

# **A survey on Proportion and Consequence of Self-Medication of Anti-ulcer drugs among Undergraduate student**



[A dissertation submitted to the Department of Pharmacy, Faculty of Allied Health and Sciences, Daffodil International University, Dhaka. This report presented in partial fulfillment of the requirements for the degree of Bachelor of Pharmacy.]

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## APPROVAL

This Project paper, survey on “**The predominance of cardiovascular diseases and the management system in the center of Kushtia district, Bangladesh**” submitted to the Department of Pharmacy, Faculty of Allied Health Sciences, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Pharmacy and approved as to its style and contents.

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## Declaration

I, MD. Rakibul Islam, hereby declare that, this project is done by me under the guidance of Md Mizanur Rahman, Assistant Professor, Department of Pharmacy, Daffodil International University, in partial fulfillment of the requirements for degree of Bachelor of Pharmacy. The results embodied in this project have not been submitted to any other university or institute for the award of any degree.



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## *Certificate*

*This is to certify that the results of the investigation that are embodied in this thesis works are original and have not been submitted before in substance for any degree or diploma of this university. The entire present work submitted as a thesis work for the partial fulfillment of the degree of Bachelor of Pharmacy.*



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- MD. Rakibul Islam



*To my Parents and Teachers,  
The people who are constantly supportive of me in all aspects of my life.*

## **Abstract**

Gastric ulcers are a common health problem that affects millions of people worldwide. They are characterized by the formation of open sores on the lining of the stomach or small intestine, and can cause symptoms such as abdominal pain, nausea, and vomiting. Anti-ulcer drugs are commonly used to treat gastric ulcers, but their prevalence and consequences of use among undergraduate students are not well understood. This survey paper aims to investigate the prevalence and consequences of anti-ulcer drug use among undergraduate students. The study was conducted among 100 undergraduate students from various universities using a self-administered questionnaire. The findings of the study showed that a considerable number of undergraduate students have used anti-ulcer drugs, with a majority using antacid and proton pump inhibitors (PPIs) as the most commonly used type. The main reasons for use were acidity, heart burn, chest pain, sour stomach. Some students reported experiencing adverse effects such as vomiting, nausea, and diarrhea. Overall, this study highlights the need for education and awareness campaigns targeted towards undergraduate students regarding the risks and benefits of anti-ulcer drug use.

# Index

Chapter	Lesson	Topic	Page no
<b>01</b>		<b>Introduction</b>	<b>1-3</b>
	1.1	What is anti-ulcer drug?	2
	1.2	Classification	2
	1.3	The mechanism of anti-ulcer drug	3
<b>02</b>		<b>Literature Review</b>	<b>4-6</b>
<b>03</b>		<b>Objective of the study</b>	<b>7-8</b>
		General Objective	8
		Specific objective	8
<b>04</b>		<b>Method &amp; materials</b>	<b>9-11</b>
	4.1	Targeted population and period	10
	4.2	Study Design	10
		Questionnaire development, pretesting and validation	10
		Inclusion criteria	11
		Exclusion criteria	11
		Sample size and sampling technique	11
<b>05</b>		<b>Result</b>	<b>12-21</b>
	5.1	Socio- demographic data	13
	5.2	Information about self-medication	14
	5.3	Assessment of taking anti-ulcer drug	16
	5.4	Attitude towards self-medications of anti-ulcer drug	20
<b>06</b>		<b>Discussion</b>	<b>22-24</b>
<b>07</b>		<b>Conclusion</b>	<b>25-26</b>
<b>08</b>		<b>Reference</b>	<b>27-28</b>



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**CHAPTER-1**

Self-medication, the practice of using over-the-counter (OTC) drugs without a prescription or consulting with a healthcare professional, is a common behavior among people worldwide (Abay & Amelo, 2010). It is a common practice among students, especially in developing countries where medications are easily available over the counter. The prevalence of self-medication of anti-ulcerant drugs among healthcare and non-healthcare students has been a matter of concern in recent years. Although it may seem like a convenient way to manage health issues, it can pose serious risks, especially when it comes to the use of anti-ulcerant drugs. This survey paper aims to explore the prevalence and consequences of self-medication with anti-ulcerant drugs among healthcare and non-healthcare students in Bangladesh.

In countries with limited economic resources, individuals often resort to self-treatment for most health conditions. Many developing nations allow drugs to be sold without a doctor's prescription, making self-medication a cheaper option for those unable to afford medical care. Research has shown that self-medication has become more prevalent due to various factors such as socioeconomic status, lifestyle choices, easy availability of drugs, the ability to manage certain illnesses through self-care, and the wider availability of medicinal products (Abay & Amelo, 2010).

The practice of self-medicating with over-the-counter (OTC) medications is growing in popularity worldwide. Depending on the country and group of people being studied, the global prevalence of self-medication ranges from 11.2% to 93.7% (Chautrakarn et al., 2021)

## **1.1 What is anti-ulcer drug?**

Medicines used to treat acid peptic disease and ulcers, known as antiulcer agents, are generally safe for the liver and are commonly used. These medications work by reducing stomach acid production, neutralizing acid, or protecting the lining of the stomach from acid damage. They are used to prevent and treat duodenal and gastric ulcers, relieve acid reflux, esophagitis, and minor upper gastrointestinal discomfort (National Institute of Diabetes and Digestive and Kidney Diseases US, 2012).

## **1.2 Classification:**

1. Reduction of gastric acid secretion.

- a) H<sub>2</sub>-antihistamines: Cimetidine, Ranitidine, and Famotidine.
  - b) Proton pump inhibitors: Omeprazole, Lansoprazole, and Pantoprazole.
  - c) Anticholinergics: Pirenzepine, Propantheline, and Oxyphenonium.
  - d) Prostaglandin analogues: Misoprostol.
2. Neutralization of gastric acid (Antacids).
    - a) Systemic: NaHCO<sub>3</sub> and Sodium citrate.
    - b) Nonsystemic: Mg (OH)<sub>2</sub>, CaCO<sub>3</sub>, Aluminum hydroxide gel and Magnesium trisilicate.
  3. Ulcer protectives: Sucralfate, Colloidal Bismuthsubcitrate (CBS).
  4. Anti-Helicobacter pylori drugs: Amoxicillin, Clarithromycin, Metronidazole, Tinidazole, and Tetracycline.

### **1.3 The mechanism of anti-ulcer drug:**

Antacids like aluminum, magnesium hydroxide, and calcium carbonate are commonly used to treat ulcers. These drugs have minimal absorption and are unlikely to cause any harm to the liver. They may cause a slight increase in urinary pH, and in rare cases, calcium salts may lead to hypercalcemia.

On the other hand, histamine type 2 receptor blockers (H<sub>2</sub> blockers) and proton pump inhibitors (PPIs) are the most powerful and effective medications used to treat ulcers. They work by blocking acid production and secretion, leading to reduced gastric acidity, improved symptoms, and faster healing of acid-peptic diseases. While generally well-tolerated, these drugs have been associated with rare cases of acute liver injury.

Other antiulcer medications include sucralfate and prostaglandin analogues (misoprostol). Sucralfate adheres to ulcerated mucosal surfaces and aids in healing, while misoprostol inhibits acid secretion and promotes ulcer healing. Sucralfate is not absorbed and has not been linked to liver injury, while misoprostol is absorbed systemically but has not been associated with liver injury, likely due to its other side effects and need for frequent dosing.

# LITERATURE REVIEW

## CHAPTER 2

- ❖ About 4 million people in the United States currently have active peptic ulcers, with approximately 350,000 new cases diagnosed annually. Duodenal ulcers are diagnosed four times more often than gastric ulcers. In the US, around 3,000 deaths per year are attributed to duodenal ulcers and an equal number to gastric ulcers. While hospitalization and mortality rates for peptic ulcers have decreased significantly in the US, changes in the criteria for determining the underlying cause of death may account for some of the decline. Hospitalization rates for duodenal ulcers dropped by almost 50% from 1970 to 1978, but there was no corresponding decrease in hospitalization rates for gastric ulcers. In most Western countries, duodenal ulcer is more common than gastric ulcer in terms of morbidity, although deaths from gastric ulcer are equal to or greater than those from duodenal ulcer. In Japan, however, morbidity and mortality rates are higher for gastric ulcer than for duodenal ulcer (KURATA & HAILE, 1984).
  
- ❖ Evaluation of anti-ulcer drug self-medication based on demographic studies on ulcer disease and drug use in the community. Numerous studies have examined self-administration of medication in various countries worldwide, including the use of anti-ulcer drugs. Patients who were treated in general gastroenterology clinics were more likely to self-medicate compared to those in inflammatory bowel disease clinics (9.0% vs. 2.9%,  $P = 0.019$ ). Self-medication was also more common among patients who did not have regular follow-up (22.2% vs. 6.1%,  $P = 0.026$ ) and those who experienced more flares ( $P < 0.001$ ). Patients who had stored steroids from previous flares (17.9% vs. 6.0%,  $P < 0.001$ ) or lived with a partner who took steroids (9.3% vs. 1.1%,  $P = 0.038$ ) were more likely to self-medicate than others. The most common reasons for self-medication were the need for quick relief of symptoms (55.6%), fear of symptom worsening (47.2%), and difficulty in obtaining an appointment (25.0%). Only 19.4% of patients informed their physician when they began self-medicating, and only 11.1% said they would not use corticosteroids again (Mesonero et al., 2021).
  
- ❖ A study conducted earlier showed that the usage of anti-ulcer medication among individuals was 9.6% in 1997, and this number rose to 11.6% in 1998, followed by 15.4% in 1999, 14.5% in 2000, and finally 15.9% in 2001. Thus, the overall

prevalence of anti-ulcer medication usage during the five-year period was 36.1% (Chen et al., 2003).

- ❖ According to the recent data, the most commonly utilized medication was analgesic/antipyretic, accounting for 58.75% of the medications used, followed by antiulcerants at 40.17%, antibiotics at 18.17%, antihistamines at 10.58%, and antitussive at 9.33%. The majority of students, 54.5%, took analgesic/antipyretic without consulting a medical professional, followed by 49.83% who self-prescribed antibiotics, 43.5% for antiulcerants, 46.83% for antitussives, and 31.08% for antihistamines (Idris et al., 2016).
  
- ❖ According to the recent report, self-medication was found to be prevalent at a rate of 88.49%. The main reasons for self-medication were prior experience with the illness (48%), mild illness (30%), and the desire to save time (25%). The most commonly treated ailments were headache (30%), gastric acidity (28%), fever (22%), and runny nose (14%). Interestingly, 38% of the students had learned about their medications from previous prescriptions provided by doctors for the treatment of their past illnesses. The respondents used various types of drugs, with the majority (32%) using analgesics, followed by antiulcerants (28%), antipyretics (25%), and antibiotics (22%) (Islam & Hossain, 2019).
  
- ❖ In terms of reasons for seeking self-medication, 126 students (47.19%) felt that their illness was mild, while 76 (28.46%) preferred self-medication because it saved time. Cost-effectiveness was cited as the primary reason by 42 students (15.73%), while 23 (8.62%) preferred self-medication because of the urgency of their situation (Banerjee & Bhadury, 2012).

# OBJECTIVE

## CHAPTER

### 3

### **3.1 General Objective:**

To determine the proportion of self-medication of anti-ulcerant drugs among undergraduate students and to explore the potential consequences of such practices.

### **3.2 Specific objective of the study:**

- a. To identify the types of anti-ulcerant drugs commonly used for self-medication.
- b. To know the frequency and reasons for their use, and the sources of information that influence the decision to self-medicate.
- c. To investigate the possible adverse effects of self-medication.



# METHOD

## CHAPTER

### 4

#### **4.1 Targeted population and period**

This cross-sectional survey was conducted among undergraduate students of several department of Daffodil International University. The data collection period was 15 March 2023 to 15 April 2023.

#### **4.2 Study Design**

A cross-sectional study was carried out at Daffodil International University in Bangladesh, which involved administering structured questionnaires to pharmacy students. The study was conducted entirely physically. Interviewers conducted this study physically and asked question to the participant individually. Interviewers asked this question to participate the study by taking their permission.

#### **4.3 Questionnaire development, pretesting and validation**

After conducting a thorough review of existing literature and books on the use and effects of anti-ulcer medications, a preliminary questionnaire was created. The questionnaire's validity was tested by comparing it to similar questions from a range of literature published in various countries, all of which were available in Daffodil International University's library. Before setting the final question, this question was validated by the professor of Daffodil international university. A pre-tested questionnaire was used to collect data on demographic information, prevalence, and reasons for self-medication, sources of information on anti-ulcerant drugs, and adverse effects experienced by the participants. A preliminary survey was conducted on a group of 12 students to ensure that the questionnaire was clear, useful, and included accurate information before conducting the final survey.

#### **4.4 Inclusion criteria**

Undergraduate student who studies in daffodil international university are able to participate in this survey and who will be willing to participate in the survey. The age range 18 to 25 years.

#### **4.5 Exclusion criteria**

Students who are not studies in Daffodil International University aren't able to participate in this survey and who were not willing to participate in the survey. The age range below 18 and above 25 years.

#### **4.6 Sample size and sampling technique**

The data from of this survey were collected through conventional sampling technique. A cross-sectional survey was conducted among 100 students of Daffodil International University.

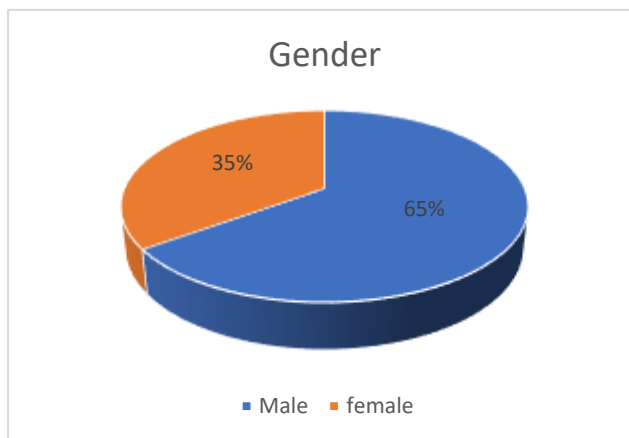
# RESULT

## CHAPTER

### 5

## 5.1 Socio- demographic data:

From 150 students ,101 responded, resulting in a response rate of 67.33%. Out of those who responded, 100 were included in the study as the target was to collect data from 100 students and 1 data was rejected due to incomplete data. Data analysis was conducted based on the 100 collected responses. Among 100 respondents 65% were male and 35% were female.



**Chart 1: Gender of participant**

The majority of the participants in this study were 4<sup>th</sup> year students, and 58% of them fell in the age range of 22-25 years old. Additional information regarding the participant's residential status, religion, and other demographic details can be found in Table 1.

**Table 1:** socio-demographic profile of students.

Variable	Response rate	Standard deviation
<b>Gender</b>		
Male	65	65%
Female	35	35%

**Age range (years)**

> 18	0	0%
18-20	1	1%
20-22	41	41%
22-25	58	58%

**Level of study**

1 <sup>st</sup> year	22	22%
2 <sup>nd</sup> year	20	20%
3 <sup>rd</sup> year	9	9%
4 <sup>th</sup> year	49	49%

**Residential status**

With family	45	45%
Without family	55	55%

**Religion**

Muslim	92	92%
Traditional	8	8%
Others	0	0%

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**5.2 Information about self-medication:**

Among the 100 participants, 88 had knowledge about self-medication. According to Table 2, the majority of the participants (55%, n = 55) had engaged in self-medication within the last six months. Of the total participants, 69 (52.2%) reported rare occasions of self-medication (once a month), 69 (26.1%) practiced it once every two weeks, and

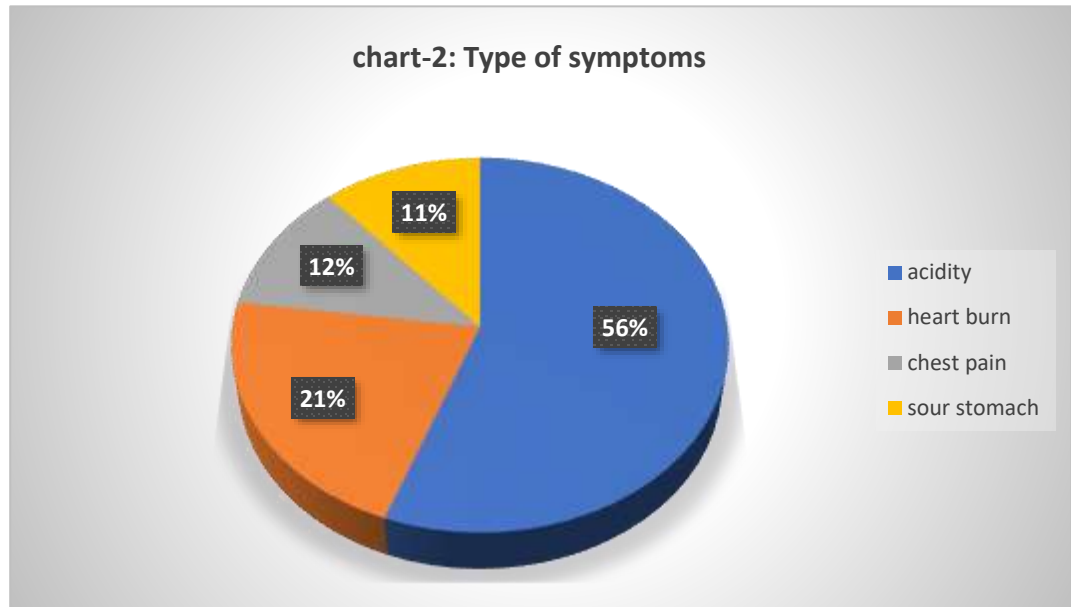
69 (21.7%) did it once a week. However, 34% of the responders did not practice self-medication in the past six months.

Table-2: information about self-medication

<b>Question</b>	<b>n</b>	<b>Percentage (%)</b>
<b>“Self-medication can be defined as the use of drugs to treat an illness or symptom when the user is not a medically qualified professional.”</b>		
Agree	88	88%
Disagree	12	12%
<b>Practice self-medication for the past six month</b>		
yes	55	55%
No	34	34%
Maybe	11	11%
<b>Frequency of self-medication</b>		
Once a month	52	52%
Once every two weeks	26	26%
Once a week	22	22%

### 5.3 Assessment of taking anti-ulcer drug

In this study we can see that the majority of the participant (n=100, 70%) are taking anti-ulcer drug. The top reasons for morbidity were related to acidity, with heartburn being the second most commonly reported cause and chest pain coming in third. The frequency of these conditions was 39 (56%),15 (21%), and 8 (12%), respectively. Sour stomach was also reported as a cause of morbidity, with a frequency of 8 (11%).



Drugs or drug groups commonly used for self-medication among 70 students, those who take different drugs at different times is shown in different charts. Among those who use different drugs at different times, Antacid, Ranitidine, omeprazole, esomeprazole, and Rabeprazole are the most frequently used drugs for self-care. The corresponding frequencies of use are 25 (36%), 6 (9%), 20 (29%), 15 (21%), and 4 (6%), respectively.

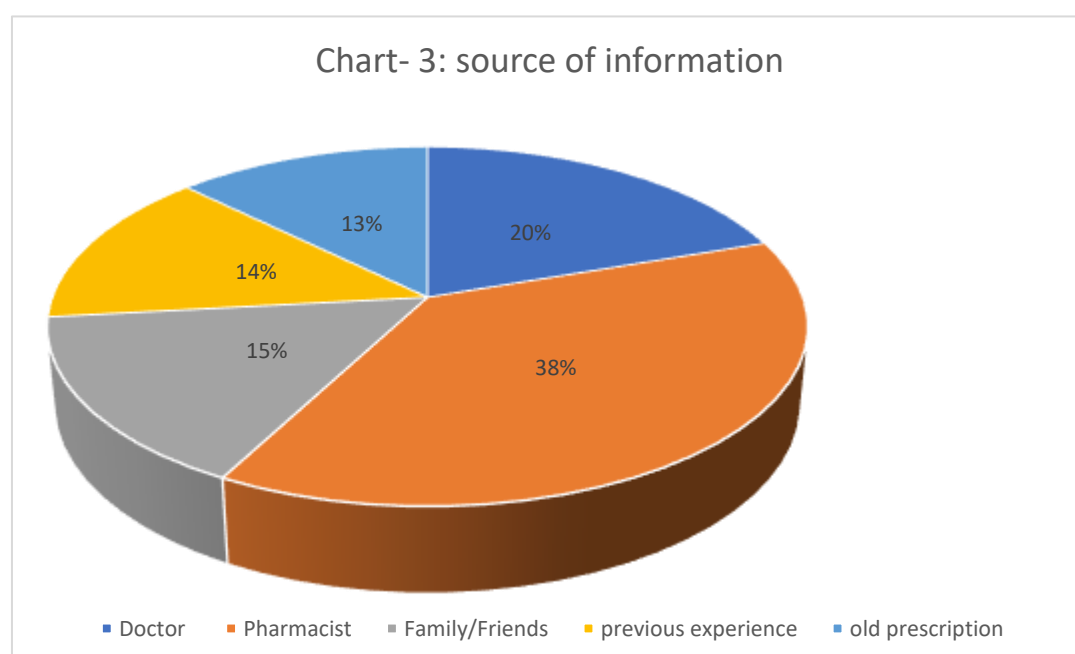


Table- 3: Drugs or drug groups used by the students for self-medication

Drugs/ drug groups	Frequency	Percentage (%)
Antacid	25	36
Ranitidine	6	9
Omeprazole	20	29
Esomeprazole	15	21
Rabeprazole	4	6

### source of information

Of the total 70 students, 38% sought advice from a pharmacist for information about self-medication, while 20 % consulted a doctor and 15% relied on family and friends. Additionally, 14% of the students depended on their previous experience and also 13%



depends on old prescription. Most of the participants (64%) were obtained the drug from pharmacy shop. On the other hand, 32% participant was taken their drugs from family/ friends in other words available at home. But a small percentage 4% of student obtained drug from online shopping.

Table-4: Obtaining source of medicine

<b>Source of medicine</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Pharmacy shop	44	64
Family/friends	22	32
Online shopping	3	4

The survey revealed that there were various reasons why respondents practiced self-medication. 38% of them (27 individuals) claimed they had successfully treated a similar illness in the past. 26% (18 individuals) believed their illness was mild and did not require medical attention. 13% (9 individuals) stated that cost was a significant factor in their decision to self-medicate, and 16% (11 individuals) reported doing so in emergency situations.

Table-5: Factors for self-medication

<b>Reason</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Prior experience	27	38
Non serious illness	18	26
Emergency use	11	16

Cost effectiveness	9	13
Other	5	7

Out of the 70% of volunteers who participated in the survey, 49 agreed that they did not experience any negative effects while self-medicating. However, the remaining 30% reported experiencing side effects. These side effects included vomiting 5 (7%), constipation 7 (10%), abdominal discomfort 2 (3%), diarrhea 4 (6%), and indigestion 3 (4%).

**Table-6: Side effects for self-medication**

<b>Reason</b>	<b>Frequency</b>	<b>Percentage</b>
No	49	70%
Vomiting	5	7%
Constipation	7	10%
Abdominal pain/ discomfort	2	3%
Diarrhea	4	6%
Indigestion	3	4%

## 5.4 Attitude towards self-medications of anti-ulcer drug

Among 100 people, majority (49%) thought that self-medications of anti-ulcer drug is right. On the other hand, 32% thought that it isn't right. The survey shows that, out of the respondents (n=32), 28% believed that seeking medical advice from a doctor is necessary for treating an illness, while 12% acknowledged that a patient may not be able to make logical decisions regarding their social media use that means can not rationalization of drug. Around 52% participant highlighted they got always favor from self-medication and 34% stand against self-medication. 14% participant recommended self-medication in rare situation. [Table- 7]

Table- 7: Attitude towards self-medications of anti-ulcer drug

Question	Frequency	Percentage
<b>Attitude towards self-medications of anti-ulcer drug is right</b>		
Yes	49	49%
No	32	32 %
Maybe	19	19%
<b>Reasons against self-medication practice</b>		
Consultation with physician is essential	9	28%
Risk of adverse drug reactions (ADRs)	6	19%
Practitioner can diagnose an illness	7	22%

A patient cannot rationalize SM	4	12%
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I am not sure	6	19%
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**Advice to others regarding self-medication**

I am always in favor of Self Medication Practice	52	52%
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I am against Self Medication but it can be used in rare situations	14	14%
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I am always against Self Medication practice	34	34%
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# DISCUSSION

## CHAPTER

# 6

The students willingly took part in the study without any pressure or coercion. Their voluntary participation indicates their familiarity with anti-ulcer medication. Self-medication is the act of taking medication that hasn't been advised, prescribed, or regulated by a licensed healthcare professional (Fuentes Albarrán & Villa Zapata, 2008). In this study, 88% participants are known about self-medication. This study seeks to see the prevalence and consequence of anti-ulcer drug.

The results of this study provide valuable insights into the prevalence and causes of acidity-related morbidity among the participants. It is noteworthy that a majority of the participants are taking anti-ulcer drugs, indicating that the problem of acidity is quite prevalent among this population.

The study highlights the top reasons for morbidity related to acidity, with heartburn and chest pain being the most commonly reported symptoms. This information can be useful for healthcare professionals in diagnosing and treating patients with similar symptoms. The fact that sour stomach was also reported as a cause of morbidity is also noteworthy, as this symptom may be easily overlooked but can have a significant impact on a person's quality of life. In a previous study, 9.6% of people used anti-ulcer medication in 1997, which increased to 11.6% in 1998, 15.4% in 1999, 14.5% in 2000, and 15.9% in 2001. The prevalence of anti-ulcer drug use over a 5-year period was 36.1% (Chen et al., 2003).

Furthermore, the study provides insights into the drugs commonly used for self-medication among the students who take different drugs at different times. The fact that antacid is the most frequently used drug for self-care is not surprising, given its widespread availability and effectiveness in providing relief from acidity-related symptoms. The other drugs mentioned, such as Ranitidine, omeprazole, esomeprazole, and Rabeprazole, are also commonly used to treat acidity-related conditions, and their frequencies of use reflect their effectiveness in providing relief to the users.

The survey conducted among the volunteers indicates that self-medication, although not necessarily recommended, did not produce negative effects for the majority of participants. However, it is concerning that 30% of volunteers reported experiencing side effects. The specific side effects reported were vomiting, constipation, abdominal discomfort, diarrhea, and indigestion. While the numbers for each of these side effects

vary, it is important to note that they all can be uncomfortable and, in some cases, dangerous.

It is crucial to understand that self-medication can be risky, as it can lead to incorrect dosage, mixing medications that can interact negatively, and failure to identify underlying health issues. Moreover, self-medication can mask the symptoms of an underlying condition, making diagnosis and treatment difficult for healthcare professionals.

Therefore, it is recommended to always consult a healthcare professional before taking any medication, whether it be prescription or over-the-counter. A healthcare professional can provide personalized advice on the appropriate dosage, potential side effects, and potential interactions with other medications that the individual may be taking.

While the majority of volunteers did not experience negative effects from self-medication, the 30% who did report side effects should serve as a reminder of the risks associated with self-medication. It is always best to seek professional advice before taking any medication to ensure that it is safe and effective for individual use.



# CONCLUSION

## CHAPTER

### 7

Anti-ulcer drug use is prevalent among undergraduate students, with a higher prevalence among males. The consequences of anti-ulcer drug use can be both physical and psychological, including an increased risk of adverse drug reactions and drug dependency. It is important for healthcare providers and educators to raise awareness about the risks associated with anti-ulcer drug use and to promote safe and effective alternative treatment options for undergraduate students.

Overall, this study provides valuable information about the prevalence and causes of acidity-related morbidity among the participants, as well as insights into the drugs commonly used for self-medication among the students who take different drugs at different times. These findings can be useful for healthcare professionals in diagnosing and treating similar cases, as well as for individuals who may be experiencing similar symptoms and seeking self-care options. However, it is important to note that self-medication can be risky, and individuals should always consult with a healthcare professional before taking any medication, even if it is available over-the-counter.

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