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GM Masud Parvez
Department of Pharmacy,
Pabna University of Science and
Technology, Pabna 6600,
Bangladesh

Jannatul Ferdous Tonu
Department of Pharmacy,
Pabna University of Science and
Technology, Pabna 6600,
Bangladesh

Rawshon Ara
Department of Pharmacy,
Pabna University of Science and
Technology, Pabna 6600,
Bangladesh

MD Saddam Hossain
Department of Pharmacy,
Pabna University of Science and
Technology, Pabna 6600,
Bangladesh

MD Umar Faruque
Department of Pharmacy,
Pabna University of Science and
Technology, Pabna 6600,
Bangladesh

Ratna Khatun
Department of Pharmacy,
Pabna University of Science and
Technology, Pabna 6600,
Bangladesh

Anika Tahsin Mim
Department of Pharmacy,
Pabna University of Science and
Technology, Pabna 6600,
Bangladesh

Shaila Sharmin
Department of Pharmacy,
Pabna University of Science and
Technology, Pabna 6600,
Bangladesh

Sumiya Akter
Department of Pharmacy,
Pabna University of Science and
Technology, Pabna 6600,
Bangladesh

Corresponding Author:
GM Masud Parvez
Department of Pharmacy,
Pabna University of Science and
Technology, Pabna 6600,
Bangladesh

A survey on nature, cause and management of gastrointestinal disorders

GM Masud Parvez, Jannatul Ferdous Tonu, Rawshon Ara, Md Saddam Hossain, Md. Umar Faruque, Ratna Khatun, Anika Tahsin Mim, Shaila Sharmin and Sumiya Akter

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Abstract
Background: Gastrointestinal disease is a burden both for developed and developing countries. This diseases has long term complications and responsible for generation of other diseases.
Aims and objectives: This work was designed to identify the age at which this disease first occurred, duration of disease, major complications like burning feelings, stool in blood, ulcer etc. Relationship between lifestyle and food habits with prevalence of disease was also assayed.
Materials and methods: The data was collected from July to November 2020 by directly interviewing the patients.
Results: This data was collected from 1176 patients, of them 53.74% are male and 46.25% are female. It was found that 60% of patients are taking treatments from directly supervision of physicians. This study revealed that 20.66% respondents first suffered from GI disease at 11-20 years old. Most of the patients of this study needs long time treatment and 30.27% patients are taking treatments for 1-3 years, and 25.43% for 3-6 years. Twenty nine percent of our study sample have experienced malnutrition, 83% have experienced stomach pain and 54% have experienced nausea. The food habit of patients shows that more than 70% of participants have habit of taking soft drinks, 79% have habit of street food and 43.54% participants are drinking about 2 liters of waiter daily.
Conclusion: Gastrointestinal disease has a wide range of complications to the patients and disciplined lifestyle should be practiced to avoid this types of disease.

Keywords: Gastrointestinal disease, Malnutrition, Stomach pain, Blood in stool, Medication, Lifestyle

Introduction

Gastrointestinal disease affects any part of the GIT from mouth to the rectum. These complications can both short term and long term. At present this disease is increasing at an alarming rate and global prevalence is around 40% [1]. It is one of the most common diseases in the world and in the USA around 11% people have suffered of this. In Europe its prevalence is also increasing at alarming rates due to dependency of Western foods [2]. In a study in India on 1900 participants 24% have found of at least one gastrointestinal (GI) disorders in the last year [3]. Worldwide prevalence of constipation is 16% world widely [4]. The prevalence of Gastro esophageal reflux disease (GERD) is 18.1-27.8% in North America [5] while the prevalence of Irritable Bowel Syndrome (IBS) is around 8.1% in North America, Europe, Australia and New Zealand [6]. The infection caused by H. Pylori is common in Asia, Africa and Eastern Europe [7]. At present GI infections are treated by antibiotics which increases the opportunity of antibiotic resistance. Nutritional management and life style correction could be a potential way to improve occurrences of disease [8].

Gastrointestinal disease has a great impact in our life. Gastrointestinal (GI) symptoms may lead to reduced food intake resulting in malnutrition. Malnutrition is common in chronic and acute gastrointestinal disease affecting both morbidity and mortality. It also decreases muscle function which lastly results in an impaired functional status. Heartburn (GERD) causes acids from the stomach to enter the oral cavity and these acids can erode tooth enamel. This is because acids from the stomach are more alkaline and use of antacids and bismuth products for the treatment of heartburn which can lead to a harmless and temporary condition called the black hairy tongue. The infection (ulcerative colitis, Crohn's disease) can manifest in the patient's oral cavity resulting in swollen and bleeding gums, mouth sores, and other

oral health issues.

Materials and methods
Setting and design
A self-designed structured questionnaire was prepared by reviewing literature. The data was collected from various regions of Pabna district. It has 11 thanas and all the thanas are considered for data collection. Pabna zilla is surrounded by Sirajganj district is on the North-East side, Rajbari and Kustia zilla in South, Manikgonj in North West side.

Study sample and duration
A total of 1176 data was collected by data collectors and the data was collected from July to November 2020.

Data collection
All the data was collected by randomly sampling the patients from hospital, pharmacies and from home visit. The data collectors explaining to the study samples about the aim and object of the study and convince them to provide accurate data. Few incomplete data was rejected during data cleaning process. The English questionnaires were translated to Bengali for easy understandings of respondents and Bengali answer were translated into English.

Inclusion and exclusion criteria
The participants who are facing gastrointestinal disease and are of sound mind is only considered for inclusion of the study. Uncooperative or unresponsive patients were excluded from this study.

Statistical analysis
This data were analyzed by Microsoft Excel 2013 software.

Ethical consideration
The collected data will only be used for educational purpose. The details of the participants will not be disclosed. Verbal consent was taken from all the participants.

Results
Among the 1176 patients 53.74% are male and 46.25% are female. Most of the participants has age range between 21-40 years. Prescription source is directly related to the safety and efficacy of drug because improper use of drug is responsible for the generation of side effects. In this study it is found that only 60% patients are treating gastrointestinal disease under the supervision of the physician. Alarmingly 32.84% respondents are using self-medication and 7.14% are using medication from the information of surrounded people. In a similar study conducted by Hasan MQ et al. in (2020) 67% of PPI user has taken this drug by advice of physicians [9]. It was commonly believed that gastrointestinal disease arises at later age but interestingly in this study it was found that around ten percent of the study sample has faced gastrointestinal problems during first ten years of their life. This study revealed that 20.66% respondents first suffered from GI disease at 11-20 years old and 27.30% suffers from 21-30 years age. About 15% have first faced GI disease at 31-40 years also. Most of the patients of this study needs long time treatment. It was found that, 30.27% patients are taking treatments for 1-3 years, followed by 25.43% (3-6 years). Only 1.62% are taking therapy for less than 3 months.

Table 1: Demographic characteristics of Patients

Profile	Frequency	Percentages
Gender		
Male	632	53.74%
Female	544	46.25%
Age		
≤10 Years	6	0.51%
11-20 Years	93	7.91%
21-30 Years	391	33.25%
31-40 Years	274	23.29%
41-50 Years	193	16.41%
51-60 Years	131	11.14%
≥61 Years	88	7.48%
Prescription Source		
Physician	707	60.12%
Surrounding People	84	7.14%
Self	385	32.84%
Onset of gastric related problems		
≤10 Years	240	20.41%
11-20 Years	243	20.66%
21-30 Years	321	27.30%
31-40 Years	175	14.88%
41-50 Years	119	10.12%
51-60 Years	55	4.68%
≥61 Years	23	1.96%
Duration of gastro protective therapy		
1-3 Months	19	1.62%
3-6 Months	31	2.64%
6-12 Months	139	11.82%
1-3 Years	356	30.27%
3-6 Years	299	25.43%
6-9 Years	130	11.05%
>9 Years	198	16.84%

The patients have experienced wide range of symptoms and effects in their daily life. About one third proportion of the patients have faced withdrawal effects of the prescribed medications and around 30% sample have faced malnutrition due to GI disease. According to the observation conducted by Reimar C et al., PPI therapy for 8 weeks induced acid-related symptoms in healthy volunteers after withdrawal [10]. Malnutrition of certain nutrients had been described in chronic PPI users. Literature review shows that omeprazole therapy acutely decreased Cyanocobalamin absorption in a dose-dependent manner [11]. Only 6.29% respondents have reported gastric ulcer and 7.65% reported blood in stools. A large percentages of patients have faced pain in the stomach. Around two third (66.33%) of the patient suffers from stomach pain 1-5 times/month and 10.46% patients for 6-10 times/month. Although a few patients has more frequency of stomach pain while 17% does not reported any pain in the stomach. More than half of the patients have experienced nausea and 38.95% respondents have reported of nausea for 1-5 times/month. It was also found that 63.86% GI disease affected patients experienced burning feelings and 51.62% have experienced stomach contents moving upwards with frequency of 1-5times/month. It was also found that 1.67% faces burning sensation and 16.75% faces upward movements of stomach contents for 6-10 times/month. In previous study the occurrences of heart burn was found 45.13% [12]. Gastrointestinal diseases are also affects daily life of patients, and it is alarming that 51.87% patients has difficulties in sleep with frequency of almost every day. It can also be mentioned that, 25% and 21.43% patient faces

difficulty in sleep in 1-5 times/month and 11-15 times/month respectively (Table 2).

Table 2: Disease symptoms faced by patients

Disease symptoms	Frequency	Percentages
Withdrawal effects		
Yes	399	33.93%
No	777	66.07%
Gastric ulcer		
Yes	74	6.29%
No	1102	93.71%
Malnutrition/Weight loss		
Yes	347	29.51%
No	829	70.49%
Blood in stools		
Yes	90	7.65%
No	1086	92.35%
Pain in the stomach		
1-5 times/month	780	66.33%
6-10 times/month	123	10.46%
11-15 times/month	42	3.57%
16-20 times/month	26	2.21%
>20 times/month	5	0.43%
No	200	17.01%
Nausea		
1-5 times/month	458	38.95%
6-10 times/month	101	8.59%
11-15 times/month	55	4.68%
16-20 times/month	15	1.28%
>20 times/month	7	0.60%
No	540	45.92%
Burning feeling		
1-5 times/month	751	63.86%
6-10 times/month	149	12.67%
11-15 times/month	65	5.53%
16-20 times/month	27	2.30%
>20 times/month	11	0.94%
No	173	14.71%
Stomach contents moving upwards		
1-5 times/month	607	51.62%
6-10 times/month	197	16.75%
11-15 times/month	64	5.44%
16-20 times/month	12	1.02%
>20 times/month	6	0.51%
No	290	24.66%
Difficulty getting a good night's sleep		
1-5 times/month	294	25%
6-10 times/month	19	1.62%
11-15 times/month	252	21.43%
16-20 times/month	1	0.09%
>20 times/month	610	51.87%

Gastrointestinal disease is also linked with food habit and lifestyle. Soft drinks and street food are responsible for generation of GI disorders. Carbonated beverage is responsible for acidity and incase of street food sometimes burned oil is used which is responsible for malabsorption and acidity [13]. It was found that 59.61% study sample were habit of taking soft drinks with moderate frequency. A similar trends was also observed in case of taking street food. In a study in 2020 it was found that 41% students daily eats first food [14]. Faisal A, *et al.* founds that 64% study sample eats fast food once to three times a week and a 25% consumed fast food more than three times a week [12]. The majority of the patients has habit of taking meat and 67.35% are taking 1-5 times and 24.32% are taking 6-10

times in every month on average. Around 45.51% of the respondents were tensed frequently as compared to 47.53% of almost not tensed people. Exercise has a major impact of regulation of gastric motility, acid secretion and food digestion. It was found that 46.17% of the sample spent around 1 hour for exercise and 17.01% for around 2 hours. Water intake is another parameter which prevents us from GI and other diseases and in this study 43.54% patients takes around 2 liters of water per day and 53.66% patients takes 2-4 liters per day. A healthy person needs 4-6 hour sleep every day and in this study 32.48% and 53.32% patients sleeps 4-6 and 6-8 hours respectively (Table 3).

Table 3: Patent's lifestyle and food habit

Lifestyle and food habit	Frequency	Percentages
Frequency of taking soft drinks		
1-5 times/month	701	59.61%
6-10 times/month	70	5.95%
11-15 times/month	15	1.28%
16-20 times/month	11	0.94%
>20 times/month	3	0.26%
No	376	31.97%
Frequency of taking street food		
1-5 times/month	650	55.27
6-10 times/month	186	15.82
11-15 times/month	61	5.19
16-20 times/month	16	1.36
>20 times/month	13	1.11
No	250	21.26
Frequency of taking meat		
1-5 times/month	792	67.35%
6-10 times/month	286	24.32%
11-15 times/month	39	3.32%
16-20 times/month	44	3.74%
>20 times/month	6	0.51%
No	9	0.77%
How frequently you are tensed		
Very frequently	18	1.53%
Moderate frequently	534	45.41%
Less frequently	40	3.40%
Almost not	559	47.53%
No	25	2.13%
Time spent by sitting every day		
≤4 Hours	448	38.10%
4-6 Hours	352	29.93%
6-8 Hours	250	21.26%
8-10 Hours	73	6.21%
≥10 Hours	53	4.51%
Time spent to exercise every day		
≤1 Hours	543	46.17%
1-2 Hours	200	17.01%
2-3 Hours	96	8.16%
3-4 Hours	103	8.76%
4 Hours	234	19.90%
Water take every day		
≤2 Liters	512	43.54%
2-4 Liters	631	53.66%
>4 Liters	33	2.81%
Hour of sleeping every day		
≤4 Hours	33	2.81%
4-6 Hours	382	32.48%
6-8 Hours	627	53.32%
8-10 Hours	131	11.14%
≥10 Hours	3	0.26%

To reduce HCL secretion, mainly Proton pump inhibitor (PPI) and H2 receptor blockers are used. The PPIs are weakly basic drugs which targets H-K-ATPase enzyme. The PPIs are acid activated pro-drugs which converted to sulfonic acids or sulfonamides. These compounds covalently bonds with cysteine of the surface of the enzyme. As a result the enzymes is inactivated and hence the secretion of HCL is reduced [15]. On the other hand, H2 receptor blockers acts by blocking H2 receptor in gastric parietal cells. As a result gastrin and histamine cannot bind with the receptor and HCL secretion is reduced [16]. It is found that Omeprazole (2nd generation PPI) is the mostly prescribed drug 36.65%, followed by Esomeprazole 25.60% and Pantoprazole 16.75%. Among the H2 receptor blockers, Ranitidine is the frequently prescribed drug which comprising of 6.46% (Figure 1). In a similar study in India it was found that Omeprazole and Pantoprazole was prescribed 48% and 28% for treating GI disorders [17]. Hasan MQ *et al.*, also showed that Omeprazole (43%) and esomeprazole (35%) were the most frequently prescribed PPIs [9].
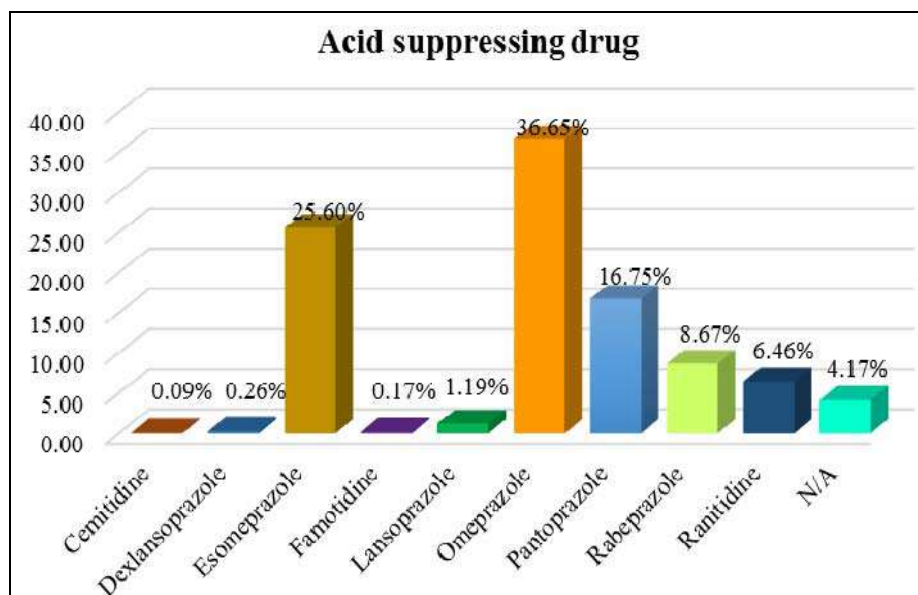

Fig 1: Prescription pattern acid suppression drugs

A considerable proportion of patients are being treated by antacids. The combination of aluminum hydroxide and magnesium hydroxide is administered on 64.54% patients. The other antacids are used by negligible amount while around 30% patients are not taking any kind of antacid preparation (Figure 2).
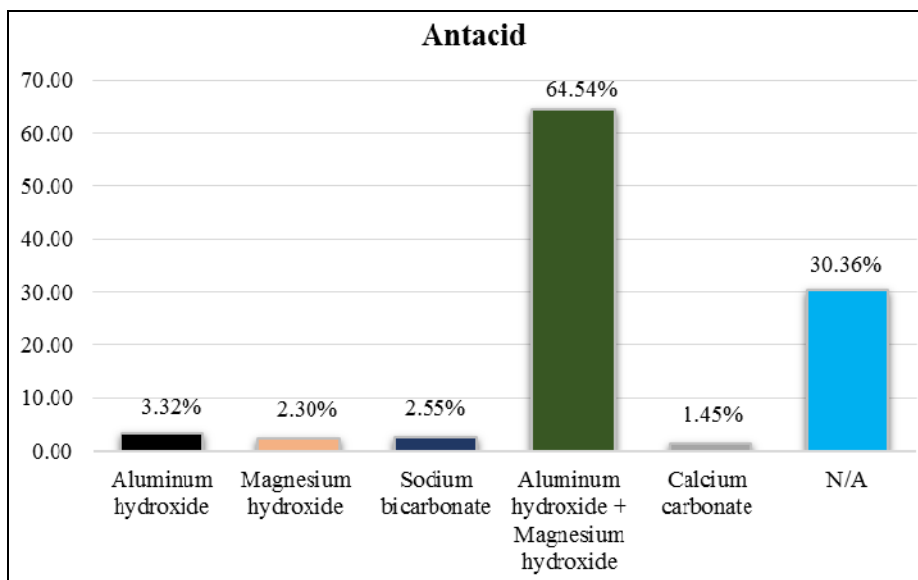

Fig 2: Use of antacid

Antibiotics are prescribed to treat various types of infection. In this study it is found that Metronidazole is the most common prescribed antibiotic which accounts for 35.46%. Although Amoxicillin and Tetracycline was also prescribed in considerable amount and their prevalence is 17.77% and 10.54% respectively.
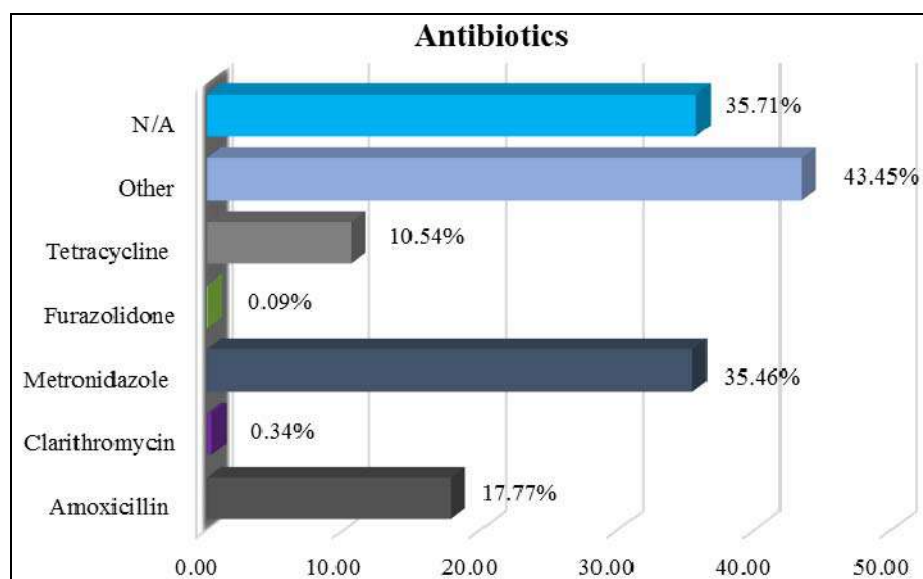
Fig 3: Prevalence of antibiotics

Discussion

Gastrointestinal disease is the disorder which effects of the gastrointestinal system and is one of the most common disease in the world both for developing and developed countries. This study revealed that a significant proportion of the study population have used self-medication which is strictly prohibited according to guidelines and has the opportunity to experience of medical complications [18]. Another alarming findings is that the patients' needs long term treatment to relief from GI disease which is inconvenient in terms of cost and management. Sometimes drugs such as antacids has contraindications with other prescribed drugs and reduce the efficacy of those drugs. Acid suppressing drugs even increase the risk of heart attack 15-20% [19]. The patients of this study faced a range of symptoms and complications such as malnutrition, nausea, upward movements of stomach contents, burning sensations, and sleeping difficulties.

Lifestyle is an important factor for development and intensity of GI disease. In this study it was observed that around 70% of GI patients has habit of taking soft drinks and 80% has habit of taking street food. It was also found that the habit of exercising and drinking sufficient water is not up to the mark. It is said that 'prevention is better than cure'. Treating GI disease is not better choice than preventing it. Leading disciplined lifestyle especially eating healthy food, exercise regularly, and taking sufficient foods should be practiced. Beside this sitting long time in a row should be avoided.

Conclusion

The direct relationship between GI disease and lifestyle patterns suggests that approach should be developed by considering food habit and emphasize on disciplined daily activities. Once these disease develops, the patient faces long term complications both disease related and daily activities. Awareness to the patients should be ensured along with the prescribed medications. Beside this the peoples should carefully think about of taking street foods and other foods which has detrimental effects on the human body.

Authors Contribution: GM Masud Parvez is responsible

design of the work and preparing the manuscript. Jannatul Ferdous Tonu and Rawshon Ara are responsible for data analysis and all other authors collects the data.

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