similar to findings by Nabrdalik et al. (2022) [9]. Comorbid conditions such as diabetes and cardiovascular diseases were also commonly observed, supporting the study by Sameer Dawoodi et al. (2018) [10].

Overall, GI symptoms were highly prevalent and influenced by a combination of lifestyle, psychological, and medical factors. These findings highlight the need for increased awareness and lifestyle modifications to reduce the burden of GI symptoms.

Abbreviations

- GI – Gastrointestinal
- DLP- Dyslipidemia
- DVT- Deep Vein Thrombosis
- PCOD- Polycystic Ovarian Disease

5. Conclusion

This study highlights a notably high prevalence of gastrointestinal (GI) symptoms among adults in the community, with a greater burden observed among females and younger individuals. The findings emphasize that GI symptoms are multifactorial, with diet and stress emerging as the most prominent contributors, followed by anxiety, sleep disturbances, physical inactivity, medication use, and comorbid conditions such as diabetes and cardiovascular diseases.

The strong association between lifestyle and psychological factors with GI symptoms underscores the importance of a holistic approach to management. Modifiable risk factors, particularly unhealthy dietary habits, stress, and inadequate sleep, play a crucial role in symptom occurrence and severity.

Overall, this study reinforces the need for increased community awareness, early identification of risk factors, and targeted lifestyle interventions to reduce the burden of GI symptoms and improve overall quality of life.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

The authors certify that they have obtained consent from the patients involved in the research, and their details will be kept confidential with due diligence.

References

- [1] Ogobuiro I, Gonzales J, Shumway KR, Tuma F. Physiology, gastrointestinal. InStatPearls [Internet] 2023 Apr 8. StatPearls Publishing.
- [2] Liu T, Liu J, Wang C, Zou D, Wang C, Xu T, Ci Y, Guo X, Qi X. Prevalence of gastrointestinal symptoms and their association with psychological problems in youths. *Annals of Palliative Medicine*. 2023 Mar 31;12(2):31123-323.
- [3] Almario CV, Ballal ML, Chey WD, Nordstrom C, Khanna D, Spiegel BM. Burden of gastrointestinal symptoms in the United States: results of a nationally representative survey of over 71,000 Americans. *Official journal of the American College of Gastroenterology | ACG*. 2018 Nov 1;113(11):1701-10.
- [4] Chen C, Zhang DY, Chen S, Huang S, Zeng F, Li D, Lv YT, Xiang X, Chen RX, Zhang X, Mao F. Prevalence, types, and risk factors of functional gastrointestinal diseases in Hainan Province, China. *Scientific reports*. 2024 Feb 24;14(1):4553.
- [5] Clevers E, Törnblom H, Simrén M, Tack J, Van Oudenhove L. Relations between food intake, psychological distress, and gastrointestinal symptoms: a diary study. *United European gastroenterology journal*. 2019 Aug;7(7):965-73.
- [6] Jahan F, Siddiqui M, Aguiar M. Correlation of Perceived Stress and GI symptoms in Medical Students in Oman. *American Journal of Multidisciplinary Research and Development (AJMRD)*. 2020 Jun;2(6):15-20.
- [7] Lei WY, Chang WC, Wong MW, Hung JS, Wen SH, Yi CH, Liu TT, Chen JH, Hsu CS, Hsieh TC, Chen CL. Sleep disturbance and its association with gastrointestinal symptoms/diseases and psychological comorbidity. *Digestion*. 2019 Apr 4;99(3):205-12.
- [8] Maass HM. Effect of a 2-Week Relaxing Music Intervention on Anxiety, Stress, and Gut Symptoms in Aerobic Exercisers (Master's thesis, Old Dominion University).
- [9] Nabrdalik K, Skonieczna-Żydecka K, Irlik K, Hendel M, Kwiendacz H, Łoniewski I, Januszkiewicz K, Gumprecht J, Lip GY. Gastrointestinal adverse events of metformin treatment in patients with type 2 diabetes mellitus: A systematic review, meta-analysis and meta-regression of randomized controlled trials. *Frontiers in endocrinology*. 2022 Sep 14;13:975912.
- [10] Dawoodi S, Dawoodi I, Dixit P. Gastrointestinal problem among Indian adults: Evidence from longitudinal aging study in India 2017–18. *Frontiers in public health*. 2022 Sep 26;10:911354.