

Community – based assessment of the prevalence of gut symptoms among adults in Pathanamthitta District, Kerala, India

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Abstract

Gut-related (gastrointestinal) symptoms are very common among people in the community, but many individuals do not report them or manage them on their own without medical consultation. A prospective survey was conducted among 300 adult participants using a structured questionnaire. The study assessed the prevalence of several gastrointestinal symptoms among adults in the community, including belching, bloating, constipation, diarrhoea, dyspepsia, heartburn, nausea, regurgitation, and vomiting. The results revealed that 251 out of 300 participants (83.7%) reported experiencing at least one gastrointestinal symptom during the preceding three months, showing that gut-related complaints are relatively frequent in the community. Among them, bloating, heartburn, and constipation were the most commonly reported symptoms. Overall, the findings highlight that gastrointestinal symptoms are often experienced among adults in community settings.

This article aimed to explore the prevalence of common gut symptoms among adults living in community settings in Pathanamthitta district, Kerala.

Keywords: Gut symptoms; Prospective survey; Prevalence; community settings

1. Introduction

The gastrointestinal (GI) system, commonly known as the digestive system, is a key organ system responsible for breaking down food, absorbing nutrients, and removing waste ^[1]. The World Gastroenterology Organization (WGO) defines gastrointestinal symptoms as persistent or recurring symptoms of any organ in the digestive system. Gut symptoms are digestive difficulties that may be a sign of gastrointestinal tract abnormalities or poor gut health. The prevalence of gastrointestinal problems in the general population is especially high, with epidemiological studies finding that around 62% of individuals suffer at least one gut-related symptom ^[2].

Gastrointestinal symptoms include abdominal pain (pain in the abdomen), belching (expulsion of gas), bloating (abdominal fullness), constipation (infrequent/difficult stools), diarrhoea (loose frequent stools), dyspepsia (upper abdominal discomfort), heartburn (burning chest sensation), nausea (urge to vomit), regurgitation (backflow of stomach contents), and vomiting (forceful expulsion of gastric contents), reflecting common digestive disturbances in adults ^[3-12].

Despite their high prevalence and impact, gastrointestinal symptoms are often under-recognised, underreported, or misinterpreted in community settings. Therefore, this study aims to quantify the prevalence of specific gastrointestinal

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symptoms—namely abdominal pain, belching, bloating, constipation, diarrhoea, dyspepsia, heartburn, nausea, regurgitation, and vomiting—among adults in a defined community population, in order to better understand their distribution and inform targeted healthcare interventions.

Objective

To quantify the prevalence of specific gut symptoms (Abdominal pain, Belching, Bloating, Constipation, Diarrhoea, Dyspepsia, Heartburn, Nausea, Regurgitation, Vomiting) among adults in a specific population.

2. Materials and methodology

A community based Prospective Study was conducted to assess the prevalence of gut symptoms among adults in community settings. The study was conducted in Pathanamthitta District, Kerala. The sample size is 300. The study, approved by the Institutional Review Board of Nazareth College of Pharmacy was conducted for a period of 6 months. (December 2024 – May 2025). Participants were adults aged 18 years and above willing to voluntarily participate excluding Individuals younger than 18 years old, incomplete participant response, pregnant and lactating women, and women on menstruation. An informed consent form was given and after obtaining consent, the pre-designed questionnaire was given to the subjects. Participant’s names were collected on the questionnaire but not entered the Excel sheet to ensure confidentiality. The question was explained to the college students and community residents when needed. A PowerPoint presentation for college students and oral explanation to the community residents on the gut symptoms. Data were analysed using Microsoft Excel-2019.

3. Results

3.1 Distribution of Age Groups

Table 1 Distribution of age group of subjects

SL NO:	AGE GROUPS (yrs.)	FREQUENCY	PERCENTAGE (%)
1	18-39	119	39.67
2	40-59	75	25.00
3	60 or above	106	35.33
	Total	300	100

Among the 300 individual that participated in the study, 119 (39.67%) belonged to the 18-39-year age group, 75 (25%) belonged to the 40-59 age group and 106 (35.33%) belonged to the 60 or above age group. Most sample falls within the 18-39 age group range, while the 40-59 age group is the least represented.

3.1. Distribution of Gut Symptoms Prevalence

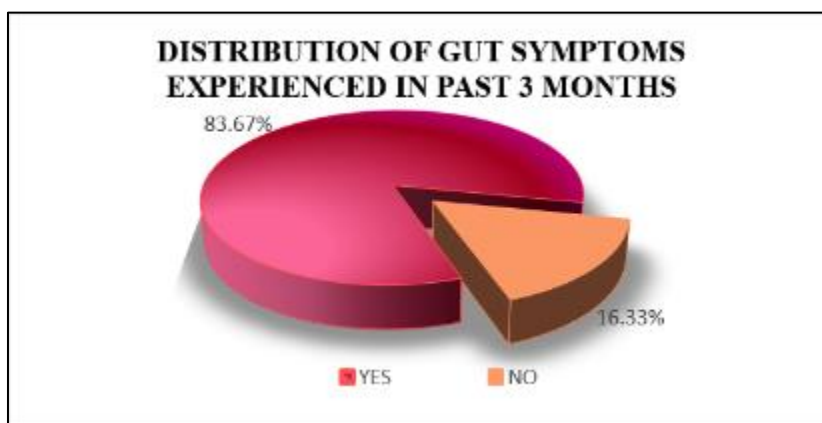


Figure 1 Distribution of prevalence of gut symptoms experienced in past 3 months

Among a sample of 300 individuals. This chart indicates that in the past three months 251 (83.67%) individuals had experienced gut related symptoms, while only a small portion 49 (16.33%) individuals reported no such issues.

3.2. Distribution of Gut Symptoms

Table 2 Distribution of gut symptoms among subjects

SL NO:	SYMPTOMS	FREQUENCY	PERCENTAGE (%)
1	Abdominal Pain	79	10.79
2	Belching	62	8.47
3	Bloating	127	17.35
4	Constipation	84	11.48
5	Diarrhoea	36	4.92
6	Dyspepsia	35	4.78
7	Heartburn	115	15.71
8	Nausea	57	7.79
9	Regurgitation	67	9.15
10	Vomiting	70	9.56
	Total	732	100

Among the 300 individuals participated in the study, the distribution of gut symptoms among 251 subjects shows that Bloating was the most prevalent symptom reported by 127 (17.35%) participants followed by Heartburn 115(15.71%), Constipation 84(11.48%), Abdominal pain 79(10.79%), Vomiting 70(9.56%), Regurgitation 67(9.15%), Belching 62(8.47%), Nausea 57(7.79%), Diarrhoea 36(4.92%), Dyspepsia 35(4.78%), respectively. Bloating and Heartburn were the most common gut symptom reported, while Diarrhoea and Dyspepsia were the less frequently reported symptoms.

3.3. Age Based Comparison of Gut Symptom Frequency

Table 3 Comparison of frequency of gut symptoms across different age group

SYMPTOMS/ AGE	18-39	40-59	≥60
Abdominal Pain	46(38.66%)	10(13.33%)	23(21.70%)
Belching	20(16.81%)	22(29.33%)	20(18.87%)
Bloating	41(34.45%)	38(50.67%)	48(45.28%)
Constipation	29(24.37%)	19(25.33%)	36(33.96%)
Diarrhoea	21(17.65%)	4(5.33%)	11(10.38%)
Dyspepsia	13(10.92%)	11(14.67%)	11(10.38%)
Heartburn	41(34.45%)	22(29.33%)	52(49.06%)
Nausea	34(28.57%)	9(12.00%)	14(13.21%)
Regurgitation	23(19.33%)	19(25.33%)	25(23.58%)
Vomiting	46(38.66%)	8(10.67%)	16(15.09%)

The comparison of Gut symptoms in different age groups: 18-39, 40-59, 60 years and above depicted in the graph above. Older adults (≥60yrs) showed the highest prevalence for several symptoms, particularly heartburn (49.06%), bloating (45.28%), and constipation (33.96%). Younger adults (18-39 years) also showed a considerable symptom burden, with

abdominal pain and vomiting (38.66%) being most prominent. In contrast, middle-aged adults (40–59 years) generally reported lower frequencies, although bloating remained notably high (50.67%).

3.4. Gender based comparison of symptoms frequency

Table 4 Comparison of frequency of gut symptoms across different gender

	GENDER	
	M	F
Abdominal Pain	25(21.01%)	54(29.83%)
Belching	24(20.17%)	38(20.99%)
Bloating	45(37.82%)	82(45.30%)
Constipation	31(26.05%)	53(29.28%)
Diarrhoea	16(13.45%)	20(11.05%)
Dyspepsia	13(10.92%)	22(12.15%)
Heartburn	49(41.18%)	66(36.46%)
Nausea	17(14.29%)	40(22.10%)
Regurgitation	26(21.85%)	41(22.65%)
Vomiting	27(22.69%)	43(23.76%)

This chart illustrated the comparison of prevalence of gut symptoms among adult's males and females in a community setting the data shows that gut symptoms were common in both genders, with an overall higher prevalence among females. Females reported higher rates of abdominal pain (29.83% vs. 21.01%), bloating (45.30% vs. 37.82%), constipation (29.28% vs. 26.05%), nausea (22.10% vs. 14.29%), dyspepsia (12.15% vs. 10.92%), regurgitation (22.65% vs. 21.85%), and vomiting (23.76% vs. 22.69%). Belching showed a similar prevalence between males and females. In contrast, males reported higher frequencies of heartburn (41.18% vs. 36.46%) and diarrhoea (13.45% vs. 11.05%). Overall, the findings suggest a greater burden of gastrointestinal symptoms among females, with few exceptions.

4. Discussion

Among the 300 individuals that participated in the study, in the age groups of 18-39; 40-59; and 60 or above the largest group was 18-39 years (39.67%), followed by 60 or above (35.33%) and 40-59 years (25%).

The study found that 251 out of 300 participants (83.67%) experienced at least one gut symptoms in past three months. In relation to population-based study conducted by Megana L Ballal et.al. (2019) which was carried among 71000 American participants, of which 62% of individuals experiencing at least one GI symptoms in past weeks and their data indicates females and younger adults having the highest average of experiencing gut symptoms, which is comparable to our study where it indicates as follow, 251(83.67%) experienced at least one gut symptoms, 155 females, and 103 younger adults are at highest average for distribution of gut symptoms [13]

In the study conducted by L.A.S van Kerkhoven et.al. (2008) which was carried among in 1616 general Western population to find out which gut symptom is common among the population; over half of the study participants, it was concluded that 81% of the participants were experiencing GI symptoms in past four weeks. The most prevalent individual symptoms reported were Bloating (37%) and heartburn (30.9%) which is comparable in our study where the 83.67% experiencing gut symptom, the most prevalent individual symptom reported were Bloating (17.35%) and Heartburn (15.71%) [14].

The comparison of gut symptoms across different age groups showed that younger adults have a higher prevalence, in this age groups, abdominal pain (38.66%) were more prevalent. Middle aged adults showed a notable burden of gut symptoms particularly, bloating (50.67%) were more prevalent. In the overall study, the bloating showed greater frequency in participants. Also, in elder adults there is a notable prevalence of gut symptoms, heartburn was the burden

they faced. About 49.06% of this population reported that heartburn was the most prevalent. Similarly, a study done by Chen Chen et.al (2024) based on the prevalence, types, and risk factor of GI disease. In his cross-sectional study found that younger adults were more prevalent, and heartburn and bloating were the most frequently reported gut symptoms.

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 and bloating are more common in both genders. This comparison highlights the gender related difference in the presentation of gut symptoms. A similar pattern was observed in study done by Chen Chen et.al (2024) based on the prevalence, types, and risk factor of GI disease [15].

Abbreviation

WHO: World Gastroenterology Organization

5. Conclusion

This study provides valuable insight into the prevalence and patterns of gut symptoms among adults in community settings, with the specific objective of determining the overall prevalence. The study findings highlight that gut symptoms are a common health concern, affecting a significant proportion of the adult population. Among 300 residents, 251 (83.67%) respondents experienced gut symptoms, which were reported in the past three months. The findings revealed that among the 251 with gut symptoms females and younger adults were more prone to experiencing the gut symptoms, and the most frequently reported symptoms were bloating and heartburn.

This study was conducted using a semi-structured questionnaire, which was followed by an awareness section. Based on the responses obtained from the data collection forms, it was revealed that most of the study participants were unaware about the importance of healthy gut and their consequences if left unnoticed and untreated at the earliest.

Compliance with ethical standards

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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 participants in this study and their details will be concealed with due effort.

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