

Consumer Perception of Non-Prescriptive Antacids

Dissertation Submitted to



for the partial fulfilment for the award of the
degree of Master of Business Administration
(MBA)

in

Pharmaceutical Management

by

Sheetal Bastia

Under the Supervision and Guidance of

Dr. Sudhinder S Chowhan

DECLARATION BY STUDENT

I hereby declare that this dissertation titled, **Consumer Perception of Non Prescriptive Antacids** is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

Signature

Sheetal Bastia

Roll no. 0269

CERTIFICATE

This is to certify that dissertation titled, **Consumer Perception on Non Prescriptive Antacid** is a record of the research work undertaken by Sheetal Bastia, roll no. 0269, in partial fulfillment of the requirements for the award of the degree of MBA (Pharmaceutical Management) from the IIHMR University, Jaipur under my guidance and supervision and her approach to the research study has been sincere, scientific, and analytical.

Faculty Guide:

Dr. Sudhinder S. Chowhan
Assistant Professor,
IIHMR University, Jaipur

Date

Dean:

Dr. Saurabh Kumar Banerjee,
IIHMR University, Jaipur

Date

ACKNOWLEDGEMENT

During my major project work, I got help, advice, suggestions, and co-operation from many people. Some advice influenced, inspired, and helped me in completing this Project. A task becomes easier when you get the moral support and encouragement, and if these names are not listed, the project work would remain incomplete.

Firstly, I would like to convey my honest unforgettable regardful thanks and gratitude to **Dr. Sudhinder S. Chowhan, Associate Professor, IIHMR University, Jaipur** who from day-to-day busy schedule had spent his valuable time to motivate at various levels and put me on right path to complete my project properly. Without his able assistance, my project would not have been completed authentically. I extend my sincere gratitude towards him. And wish to receive the same in future as well.

I wish to express my sincere and very special thanks to **Mr. Saurabh Kumar Banerjee, Dean, IIHMR University, Jaipur** for his able supervision which helped me for the collection and compilation of the review work.

Last, but not the least I am grateful to my family for bearing me throughout the compilation of this project. Their strong & continuous support was my strength at all stages.

Sheetal Bastia

Table of Contents

1. INTRODUCTION	9
1.1. Indian Pharmaceutical Industry	9
1.2. Indian Market Summary	10
1.3. OTC Drugs	12
1.3.1. US OTC Pharmaceutical Market	14
1.3.2. European OTC Pharmaceutical Market	15
1.3.3. Indian Scenario	16
2. ANTACIDS	18
2.1. Mechanism of action	18
2.2. Indications	18
2.3. Side effects	18
2.4. Interactions	19
2.5. Problems with reduced stomach acidity	19
2.6. Antacids in Ayurveda	19
2.7. Some commonly used Antacids	21
2.8. Popular Brands of Antacids	23
2.9. Popular Ayurvedic Antacids	25
3. LITERATURE REVIEW	28
4. AIM AND OBJECTIVE	35
5. RESEARCH METHODOLOGY	36
6. RESULT DATA ANALYSIS AND INTERPRETATION	37
6.1. Demographic Analysis	37
6.2. Findings of the survey	40
7. CONCLUSION AND RECOMMENDATIONS	61
8. DISCUSSIONS OF THE STUDY	63
9. REFERENCES	64
10. ANNEXURE	66

List of Tables

Table I. US OTC Pharmaceutical Market Segmentation	14
Table II. Europe OTC Pharmaceutical Market Segmentation	14
Table III. Demographic analysis - Age	35
Table IV. Demographic analysis - Gender	36
Table V. Demographic analysis – Monthly Income	37
Table VI. Descriptive Statistics	42
Table VII. KMO and Bartlett’s Test	42
Table VIII. Total Variance	42
Table IX. Extraction Sums of Squared Loadings	43
Table X. Rotation Sums of Squared Loadings	43
Table XI. Component Matrix	44
Table XII. Rotated Component Matrix	44
Table XIII. Reduced Components	45
Table XIV. Group Statistics (t-test)	45
Table XV. Independent t-test	46
Table XVI. Means (Gender) and Key factors influencing purchase of the antacids	48
Table XVII. One-way ANOVA (w.r.t. Monthly Income)	48
Table XVIII. Means (Monthly Income) and Key factors influencing purchase of the antacids	50
Table XIX. One- way ANOVA (w.r.t. Age)	50
Table XX. Means (Age) and Key factors influencing purchase of the antacids	52

List of Figures

Figure 1. Indian OTC Pharmaceutical Market Segmentation	16
Figure 2. Consumer Decision Process	28
Figure 3. Age groups of sample population.....	37
Figure 4. Gender classification of sample population.....	38
Figure 5. Monthly Income classification of sample population.....	39
Figure 6. Graph depicting reasons for usage of antacids by sample population	40
Figure 7. Kind of antacids used by sample population.....	41
Figure 8. Popular antacid brands known to sample population	42
Figure 9. Key factors influencing purchase of antacids by sample population.....	43
Figure 10. Scree Plot (Eigenvalue v/s Component Number)	46
Figure 11. Means (Gender) and Key factors influencing purchase of the antacids	50
Figure 12. Means (Monthly Income) and Key factors influencing purchase of the antacids.....	52
Figure 13. Means (Age) and Key factors influencing purchase of the antacids.....	54
Figure 14. Primary source of information about antacids among the sample population	55
Figure 15. Reliability of Primary Source.....	56
Figure 16. Preferred Dosage Form among the sample population	57
Figure 17. Point of Purchase w.r.t. Antacids among sample population.....	58
Figure 18. Sample population responses w.r.t. antacid statements given.....	59
Figure 19. Action upon experience of side effects	60

Abstract

Consumer behavior provides marketers with useful information and guidelines on new technology advances that they might explore. The goal of this study was to figure out what factors influence people's decisions to buy over-the-counter antacids. Consumer awareness of side effects, habit-forming tendency, resistance, and symptomatic relief of OTC antacids were also examined. The impact of customer attributes and preferences on the choice to purchase antacids was investigated using an empirical study with a convenience sample of 255 consumers.

The study's primary method of data gathering was through an online channel using Google forms and a questionnaire. To verify, enrich, and complement the information collected through the online channel, a thorough analysis was conducted. The study showed factors influencing respondents' decision to purchase OTC antacids in the following order; Efficacy, Company, Ingredients, Dosage form, Flavour, Color and Price.

Consumers were not price sensitive about antacids, and chemists were found to be the major opinion leader affecting OTC antacid purchases. Consumers favored antacids that provided immediate relief. Almost half of all those surveyed wanted to see a doctor if they had any side effects. Also, antacids in the tablet or capsule form were found the most popular of all.

The commercial ramifications of the research findings might be sought in enhancing the Brand Performance of OTC antacids through improved effectiveness of marketing strategies.

1. INTRODUCTION

1.1. Indian Pharmaceutical Industry

The Pharmaceutical Industry is a knowledge-based sector that relies significantly on R&D not just to develop new products but also for its own expansion. Basic research (discovering new molecules), on the other hand, is a time-consuming and expensive process that is controlled by major multinational corporations.

Western markets are the largest and fastest expanding in the Global Pharmaceutical business, owing to the introduction of novel compounds at high pricing. Because of a well-established reimbursement and insurance structure, per capita drug expenditure in western countries is disproportionately high when compared to developing countries.

The Indian Pharmaceutical Industry is highly fragmented but has grown rapidly due to the friendly patent protection, low-cost manufacturing structure, intense competition, high volumes and low prices. Exports have been steadily increasing overtime.

The Drug Price Control Order (DPCO) has had a significant impact on profitability and, as a result, innovation. The government, on the other hand, has been gradually loosening restraints. In the 1980s, DPCO had a 90 percent control span, but only 50 percent in 1995. This is expected to continue and be decreased further in the future.

Old and mature categories such as anti-infectives, vitamins, and analgesics are degrowing or stagnant in the home market, whilst new lifestyle categories such as cardiovascular, CNS, and anti-diabetic are growing at double digit rates. The therapeutic presence of a company is thus crucial to its success in the local market.

Origins and Evolution

The modern pharmaceutical industry is a worldwide non-assembled sector with fierce competition. Its beginnings can be traced back to the late nineteenth-century budding chemical industry in the Upper Rhine Valley near Basel, Switzerland, when dyestuffs were discovered to have antiseptic characteristics. Hoffman-La Roche, Sandoz, Novartis, and other modern pharmaceutical businesses all began as Rhine-based family dyestuff and chemical firms. Many of these chemical businesses eventually transitioned into the production of pharmaceuticals and other synthetic compounds, and they evolved into global players

Penicillin's debut and success in the early 1940s, as well as the relative success of other revolutionary medications, institutionalized, industrial research. The business grew quickly in the 1960s, due to new discoveries and a favorable tax environment. Healthcare spending soared during this time as global economies flourished. In the 1970s, the industry underwent significant changes as a result of stronger regulatory controls, particularly with the establishment of legislation governing generic drug manufacturing. As a result of the new legislation, permanent patents were cancelled and fixed-period patent protection for branded products was established, resulting in the emergence of a market for branded generics.

- **Branded companies:** Branded companies are the innovative companies that carry out the research and development of new drugs. Initially, their products were protected by patents.
- **Generic companies:** Generic companies produce drugs that they have not developed themselves. Normally these drugs are not protected by patents anymore. However, many branded companies have divisions or subsidiaries that produce generics as well.

With regard to the products of these companies, three categories of drugs are commonly distinguished

- **Prescription drugs:** These have to be prescribed or administered by healthcare professionals
- **Over the counter (OTC) drugs:** Also known as non-prescription drugs and are usually self-medication drugs
- **Vaccines:** These are usually regarded as a separate category next to pharmaceuticals. In contrast to pharmaceuticals, vaccines are not based on chemical compounds but on live bacteria and viruses. The production process of vaccines is therefore quite different and far more complicated.

1.2. Indian Market Summary

India is the world's top supplier of generic pharmaceuticals. The Indian pharmaceutical industry supplies more than half of world demand for vaccines, 40% of generic demand in the United States, and 25% of all pharmaceuticals in the United Kingdom. India is the world's third-largest producer of pharmaceuticals by volume and the fourteenth-largest producer by value. A network of 3,000 medicinal businesses and 10,500 manufacturing units makes up the domestic pharmaceutical sector. India enjoys an important position in the global

Pharmaceuticals sector. The country also has a large pool of scientists and engineers with a potential to steer the industry ahead to greater heights. The home market is predicted to rise thrice in the next decade, according to the Indian Economic Survey 2021. In 2021, India's domestic pharmaceutical market is expected to be worth US\$ 41 billion, rising to US\$ 65 billion by 2024 and US\$ 120- 130 billion by 2030. In FY21, India's drug and pharmaceutical exports totaled US\$ 22.15 billion (until February 2021).

The Indian pharmaceutical industry has long depended on "reverse engineering," or product copying, to generate enormous profits. In recent years, however, larger domestic companies have realized that in order to survive in the global market, they must pursue original research and/or penetrate the regulated generics marketplaces in the United States and Europe. Simultaneously, India's pharmaceutical industry is known for producing low-cost generic versions of patented medications.

The following are some of the techniques that Indian pharmaceutical companies have used to increase their global market share:

- **Geographic diversification**, with some companies focusing on expanding their presence in regulated areas and others investigating the world's developing/underdeveloped markets. Some companies have even begun local marketing in foreign markets as part of their diversification strategy.
- **Partnerships** with generic companies and innovators to deliver bulk medications and formulations.
- For regulated markets such as the United States, there are companies focusing on **value added generics**, niche segments or patent challenges.

Apart from these strategies, Indian companies must continually design novel tactics to thrive in a highly competitive global market in an industry marked by high capital requirements, high technical complexity, high process skills, high value-added prospects, and high export volumes. To get a foothold in overseas markets, Indian companies are pursuing mergers and acquisitions. They must further consolidate in various parts of the world in order to become global players.

Industry Structure

With approximately 3,000 small and medium-sized generic manufacturers in India, the pharmaceutical industry is fragmented. There are more than 20,000 units, with 300 in the organised sector and the rest in the small scale/unorganized sector. The top 250 pharmaceutical businesses control 70% of the market, with the market leader accounting for approximately 7% of the total. Manufacturers of bulk medicines and formulations make up the Indian pharmaceutical industry. Bulk drugs are active pharmaceutical ingredients (APIs) that are utilised in the formulation of pharmaceuticals. According to estimates, the percentage of formulations against bulk pharmaceuticals is 75:25. In India, nearly 60,000 formulations are produced in more than 60 therapeutic areas. The domestic market accounts for more than 85% of the formulations produced in the country. In terms of formulations, India is mostly self-sufficient, while some life-saving, next-generation technology barrier formulations are still imported.

Outside of the United States, the Indian pharmaceutical industry has the most plants approved by the US Food and Drug Administration. It also has a large number of Drug Master Files on file, allowing it to enter the lucrative generic bulk drug industry. The industry today produces bulk pharmaceuticals for all main therapeutic categories that need complex manufacturing procedures, as well as facilities that are compliant with "Good Manufacturing Practices" for the creation of various dosage forms. In India, the cost of setting up a plant is 40% less than in developed countries, while the cost of bulk manufacturing is 60% to 70% less. The industry's strength is in creating cost-effective technologies for drug intermediates and bulk activities in the shortest time possible without sacrificing quality. India recognises product patents for all new chemical entities in conformity with WTO rules.

1.3. OTC Drugs

Drugs that are legally authorised to be sold 'Over the Counter,' i.e., without a prescription from a doctor/pharmacist, are referred to as 'OTC Drugs.' Non-prescription drugs, often known as OTC drugs, are drugs that are not on the list of "prescription only drugs" in India, despite the fact that the term has no legal meaning. The drugs listed under Schedules H and X of the Drug and Cosmetics Act and its Rules are known as prescription-only medications. Schedule G drugs (mainly antihistamines) do not require a prescription for purchasing, but must include the following mandatory statement on the label: "Caution: Taking this preparation without medical supervision is harmful." Under a voluntary agreement with the pharmaceutical industry, drugs

that fit under these three categories are not currently advertised to the general public. In communities with populations of less than 1000 people, non-drug licenced stores can currently offer a few medicines classed as "Household Remedies" included in Schedule K of the DCA&R.

The DCA and the DCR control over-the-counter proprietary products labelled as "Ayurvedic Medicines." Non-chemists can sell them because they do not require a drug licence. Because of their plant-based natural active ingredient, some of India's leading OTC brands (e.g., Vicks VapoRub, Iodex, Moov, Itch Guard, Eno, etc.) are registered as "Ayurvedic Medicines."

Considering the above framework, key categories with OTC potential in India are:

- Vitamins and minerals
- Cough and cold
- Gastrointestinals
- Analgesics
- Dermatologics
- Herbal/Ayurvedic medicines

Labelling Requirements

There are n separate labelling requirements for OTC drugs. Most packaged consumerproducts, including drugs, are obliged to have the maximum retail price written on the label under the Packaging Commodities Act. It is forbidden to sell any goods at ahigher price than the MRP.

Advertising Requirements

The Drug and Magic Remedies Act specifies a number of diseases for which advertising is prohibited. It also forbids false or misleading advertisements thatconvey false perceptions about the genuine character of the substance, make fraudulent claims, or are generally false or misleading in any way. The Drug Controller General of India, in partnership with the Organisation of Pharmaceutical Producers in India, has issued a voluntary guideline on over-the-counter advertising, which all OPPI member companies must observe.

The following OTC medicines advertising can be seen on TV in India:

- Digestives
- Antacids
- Antiflatulents

- Cold rubs and analgesic balms/creams
- Vitamins/tonics/health supplements
- Medicated skin treatment
- Analgesic/cold tablets
- Antiseptic creams/liquids
- Glucose powders
- Cough liquids
- Throat lozenges
- Medicated dressings (band-aids)
- Baby gripe water

1.3.1. US OTC Pharmaceutical Market

The Food and Medicine Administration must determine that a drug is safe and effective before it can be approved for over-the-counter use. A new drug can be freed from prescription-only status under present regulations if the FDA approves a new drug application that supports the product's over-the-counter use. Alternatively, a novel drug can be sold over-the-counter if its contents are listed in previously published regulations specifying the requirements for over-the-counter status, and the product's labelling complies with these standards. The standards also apply to drugs that have already been approved for prescription-only use and are being reviewed for over-the-counter availability. If the FDA has ordered additional clinical trials deemed necessary to examine the switch, the Drug Price Competition and Patent Term Restoration Act of 1984 may offer three more years of marketing exclusivity for the makers of pharmaceuticals converted from prescription to over-the-counter status. If an over-the-counter version of a prescription drug is approved, it may still be available by prescription for certain indications or at levels not approved for over-the-counter usage. Humphrey and Kefauver-Harris Amendments define criteria to be used by the FDA in evaluating a new drug application for a proposed over the counter drug. The required demonstrations of safety and efficacy for an over-the-counter drug include components distinct from those for prescriptions drugs.

Table I. US OTC Pharmaceutical Market Segmentation

Category	% Share
Cough/cold remedies	44.6
Analgesics	20.9
Vitamins/minerals	17.2
Skin treatment	9.5
Digestives/intestinal remedies	6.2
Hand sanitizer	1.6

1.3.2. *European OTC Pharmaceutical Market*

In 2018, the European OTC market was valued at USD 32.8 billion, and it is predicted to grow to USD 37.9 billion by 2024. The market is estimated to increase at a CAGR of 3.30 percent during this time period. Product innovation, expanding OTC medication distribution channels, pharmaceutical companies transitioning from prescription to OTC drugs, and reducing advertising regulations for these OTC pharmaceutical products are all factors that have fueled the rise of the European OTC Pharmaceutical Market.

Table II. Europe OTC Pharmaceutical Market Segmentation

Category	% Share
Cough/cold remedies	18.7
Vitamins/minerals	16
Analgesics	15
Medicated Skin products	8.90
Traditional Medicines	16.7
Other	24.6

1.3.3. Indian Scenario

India is now ranked 11th in terms of the size of the global OTC market. Within five years, it is expected to climb to ninth place. The Indian OTC market (i.e. promoted non-prescription drugs) is currently valued at USD 1,793 million (euro 1 310 million) and is growing at a rate of 23% per year. The Indian market for over-the-counter pharmaceuticals (OTCs) is valued \$940 million and is increasing at a rate of 20% per year, or double that of prescription drugs. The government wants to make OTCs more widely available outside of pharmacies, and the Organization of Pharmaceutical Producers of India (OPPI) has proposed selling them in post offices. In 2011 Indian OTC market was estimated at \$ 1.7 billion with an annual growth rate of 23%.

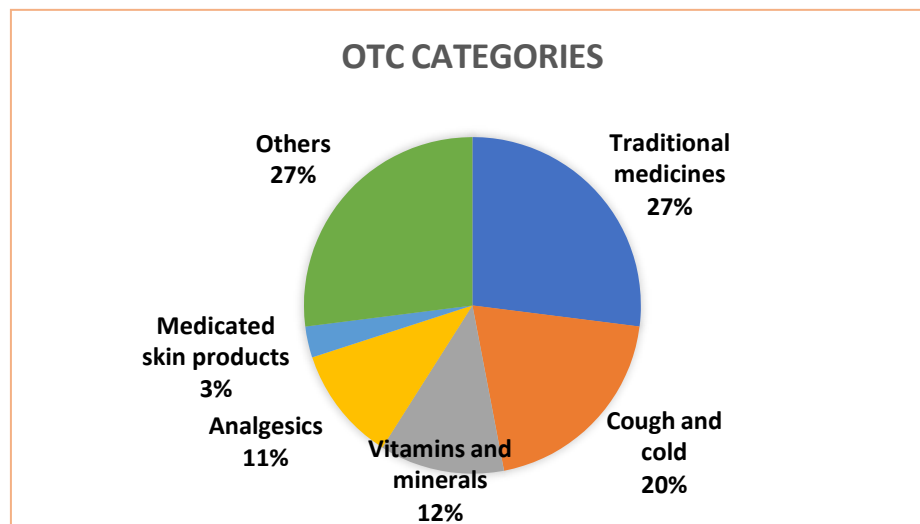


Figure 1. Indian OTC Pharmaceutical Market Segmentation

Pharmaceuticals, healthcare, medical and diagnostic equipment, and surgical equipment and supplies are all part of the Indian healthcare sector, which is estimated to be worth \$30 billion. The healthcare sector employs nearly 4 million people and generates 5.2 percent of GDP. Private healthcare expenditures accounts for over 80% of total healthcare spending.

Growth Drivers

Consumer Awareness: Consumer awareness of preventative care is driving the expansion of nutraceuticals, vitamins, and dietary supplements, among other

categories. People today believe and understand that long-term prevention not only lowers overall healthcare costs but also keeps them healthy on a daily basis.

Self-medication: Higher education levels have increased the confidence to self-medicate, resulting in a growing desire for self-medication. The lack of time for minor ailments in today's hectic life is a big contributor to this trend. People also save money on doctor's bills and lost time, which encourages them to self-medicate in instances for ailments such as headaches, stomach-aches, colds, and coughs, among others.

Factors of Lifestyle: As people's lives get more hectic, they want quick and easy solutions that are in keeping with their fast-paced lifestyles. Amrutanjan, Digene Fast Melt, and Vicks VapoCool are some of the companies that have capitalised on this market desire by emphasising the speed with which their products ion. Increased demand as a result of changing lifestyle patterns raised gastrointestinal growth by 8% in 2013.

Psychological Factors/ Mindset Change: People's desire to avoid becoming sick and perform well in today's hectic and competitive atmosphere has resulted in the expansion of over-the-counter (OTC) categories such as vitamins and nutritional supplements.

Product Innovation: The introduction of smaller packs (a FMCG sector concept) has also aided product accessibility in terms of cost and accessibility to the public, as well as carrying convenience. For example, Metho plus pain balm comes in a 5g pack that is easy to transport.

Channels Development: The availability of items in hypermarkets, grocery stores, and healthcare specialty stores resulted in an increase in OTC product sales. These channels make it easier for customers to purchase for such items while doing their regular shopping.

Safety Awareness: With increased awareness of the side effects and potential risks of allopathic medicines, there has been an increase in demand for natural medicines and remedies (categories such as cough, cold, allergy remedies, digestive remedies, vitamins and dietary supplements), resulting in a shift toward some herbal/traditional products that are thought to be safe. In India, the OTC market is fast expanding, indicating that customers are engaging in self-medication. However, self-medication, which is becoming more popular among knowledgeable consumers, can have serious consequences due to severe adverse effects. On both a national and international level, OTC medications account for a significant share of the overall pharmaceuticals market. The growing market for over-the-counter pharmaceuticals also reflects an increase in the number of people who use these goods.

2. ANTACIDS

Antacids are medicines that counteract (neutralise) the acid in the stomach to relieve indigestion and heartburn.

2.1. Mechanism of action

Antacids work by increasing the pH of the stomach, which helps to reduce acidity. The nerves in the gastrointestinal mucosa send pain signals to the central nervous system when gastric hydrochloric acid reaches them. When these nerves are exposed, as in peptic ulcers, this happens.

2.2. Indications

Antacids are medications that are taken by mouth to treat heartburn, which is the most common symptom of gastroesophageal reflux disease (GERD) or acid indigestion. Antacid treatment alone is symptomatic and only indicated for milder symptoms. H₂ receptor antagonists, proton pump inhibitors, and *H. pylori* eradication may be used to treat ulcers.

2.3. Side effects

Excess calcium from supplements, fortified foods, and high-calcium diets can cause milk alkali syndrome, which is hazardous and potentially lethal. Calcium-containing compounds may increase calcium production in the urine, which could lead to kidney stones. Constipation can also be caused by calcium salts.

Antacid side effects differ based on the individual and any other medications they may be taking at the time. Changes in bowel functions, such as diarrhea or flatulence, are the most typical side effects for those who experience them.

Although individual reactions to any drug may vary, drugs containing aluminium or calcium are more likely to produce constipation, while those containing magnesium are more likely to induce diarrhea. To avoid unwanted side effects, some products mix these components, thereby cancelling them out.

2.4. Interactions

Other medications, such as tetracycline and amphetamine, may have their bioavailability affected by changes in pH or complex formation. Certain medications' excretion in the urine may also be affected. Tetracycline chelation using aluminium hydroxide can result in nausea, vomiting, and phosphate excretion, as well as phosphate insufficiency.

2.5. Problems with reduced stomach acidity

Reduced stomach acidity can impede the digestion and absorption of key minerals like iron and B vitamins. Antacids increase the risk of infection because the stomach's low pH generally destroys eaten microorganisms. Some medications' bioavailability may be diminished as a result. For example, ketoconazole's bioavailability is lowered at high intra-gastric pH.

2.6. Antacids in Ayurveda

Antacids are medications with the pharmacological characteristic of neutralizing stomach acid to treat hyperacidity caused by indigestion and heartburn. Hyperacidity is a problem caused by hydrochloric acid reflux in the stomach during the digestive process. This hydrochloric acid, along with other enzymes, is required for digestion.

The hormonal functions of gastrin and somatostatin, which control the secretion and inhibition of hydrochloric acid, respectively, control the digestive process. This is a normal physiological process of digestion, but when it is disrupted by a hormone imbalance or a mechanical problem, it leads to hyperacidity issues. This is characterized by the following symptoms:

- The most common sign of hyperacidity is a bitter taste in the mouth and an increase in saliva production. Following that, heartburn, nausea, belching, and often stomach cramps ensue.
- There is pain in the upper abdominal region (epigastric). Headache and giddiness are also present in some patients.
- The heartburn increases while the patient lies in bed, this is one of the most uncomfortable symptoms of hyperacidity.

Ulcers are a common consequence in the early stages of the disease. It is sometimes characterised by multiple mouth ulcers ranging from the oral cavity to the oesophagus. This is

usually related to an increase in hydrochloric acid output.

Amla pitta is the Ayurvedic term for this ailment. It is thought to be a disease induced by pitta aggravation. Ayurvedic writings mention signs and symptoms that are extremely similar to those found in current science. Dietary irregularities, indigestion, an excess of spicy, heavy fried food, disturbed sleep and stress, hormonal imbalances of Gastrin and Somatostatin, and loss of appetite are the main causes. There could be a mechanical dysfunction causing this condition, as well as other factors such as drinking and smoking.

According to Ayurveda, this ailment is caused by an excess of pitta. This sickness occurs when pitta combines with rasa dhatu and enters the annavaha strotas (digestive tract). Ayurveda's basic line of treatment and modern science's basic line of treatment are diametrically opposed. The allopathic antacid category medications are stated to have acid neutralising agents as well as a central nervous system depressant. The aluminium and magnesium salts are commonly found in antacids. This can also be accomplished with alginic acid. Alginic acid reacts with saliva to produce a frothy discharge into the stomach, which helps to decrease acid reflux. Constipation, abdominal pain, nausea, and giddiness are some of the negative effects of these antacids. However, antacids are one of the most extensively used medicines in the world, with about a third of the population of the United States and the rest of the globe using them. This disease affects approximately 35% of the population in India. This is a lifestyle problem, and those who are hooked to nicotine, alcohol, or a lot of packaged food with a lot of salt in it are more likely to contract the disease. The ayurvedic approach to healing is diametrically opposed to that of modern science. Virechan karma is the primary approach for curing this condition (the removal of undigested food as well as bile by purgative drugs).

In both allopathic and ayurvedic medicine, the basic treatment is the same. That is a change in lifestyle to avoid the foods that induce hyperacidity. Overexposure to heat, according to Ayurveda, should be avoided in this ailment. However, the second step of treatment, which is drug-based, is completely different, as ayurvedic medications are purgatives that have a tendency to eliminate pitta. Allopathic medications, on the other hand, operate on the acids to neutralise them while also stopping the flow of gastric fluids. In the chronic stages of hyperacidity, the allopathic side has surgical intervention, which is either endoscopic anti-reflux surgery or gastroesophageal surgery to prevent acid.

2.7. Some commonly used Antacids

- 1. Aluminium Hydroxide:** In typical settings, aluminium hydroxide, $\text{Al}(\text{OH})_3$, Alum, is the most stable form of aluminium. Gibbsite (also known as hydrargillite) and its three polymorphs, bayerite, dolerite, and nordstrandite, can all be found in nature.

Uses

This chemical is marketed as an antacid under the brand names Alu-Cap, Aludrox, and Pepsamar. The hydroxide reacts with the stomach's excess acid, lowering its acidity. This decrease in the acidity of the stomach contents may assist to alleviate the symptoms of ulcers, heartburn, and dyspepsia. It can also produce constipation; thus, it's typically used with magnesium hydroxide or magnesium carbonate, which have laxative properties that balance it out. This substance is also used to keep phosphate (phosphorus) levels in the blood of persons who have kidney failure under control.

- 1. Magnesium Hydroxide:** Magnesium hydroxide is a chemical compound having the formula $\text{Mg}(\text{OH})_2$. Because of its milk-like appearance when suspended in water, it is commonly referred to as milk of magnesia. Brucite is the solid mineral form of magnesium hydroxide. Magnesium hydroxide is a popular ingredient in antacids and laxatives, and also prevents folic acid and iron absorption.

Uses

Magnesium hydroxide in water (milk of magnesia) is used as an antacid and laxative to counteract stomach acid. Magnesium hydroxide causes diarrhoea, which depletes the body's potassium supply. Failure to supplement with potassium may result in muscle cramps. Magnesium hydroxide is also utilised as a deodorant for the armpits. When applied topically to canker sores (aphthous ulcers), milk of magnesia is effective. Milk of magnesia is available in a variety of forms for medicinal use, including chewable pills, capsules, and liquids with varying flavours. It's used as an antacid, though more contemporary formulations incorporate the anti-motility actions with equivalent amounts of aluminium hydroxide to minimise laxative side effects.

- 2. Calcium Carbonate:** Calcium carbonate, is a chemical substance with the formula CaCO_3 . It's a common mineral found in rock all over the world, and it's the principal component of marine animals' shells, snails' shells, pearls, and eggshells. Hard water is usually caused by calcium carbonate, which is the active element in agricultural lime. It's widely used as a calcium supplement or an antacid in medicine, but too much of it can be dangerous.

Uses

Calcium carbonate is commonly used in medicine as a low-cost calcium supplement or antacid. It can be used to treat hyperphosphatemia by acting as a phosphate binder (primarily in patients with chronic renal failure). It's also utilised as an inert filler in the pharmaceutical sector for tablets and other medications. Calcium carbonate is a mineral that is used to make toothpaste and is also one of the constitutional medicines in homeopathy. When used in or with items like organic apples or food, it has also enjoyed a renaissance as a food preservative and colour retainer.

- 3. Sodium Bicarbonate:** The chemical compound sodium bicarbonate, often known as sodium hydrogen carbonate, has the formula NaHCO_3 . Sodium bicarbonate is a crystalline white substance that frequently appears as a fine powder. It is safe to use and can be used for experiments. It has a faint alkaline flavour that resembles that of washing soda (sodium carbonate). It is present in bile in its dissolved state, where it acts to neutralise the acidity of the hydrochloric acid produced by the stomach and is expelled via the bile duct into the duodenum of the small intestine. The salt is known by various names, including baking soda, bread soda, and cooking soda, because it has been around for a long time and is frequently utilised.

Uses

Sodium bicarbonate is largely used in cooking (baking), where it combines with other ingredients to release carbon dioxide, which makes dough rise." Sodium bicarbonate is also used as an antacid in an aqueous solution to treat acid indigestion and heartburn when taken orally. Chronic forms of metabolic acidosis, such as chronic renal failure and renal tubular acidosis, can be treated with it in an oral form. Urinary alkalization with sodium bicarbonate may be beneficial in the treatment of aspirin overdose and uric acid kidney stones.

- 4. Bismuth subsalicylate:** The chemical formula for bismuth subsalicylate is $C_7H_8BiO_4$. It is used to treat nausea, heartburn, indigestion, upset stomach, diarrhoea, and other stomach and gastrointestinal tract discomforts. Pink bismuth is the active element in over-the-counter drugs like Pepto-Bismol and modern (from 2003) Kaopectate.

Uses

Bismuth salicylate is a derivative of salicylic acid that has anti-inflammatory and antacid properties.

2.8. Popular Brands of Antacids

- 1. Digene:** Digene is the country's best-selling antacid and has been linked to a number of firsts in antacid therapy, including anti-flatulent activity, coating protection, and the ability to offer customers a variety of tasty tastes. It comes in three tasty flavours: mint, orange, and mixed fruit, as well as a miscellaneous flavours pack.
- 2. Digene Gel -** Digene Gel is a sugar-free syrup that works effectively against acidity and comes in a convenient bottle that can be maintained at home. It has the highest ANC (Acid Neutralizing Capacity) due to its professionally formulated mixture of active components.
- 3. Digene Tablet -** 2-4 tablets should be chewed or sucked after meals and before night, or as directed by the doctor.
- 4. Digene Ultra Fiz -** This antacid powder comes in convenient sachets that are ideal for on-the-go treatment. "Greater ANC, Effective Relief" Ultra Fizz is suitable for Quick and Effective relief from acidity, with a 50 percent higher ANC.

- 5. Gelusil:** Gelusil is a well-known brand in the Indian antacid industry. When Parke-Davis and Pfizer amalgamated, a brand that had previously belonged to Parke-Davis was transferred to Pfizer. It was promoted through an ethical route where the drugs are to be sold only through prescription. Gelusil was the first antacid brand to switch from an ethical to an over-the-counter route in 1999. It was a risky approach because there was a risk of alienating healthcare practitioners, as well as scepticism about the amount of advertising needed to promote such a mass market product.

Gelusil Liquid - Gelusil MPS Original Sugar Free Mint Liquid 200 ml is made up of three different medications: aluminium hydroxide, magnesium hydroxide, and dimethicone. Antacids include aluminium hydroxide and magnesium hydroxide, whereas Antiflatulents include dimethicone. Excess stomach acid is neutralised by aluminium hydroxide and magnesium hydroxide. Dimethicone acts by lowering the surface tension of gas bubbles, allowing gas to be expelled more easily by flatus or belching (burping). It also keeps gas from accumulating and forming in the digestive tract.

Gelusil Tablets - Gelusil MPS Tablet is a combination medicine which is used to relieve symptoms such as heartburn, sour stomach, hyperacidity, upset stomach, bloating, belching, and stomach discomfort caused by gas, etc. It contains Aluminium Hydroxide (250 mg) + Magnesium Hydroxide (250 mg) + Simethicone (50 mg) + Magnesium Aluminium Silicate (50 mg)

- 6. ENO:** It is GSK's most widely distributed gastrointestinal product. James Crossley Eno developed the fast-acting effervescent fruit salts, which are used as an antacid and bloat treatment. It's widely used as a baking powder alternative. ENO is indicated as an antacid for the fast relief of indigestion, heartburn, flatulence. It also acts as a urinary alkalising agent to alleviate symptoms associated with inflammatory conditions of the bladder. It majorly consists of sodium bicarbonate, anhydrous citric acid and sodium bicarbonate. However, it is contraindicated in patients that have hypertension, severe renal failure, heart failure, cirrhosis of the liver etc.

- 7. Pepfiz:** Pepfiz is an effervescent tablet that dissolves in water to provide a pleasant and bubbly drink while providing quick and total relief from gas, heartburn, and indigestion. It was first introduced in 1993. Simethicone, an anti-foaming agent, relieves bloating, discomfort, and pain caused by excess gas in the intestinal tract. Pepfiz has a powerful blend of digestive enzymes that breakdown undigested food, removing all symptoms such as gas, indigestion, burping, heaviness, and other discomforts associated with undigested food.

2.9. Popular Ayurvedic Antacids

- 1. Dabur Active Antacid:** It is an Ayurvedic medicine that is rich in therapeutic elements and provides fast and effective relief from acidity and gas. Each 100ml of Dabur Active Antacid is prepared from trivrit, bhringraja, guruchi, yashti, and khatika. When comparing Dabur Active Antacid to other antacids, it was discovered that Active Antacid neutralised the acidic solution in under a minute, while others took longer. Furthermore, Dabur Active Antacid was able to attain a pH of 5, whilst competitors were only able to obtain a pH of 4, indicating lower antacid activity. To neutralise the acidic solution, only 1.5ml of Dabur Active Antacid was shown to be sufficient. Popular antacids have a significantly higher amount requirement. Dabur Active Antacid is a tried-and-true Ayurvedic medicine for acidity and gas that comes with no unpleasant side effects.
- 2. Pudina Hara:** Pudina Hara is 100% safe and natural. Dabur Pudina Hara relieves stomach-aches, gas, and indigestion quickly. It's a tried-and-true fast-acting stomach treatment. Pudina Hara is 100% natural and safe, with the added benefit of mint (Pudina) for immediate relief from flatulence symptoms. Pudina Satva (a combination of mint oils) is used to make Pudina Hara Pearls, which have good carminative and digestive effects. They provide natural relief from stomach-aches, gas, and indigestion quickly and without adverse effects. Pudina Hara is made out of a proprietary mixture of mint oils that has been tested and true for decades.

3. Pudina Hara G - To get rid of gas and acidity quickly Completely natural, herbal, and safe, with the added benefit of mint (Pudina) for immediate relief from flatulence symptoms. Pudina Hara G is a granular effervescent powder with the natural flavour of Pudina (mint), as well as sarjikshara and lemon essence, according to the firm. Sarjikshara works as an antacid, whereas pudina extract has flatulent and carminative qualities. When sarjikshara and lemon extract are combined with water, effervescence is produced, which aids in the removal of gas from the alimentary canal. Pudina Hara G - the 'G' stands for gas - is being marketed by Dabur as a sure-fire treatment for gas and acidity, with a cool, minty flavour to boot.

4. Avipattikar Churna: Baidyanath Ayurved Product: The acidity of Avipattikar Churna is kept at a regular level. This one-of-a-kind solution eliminates heat from the intestines, acting as an antidote to sour foods. Avipattikar Churna is a traditional remedy for heartburn and hyperacidity. It is designed for persons who suffer from Pitta diseases such as biliousness, hyperacidity, or heartburn, and is soothing and calming to the interior membranes. Promotes good digestion, maintains appropriate gastrointestinal function, aids in toxin disposal, and eliminates excess Pitta. An Ayurvedic antacid that relieves the burning sensation of hyperacidity quickly. It contains digestive components, so it does more than just neutralise acid; it also restores proper digestion. Feelings of nausea and vomiting are relieved. It is composed of Trivrit, Lavang, Shunthi, Marich, Pippali, Haritaki, Bibhitaki, Amalaki, Musta, Bid lavan, Vidang, Ela, Tamalpatra, Sharkara.

5. Gasex: The Gasex Syrup is a natural digestive stimulant that works by enhancing the digestibility of foods through bile secretion stimulation and enzyme stimulation. Gasex is given to aid in the attainment of a healthy diet since it aids in the digestion of digested nutrients. Gasex syrup relieves gaseous distension by intestinal transit renormalizing effects. This drug's antispasmodic properties also aid in the ejection of trapped gases in the gut.

Gasex tablets – primarily used for the symptomatic relief of conditions like dyspepsia, indigestion, gaseousness, flatulence etc. It is also used for pre- radiographic bowel preparation for abdominal X-rays. In some cases, it is also

employed as a means to get relief from abdominal discomfort in the post- operative period and during prolonged immobilization.

Gasex syrup – used for the symptomatic control of indigestion, gaseousness, belching, abdominal distension.

As an herbal medication, Gasex is not known to have any side effects if used judiciously. However, in some rare cases patients may feel discomfort in the digestive system, heartburn and eructation.

- 6. Himcocid:** The Himcocid ingredients' synergistic impact neutralises stomach acid and provides relief from acute pain associated with gastric hyperacidity. Himcocid relieves bloating and stomach expansion caused by gases, as well as nausea symptoms. The medication improves appetite by reducing the symptoms of an unsettled stomach. It is composed of cowrie shell calx, magnesium silicate, pearl oyster shell calx. It often used for hyperacidity, dyspepsia, heartburn, stomach bloating etc.

If taken as directed, himcocid is known to have no side effects. However, in order to identify the danger of himcocid side effects in your specific case, you should see your health care professional. Himcocid might induce allergic responses in certain people (rash, itching, hives, headache, nausea).

3. LITERATURE REVIEW

Introduction

We all have one thing in common: we are all consumers. We acquire and consume a wide range of goods and services on a daily basis. However, we all have distinct preferences, likes, and dislikes, and we all behave differently while making purchases. Each consumer is distinct, and this distinction is mirrored in their consumption habits, patterns, and buying decisions. Understanding the purchasing habits and preferences of diverse consumers is aided by consumer behavior.

When a consumer's condition necessitates the use of a drug, they learn about the effects of the drug on their physical well-being. Drugs for non-chronic conditions are often used up or abandoned after use when healing occurs or a drug changeover occurs. This finding supports the hypothesis that the intermittent use of a medicine provides a learning opportunity with each purchase due to its perceived influence on the target condition. The purchase decision is made with a high level of involvement. Self-treatment has the potential to have devastating consequences. It is one's own health and the speed with which one recovers that is at stake. The majority of over-the-counter pharmaceuticals are complicated items with known contraindications, interactions with one's metabolism, nutrition, lifestyle, or other prescriptions.

Factors influencing consumer's purchase decisions

The decision-making process of consumers does not take place in a vacuum. The decision-making process is heavily influenced by cultural, social, individual, and psychological factors. They have an impact on consumers from the moment they are exposed to a stimulus to their post-purchase behaviour. External factors are defined as those that exist outside of the individual and their decision-making process. Cultural and social variables are examples of external variables. Individual and psychological elements are classified as "internal," meaning they are a part of the person and "within the decision-making process."

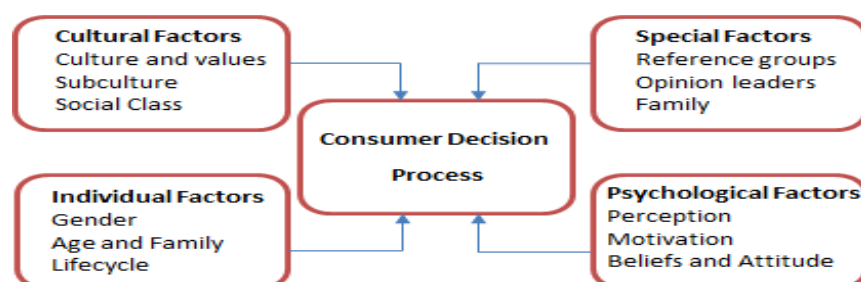


Figure 2. Consumer Decision Process

Literature Review

Today's consumers are more involved in their health care, including self-diagnosing and self-medicating. Because of this self-medication tendency, it's critical that OTC medications that represent a major risk to consumers have a particular unambiguous warning on the label, and that consumer education includes facts on the harmful effects.

Consumers need more information on the proper use of all OTC medications, according to surveys on consumer use and opinions towards OTC medications. According to a survey, one-third of customers do not read the labels of OTC products before purchasing or using them. One-quarter of those polled said they had difficulty reading and comprehending the labelling. More than one-third of customers said they take more than the prescribed dose some or all of the time, and more than one-fifth said they take OTC drugs for longer than they should.

According to a survey conducted by the National Council for Patient Information and Education, 95 percent of consumers read some portion of the label, but only selectively. Only a third of people who buy OTC products for the first time look for active components, and only one in five searches for warning information. When individuals have several symptoms, more than a third of customers combine non-prescription drugs. On a more positive note, the poll discovered that the majority of consumers acquire their health information on OTC pharmaceuticals from their doctors, and that doctors are eager to talk to patients about their drug use. Consumers need to be better informed about taking OTC drugs, according to these polls; labels (including warnings) need to be written in easy-to-understand language, and health professionals' engagement could improve consumer comprehension of OTC prescriptions.

Consumer Learning and Brand Valuation: A Report by M. Tonga Akcura and Co-workers: An application on OTC Drugs provides extensive information into user perceptions on OTC medicine purchases. According to this survey, despite worries raised by many physicians about the risks of self-medication, the rapid expansion of the OTC pharmaceuticals market, which is growing at a rate of 7.5 percent, implies that most individuals prefer the latter option. This development is attributed in part to the simplicity and speed with which OTC pharmaceuticals can be purchased, as well as the feeling of control that customers have over their decision. There are, however, costs involved with this choice (e.g., insurance plan do not

cover OTC drugs). Furthermore, because they lack comparative or experience knowledge, consumers' decisions are frequently made with incomplete information about them preferences, which may entail cognitive costs that are amplified by the perceived importance of the brand choice.

According to the report, each purchase of a specific OTC drug provides customers with an opportunity to analyse the drug's impacts on their health and physical well-being in general. This assumption is founded on the fact that over the time between two treatments, a consumer's recall of the drug's efficacy may fade, the focused condition may change, the application settings may change, or the product quality may vary. As a result of the dynamic acquisition of new knowledge, a consumer's opinion of a medicine is likely to change over time.

The purpose of this publication was to create a model that could separate the effects of changing quality valuation from the impact of promotional efforts on brandchoosing decisions. To do so, it simulates the underlying learning process as compounded by time-dependent amnesia, which manifests itself as a potential drop in the valuation carryover. It also investigates how consumers form initial product assessments based on personal experience, as well as whether dating and forgetting have brand-specific consequences. The following factors influenced the decision to apply the model to the selection of OTC drugs:

- The buying choice for this product category is marked by a high level of personal involvement. Consumers are aware that improper self-treatment can result in catastrophic consequences. As a result, consumers should be sufficiently motivated to learn which drug is best for their overall health.
- Consumers' perceptions of the importance of selecting the proper medicine choice are boosted by the knowledge that experience learning will improve their chances of effective self-treatment in the future. The experience's accompanying legitimacy makes the learning much more relevant.
- Medication administration is a very personal experience. Different people may react differently to the same medicine. When given at different times and under different situations, it may have a distinct effect on the same person. OTC medications provide simple learning opportunities through a series of treatments that are unique to each individual.

- When it comes to health decisions, people who choose over-the-counter medication have more power than those who choose prescription medication. Consumers' perceptions of self-sufficiency and convenience may be enhanced by learning what best meets their needs.
- For forward-thinking rational consumers, learning their personal preferences and forming an opinion about the performance of OTC drugs can reduce future costs such as physical costs (e.g., unnecessarily prolonging the period of discomfort by choosing an incorrect drug), monetary costs (e.g., extra drug purchases, visits to physicians in the case of suboptimal choice), and opportunity costs (e.g., missed opportunities due to suboptimal choice) (e.g., time away from work, reduced quality of life).
- Since the primary benefit of most OTC medications is symptom relief, the immediate value of drug use will outweigh the future worth of information gained via testing new brands. As category learning may be linked with increased risk and uncertainty, brand-centered learning is likely to win out.

A study at the University of Oklahoma College of Medicine found that a majority of those who took antacids had one or more serious conditions. For more than three months, those in the research suffered frequent heartburn. Remember that antacids mask symptoms rather than addressing the underlying issue, which could be harmful. Gastroenterologists advise that there are some "warning symptoms" that could indicate a serious illness: hoarseness, wheezing, and pain or difficulty swallowing.

According to a study published on thirdage.com in August 2002, "What Guys Are Saying About Their Health." In 1986, a Swedish study found that antacids were ineffective. In fact, antacids can occasionally cause the stomach to create extra acid, a condition known as acid rebound, which exacerbates your gastrointestinal issue. Antacids also alter the pH environment, perhaps generating a flora imbalance and placing the body at risk of infection from hostile bacteria. Antacids may also help lay the setting for infection with *Helicobacter pylori*, the bacterium that causes ulcers, according to some experts. By lowering stomach acid and digestive enzymes, alcohol hinders digestion.

Antiacids destroy hydrochloric acid (HCl), which is ordinarily produced in the stomach to facilitate digestion. "Using antacids causes the body to create more hydrochloric acid at first," says CNN's Elizabeth Lipski, MS. "A rebound effect occurs when parietal cells respond by producing additional acid." You're more likely to take more antacids, suppressing the acid your stomach needs even more. Antacid usage can deplete parietal cells, causing the stomach to produce less HCl. Avoiding the usage of antacids is one of the most surprising strategies to help prevent indigestion. In fact, over-the-counter antacids might cause an acid rebound, making hurting stomachs worse.

Another report, titled "Why Antacids Aren't a Good Source of Supplemental Calcium," by Schuyler Lininger, Jr., DC, a member of the "Let's Live" Medical Advisory Board and a chiropractor in Sandy, Oregon, states, The amount of calcium carbonate in antacid pills varies between 317 mg and 500 mg per tablet. Unfortunately, only 40% of calcium carbonate contains calcium; the remaining 60% is carbonate carrier. As a result, the calcium content of each tablet varies between 127 and 200 mg. If one wants to acquire the recommended daily allowance of calcium from antacids, say 1,000 mg, one will need to take five to eight pills each day (cost = \$1.24 to \$2.00). A 1,000 mg calcium supplement costs approximately \$0.12 to \$0.14 a day at your local natural health food store, and it's free of the potentially hazardous compounds included in antacids.

Antacids containing aluminium have been linked to severe bone pain and fractures, and some doctors believe that antacids induce bone loss. A sufficient supply of hydrochloric acid (HCl) in the stomach is important for protein digestion and mineral absorption (particularly calcium absorption). Because the purpose of antacid tablets is to reduce acidity, calcium absorption will be reduced rather than increased. When stomach HCl is in limited supply, heartburn is a common symptom. People with low HCL often can't eat fried or spicy foods, as well as eggs, butter, milk, meat, or cheese. Antacids are typically used to treat these symptoms. Other signs and symptoms include a full feeling after eating, belching, and constipation flatulence and diarrhoea (gas). Why does a lack of HCl generate these symptoms, and how do antacids help?

When HCl levels are low, the stomach stores food for longer, and some food regurgitates into the oesophagus instead of being emptied into the small intestine. The throat is burned because it shares the same mucosal barrier as the stomach (Heartburn). The burning is relieved by taking antacids, but all of the other issues stated above can still occur. What good are antacids if they can't be used as a calcium supplement or to cure heartburn?

A Report on "Usage of Supplemental Alternative Medicine by Community-Based Patients with Gastroesophageal Reflux Disease (GERD)" By- Craig W. Hayden, Charles Rernstein, Renée A. Hall, Nimish Vakil, Harinder S. Garewal and Ronnie Fass, Digestive Diseases and Sciences Volume 47, Number 1, 1-8, DOI: 10.1023/A:1013264730992 says, the general public in the United States is increasingly turning to alternative medicine. However, the volume and type of supplemental alternative medicine used by GERD patients in the community is unknown.

A total of 185 patients were polled in this study (82 men, mean age 55.8 years). Alternatively, 61.6 percent of those surveyed used alternative medicine for any reason. Only 3.8 percent of GERD patients, on the other hand, used additional alternative medicine. Alternative medications were used by twice as many women (95%) for any reason (including GERD). Individuals with daily acid regurgitation were 5.75 times (95 percent) more likely to use GERD-specific alternative medicines than patients with less frequent acid regurgitation. For whatever reason, none of the other demographics, health traits, or attitudes were predictive of the use of supplemental alternative medicine (or specifically for GERD). In conclusion, despite a larger use of supplemental alternative medicine for non-GERD-related illness, only a tiny fraction of GERD patients treated by community-based practitioners use supplemental alternative medicine explicitly for GERD symptoms. Alternative medicine use for GERD was positively connected with being female and experiencing acid regurgitation on a daily basis.

Another Study on "Acid Truth? New Light on Antacid Effectiveness "says, The Ahmedabad-based Consumer Education and Research Centre (CERC) recently conducted an in-house laboratory test on 35 brands of antacid tablets and liquids to determine their effectiveness. They put roughly 35 products to the test by imitating the digestive process in a glass stomach test conducted by the Consumers Union, a renowned consumer advocacy group in New York. They used this novel test in addition to lab tests to measure the efficacy of antacids in four categories. Antacid tablets, antacid liquids, antacid Antiflatulents liquids, and antacid Antiflatulents tablets were among the 35 brands. A brand from the ayurvedic category was also put to the test.

The Indian Pharmacopoeia has no mention of antacids, so CERC assessed the brands for acid neutralizing power according to the US Pharmacopoeia. Reflux chewable tablet failed the ANC test as required by USP 24. All of the others, including Reflux forte chewable tablet, were compliant. Surprisingly, a glass stomach was created to replicate stomach conditions in order to assess the efficiency of antacids. The results are listed below:

- Dey's Milk of Magnesia, an antacid liquid, provided relief for 30 minutes. Other brands' relief times ranged from 3 to 13 minutes.
- Digene Gel was the best performer in the antacid anti-flatulent liquid category, providing relief for 27 minutes, while Gelusil MPS Liquid provided relief for 25 minutes. For 24 minutes, Gastracid Liquid provided relief.
- Only Reflux Forte Chewable Tablet conformed to the two brands evaluated in the antacid tablet category, providing relief for 13 minutes.
- Visco Chewable Tablet was the best performer in the antacid anti-flatulent tablet category, providing relief for 22 minutes while Sorbacid Chewable Tablet provided relief for only 3 minutes.
- Eno Fruit Salt gave relief for 52 minutes.

CERC has sent the test results to all manufacturers for input and suggestions as a matter of policy.

A Report on "Consumers' Expectations of Over-The-Counter (OTC) Medicines: Location or Sale". By Ya-Ning (Helen) Lo, says more of these products are being sold in retail outlets other than pharmacies as a result of global trends in medicine-related regulation. As a result, researching consumer perceptions of OTC medications is becoming increasingly crucial. This study looked into the public's expectations about OTC drugs in relation to where they are sold. It was expected that consumers would perceive drugs differently depending on where they were purchased. Almost all of the participants (96.1%) had purchased OTC medications from pharmacies. Although the majority of respondents (80.7 percent) were aware that OTC drugs could be purchased in convenience stores, just 42.2 percent of those polled had done so. In terms of variety and quality, price, and ease to seek help, the two places had significantly different expectations. Pharmacies should offer a wider range of items and be of higher quality than the over-the-counter drugs available in convenience stores. The public's expectations regarding OTC product potency, safety, effectiveness, the likelihood of side effects, and package information were consistent across geographies.

4. RESEARCH OBJECTIVE

The major objectives of the study are as follows

- To assess the relative importance that consumers give to major factors influencing the buying behavior with respect to non-prescription antacids.
- To determine whether the consumers are aware about side effects, habit forming nature, development of resistance with repeated use and symptomatic relief offered by non-prescription antacids.
- To identify the opinion leaders influencing the consumer behaviour with respect to non-prescription antacids.
- To find out the general reason for using a non-prescription antacid.
- To find out the preference of consumers in non-prescription antacids category.
- To find out the preferred dosage form of the non-prescription antacid and its most commonly used channel of purchase.

5. RESEARCH METHODOLOGY

Research Method: The study is based on Exploratory as well as Descriptive research design. The purpose of the study is to evaluate the consumer perception towards the non-prescriptive antacids and check if any correlations exist between factors that influence the purchase of these antacids.

Sampling Method: Consumers of non-prescriptive antacids were selected as respondents through random and convenience sampling. A sample size of 255 respondents was selected for the study.

Data Collection Instrument: Information was collected through a structured questionnaire that contained both open ended and close ended questions.

Data Collection Method: The data collected is primary as well as secondary in nature.

Primary data was collected through the online channel via Google forms with the aid of a questionnaire. This was done keeping in mind the current COVID-19 situation and the restrictions imposed by the Govt. of India.

Secondary data was collected through books, journals, articles, websites etc. In addition, an extensive literature review survey was also undertaken.

Data Collection and Analysis: The responses collected were organized in the form of an excel sheet and statistically analyzed using Statistical Package for Social Science (SPSS) software and Microsoft Office Excel. The results were then suitably presented in the report.

6. DATA ANALYSIS AND INTERPRETATION

6.1. Demographic Analysis

Demographic analysis involves segregating the respondents into specific groups on the basis of age, gender, and monthly income. The frequencies and percentages of the 255 survey respondents are divided within the individual parameters of age, gender, and monthly income, are presented in the following tables.

- **Age of Respondents (N=255)**

Table III. Demographic analysis - Age

Age Group	Frequency	Percent	Cumulative Percent
<20	4	1.6	1.6
20-40	205	80.4	82
40-60	38	14.9	96.9
Above 60	8	3.1	100

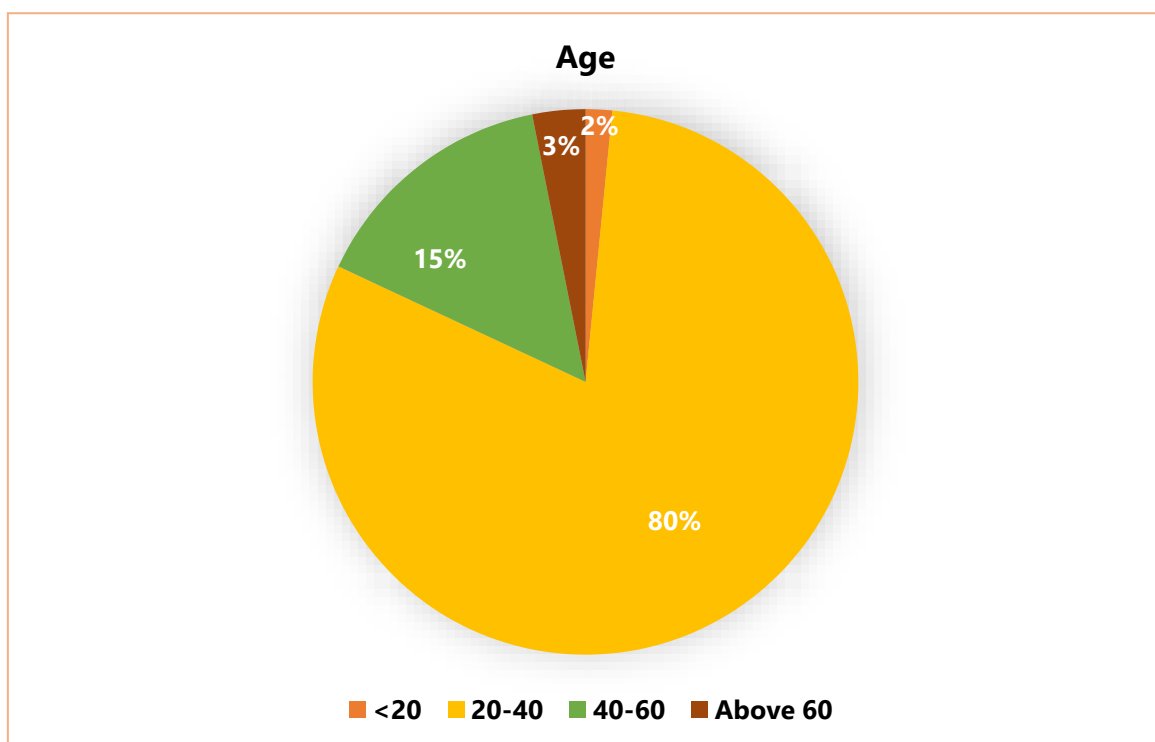


Figure 3. Age groups of sample population

The majority of the respondents of the population group belonged in the age group of between 20 years to 40 years of age (205 participants or 80% of the entire group) indicating that the sample population was young.

- **Gender (N=255)**

Table IV. Demographic analysis - Gender

Gender	Frequency	Percent	Cumulative Percent
Male	129	50.6	50.6
Female	126	49.4	100

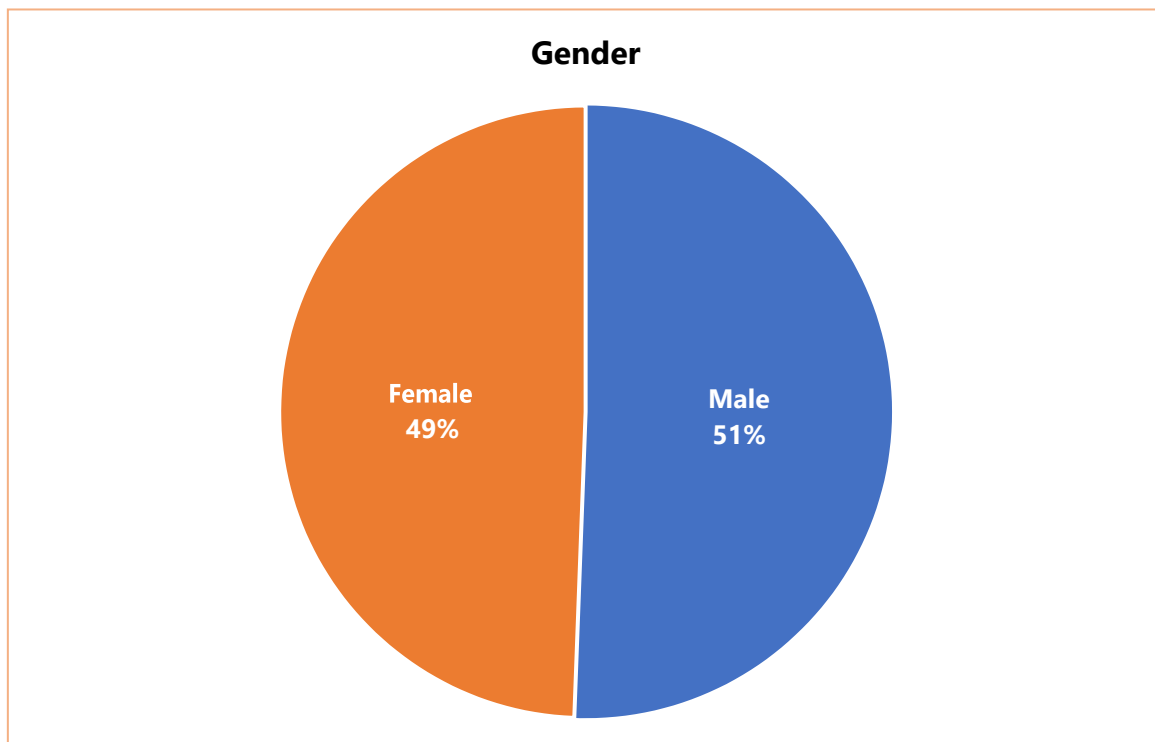


Figure 4. Gender classification of sample population

Of the total 255 respondents the split between the two genders was fairly equal, with a total of 129 males and 126 females.

- **Monthly Income (N=255)**

Table V. Demographic analysis – Monthly Income

Monthly Income	Frequency	Percent	Cumulative Percent
Less than ₹30,000	182	71.4	71.4
₹30,000 to ₹60,000	28	11.0	82.4
Above ₹60,000	45	17.6	100

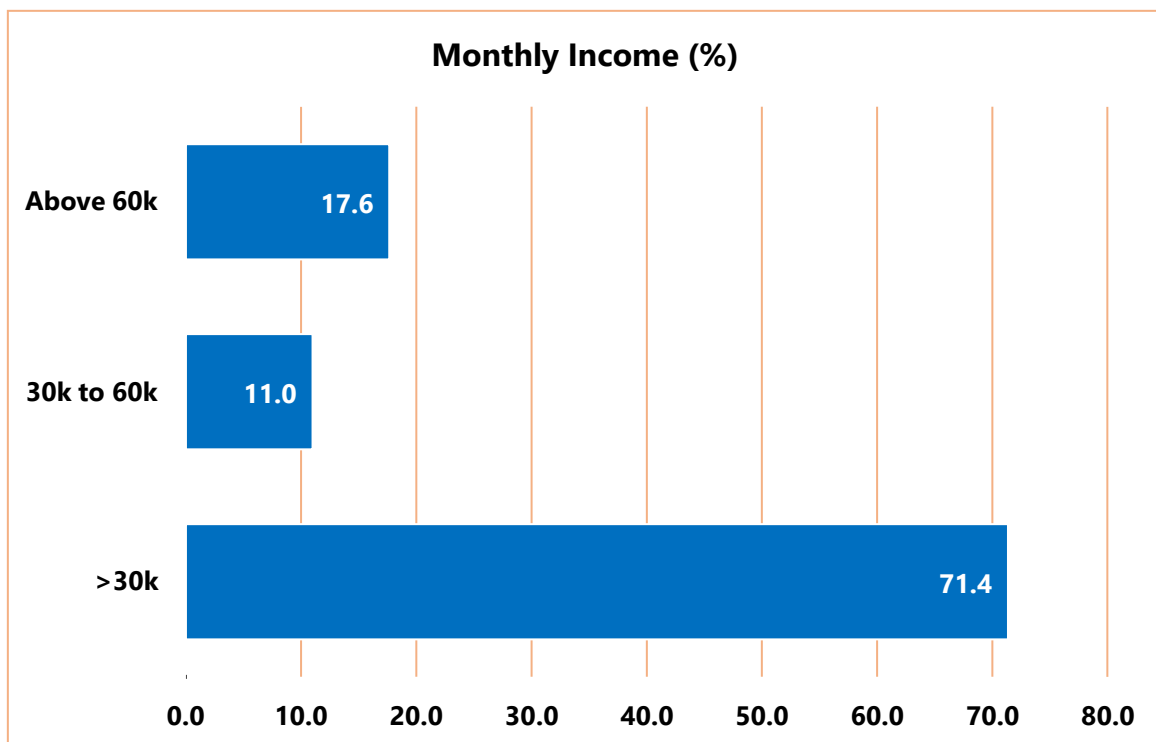


Figure 5. Monthly Income classification of sample population

Around 71% or 182 participants out of the total 255 respondents had a monthly salary of less than ₹30,000 while 11% or 28 participants out of the total 255 had a monthly salary between ₹30,000 per month to ₹60,000 per month. A considerable percentage of about 18% or 45 participants exact out of the total 255 had a monthly salary that was above ₹60,000 per month.

6.2. Findings of the survey

1. For what purpose do you normally use an antacid?

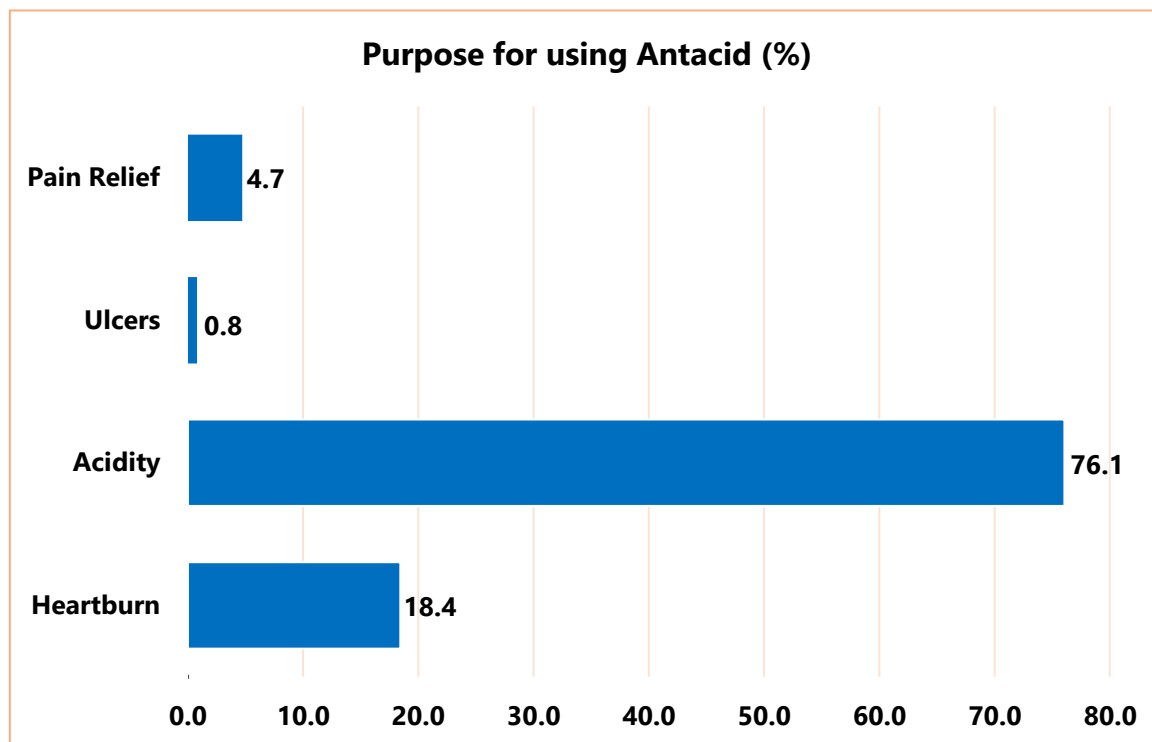


Figure 6. Graph depicting reasons for usage of antacids by sample population

Around **76%** of the entire sample population said that '**Acidity**' was the reason as to why they chose to use an antacid, this was followed by '**Heartburn**' at approximately **18%** and '**Pain Relief**' at **5%**. It was noteworthy here to know that less than 1% of the sample population chose to use antacids for ulcers.

Acidity: Acid Reflux, commonly known as acidity is a condition in which bile or stomach acids flow back into the oesophagus or food pipe and cause irritation.

Heartburn: Heartburn is a burning sensation that occurs in the chest and often occurs with a bitter taste in the throat or mouth. The symptoms of heartburn may get worse after eating a large meal or while lying down. It is the commonest symptom of acidity.

Ulcers: A sore that develops on the lining of the oesophagus, stomach or small intestine. A peptic ulcer in the stomach is called a gastric ulcer.

Pain Relief: The relief from pain that may arise due to the acidity.

2. What kind of antacids do you normally use?

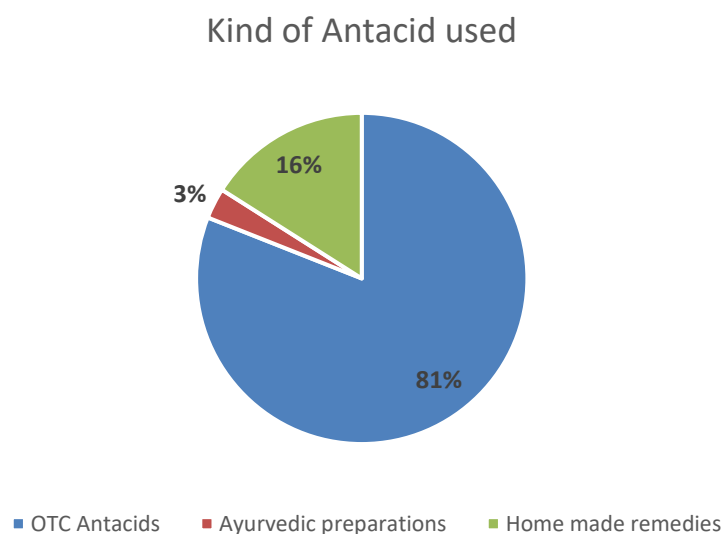


Figure 7. Kind of antacids used by sample population

81% of the entire sample population said that ‘**OTC antacids**’ were the usual choice of antacids for day-to-day use. This was followed by **16%** of the sample population resorting to ‘**Home-Made Remedies**’ when the need for an antacid arose and only **3%** of the sample population resorted to ‘**Ayurvedic preparations**’.

OTC Antacids: Over-the-counter antacids or non-prescriptive antacids are those kinds of antacids that can be easily purchased over the counter without the need of a prescription from the doctor.

Ayurvedic Preparations: A form of alternative medicine that is the traditional system of medicine of India and seeks to treat and integrate body, mind, and spirit using a comprehensive holistic approach especially by emphasizing diet, **herbal remedies**, exercise, meditation, breathing, and physical therapy.

Home-made remedies: A medicine made with ingredients available at home. A simply prepared **medication** or tonic often of unproven effectiveness administered without prescription or professional supervision.

3. Please name any two non-prescription antacids that you are most familiar with.

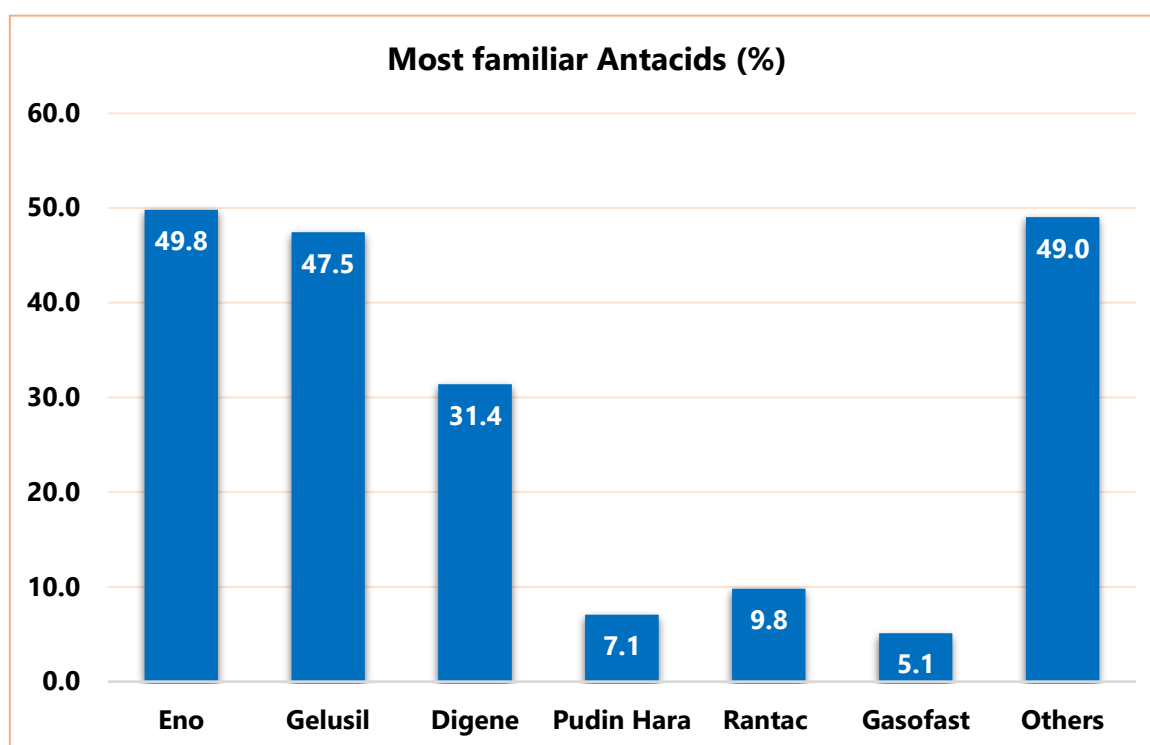


Figure 8. Popular antacid brands known to sample population

Each respondent of the survey was asked to recall the names of two non-prescription antacids, almost **50%** of the sample population recalled **Eno** as one of the antacids while about **47%** recalled **Gelusil**. Hence, it can be said that Eno and Gelusil were the two most popular antacids among the sample population.

Digene was found to be the **third** most popular antacid and about **31%** of the total population recalled it. Antacids like Rantac, Pudín Hara and Gasofast were also somewhat popular and stood fourth, fifth and sixth positions with 10%, 7% and 5%.

Apart from the above six antacids, any other antacid that was recalled by a respondent was treated and added into the category of 'others'.

4. Please rank the following parameters on a scale of 1 to 5 that you consider while purchasing non-prescriptive antacids. The factors were as follows:

- ☐ Price
- ☐ Ingredients
- ☐ Flavour
- ☐ Color
- ☐ Dosage Form
- ☐ Efficacy
- ☐ Company

(Where 1: Not at all Important, 2: Slightly Important, 3: Neutral, 4: Very Important, 5: Most Important)

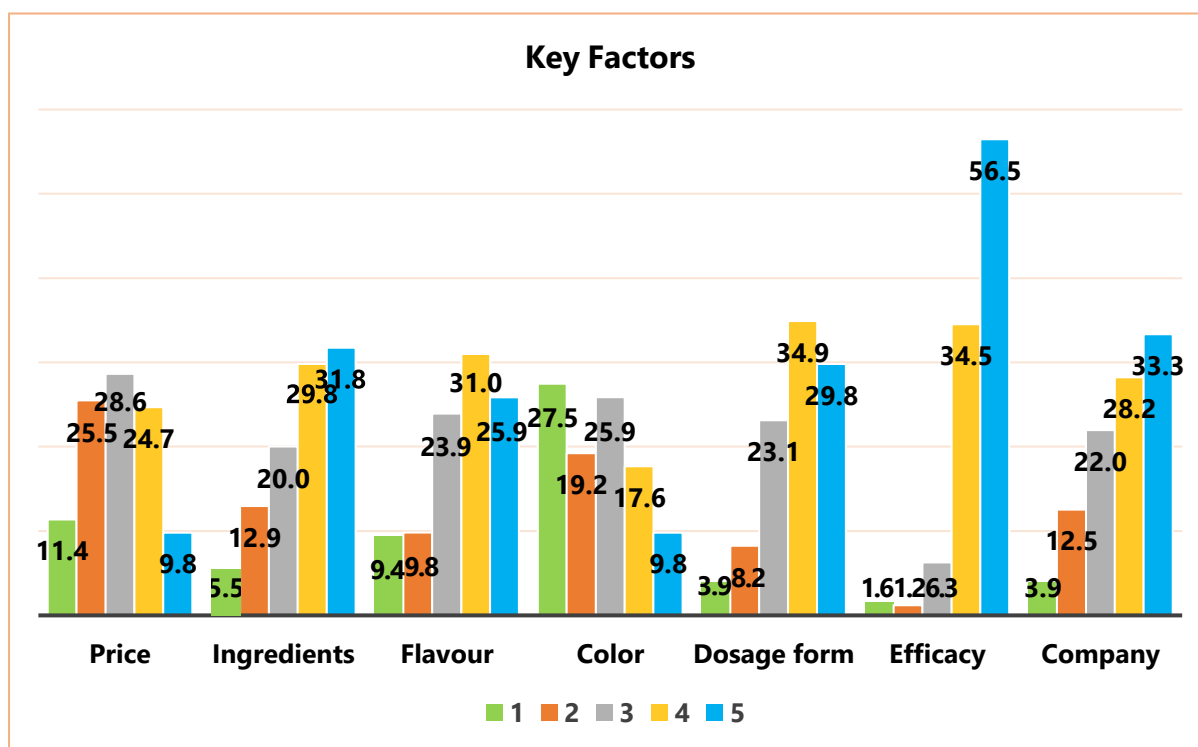


Figure 9. Key factors influencing purchase of antacids by sample population

As per the analysis of the responses of the respondents of the survey, about 56% said that ‘Efficacy’ of the antacid was the **most important factor** that influenced their purchase decision. This was followed by the ‘Company’ that manufactures it at 33%. ‘Ingredients’ stood at third position with 32%. ‘Dosage form’ and ‘Flavour’ followed at 30%, 26% while ‘Color’ and ‘Price’ were found to be the **least important factors** at 10% each.

Factor Analysis

Table VI. Descriptive Statistics

Descriptive Statistics			
	Mean	Std. Deviation	Analysis N
Price	2.96	1.163	255
Ingredients	3.69	1.201	255
Flavour	3.54	1.238	255
Color	2.63	1.315	255
Dosage Form	3.78	1.082	255
Efficacy	4.43	.795	255
Company	3.75	1.161	255

Interpretation- The mean, S.D and the Number of respondent (N) who participated in the survey is given in Table-VI, by looking at the table we can conclude that Efficacy (4.43) is the most important variable that influences customers to buy the product. The Color which is 2.63 is the lowest value which indicates that respondent strongly disagree on the buying decision based on the color

Table VII. KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.702
Bartlett's Test of Sphericity	Approx. Chi-Square	392.526
	df	21
	Sig.	<.001

Interpretation- Since the KMO value is between 0.7-0.8 so the response given with the sample are acceptable

Table VIII. Total Variance

Total Variance Explained			
Initial Eigenvalues			
Component	Total	% Of Variance	Cumulative %
1	2.68	38.28	38.28
2	1.272	18.174	56.454
3	0.983	14.04	70.494
4	0.635	9.073	79.567
5	0.586	8.37	87.936
6	0.525	7.498	95.434
7	0.32	4.566	100

Table IX. Extraction Sums of Squared Loadings

Extraction Sums of Squared Loadings		
Total	% Of Variance	Cumulative %
2.68	38.28	38.28
1.272	18.174	56.454
.983	14.04	70.494

Table X. Rotation Sums of Squared Loadings

Rotation Sums of Squared Loadings		
Total	% Of Variance	Cumulative %
1.915	27.358	27.358
1.897	27.102	54.460
1.122	16.034	70.494

Interpretation – From Table VIII, out of 7 components, only 3 components were considered for analysis where the communality value is more than 0.5. Further the extracted sum of square loadings % of variance for the chosen 3 components from Table IX shows that its effective enough in representing all the characteristics or components highlighted by the stated 7 variables.

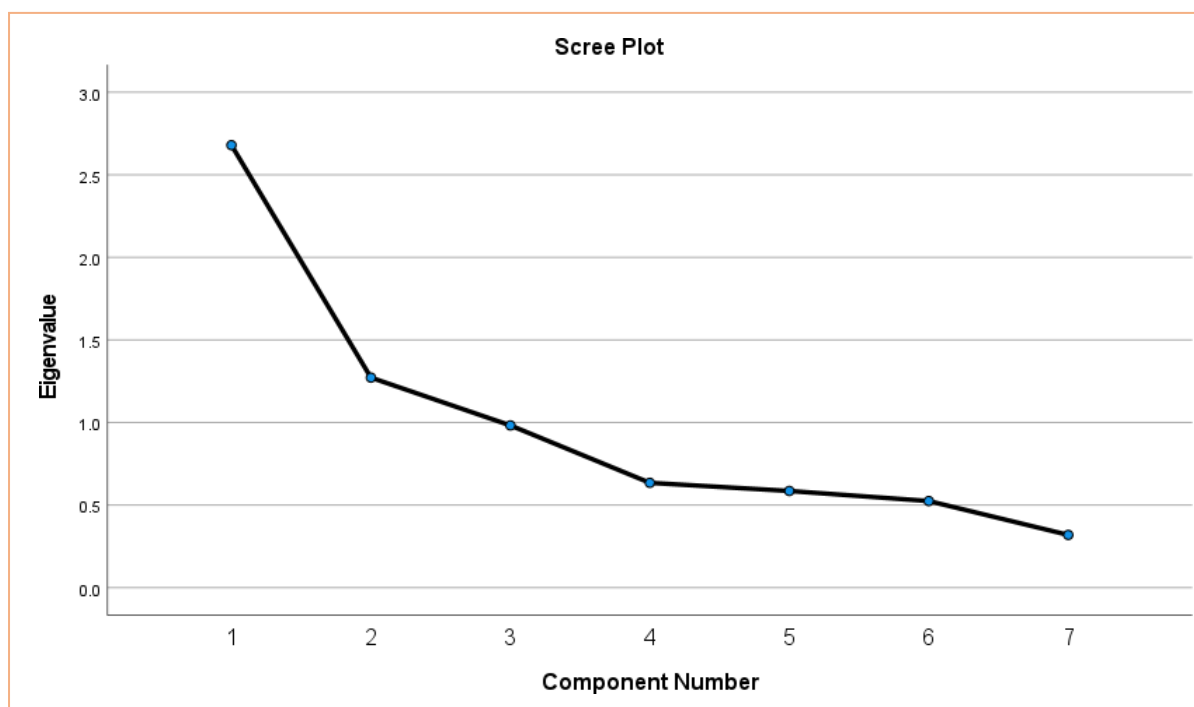


Figure 10. Scree Plot (Eigenvalue v/s Component Number)

Interpretation- Factor 2 and 3 is the point of interest where the curve begins to flatten and the rest of the eigen value goes below 1 so it can't be considered.

Table XI. Component Matrix

Component Matrix			
	Component		
	1	2	3
Price	.419	.202	.802
Ingredients	.447	.722	.104
Flavour	.757	-.456	-.054
Color	.610	-.574	.276
Dosage form	.719	.059	-.096
Efficacy	.637	.410	-.262
Company	.660	-.024	-.415

Extraction Method: Principal Component Analysis

a. 3 components extracted

Interpretation- Values less than 0.5 are suppressed and there are lot of value less than 0.5 so there is lot of cross loading. For getting accurate result there was a need to redistribute the factors by having rotations

Table XII. Rotated Component Matrix

Rotated Component Matrix			
	Component		
	1	2	3
Price	.193	.086	.903
Ingredients	-.220	.700	.441
Flavour	.842	.272	-.004
Color	.853	-.034	.221
Dosage form	.436	.572	.114
Efficacy	.112	.792	.055
Company	.435	.609	-.219

Extraction Method: Principal Component Analysis

Rotation Method: Varimax with Kaiser Normalization

Interpretation

Principal Component Analysis rotation is the most popular approach used in Factor analysis, and it may also be done as Varimax rotation with Kaiser Normalization. Factor analysis and rotation Varimax Kaiser Normalization are used to reduce the statements here as well. The questionnaire's **7 variables** were **reduced to 3**. The factor loadings for each variable on the components after rotation are given by the rotated component matrix. The partial correlation between the variables and the components is represented by this number. The variables with significantly higher loadings (**greater than 0.500**) in one component are considered the component's contributors. As a result, the rotated matrix was analysed for the most important factors, and each component was noted down. Then, among these variables, one phrase or word is selected that best describes the entire group of assertions in that component.

Table XIII. Reduced Components

Component	Variable
1	Flavour, Color
2	Ingredients, Dosage form, Efficacy, Company
3	Price

Analysis of key factors influencing purchase of antacids

Independent samples T-test: A 2-tailed independent sample **t-test** was performed to identify the difference between responses as per gender on key factors influencing purchase of antacids. It is applied when we have two independent samples and we want to make a comparison between two groups of individuals. To evaluate the mean difference between two populations, sample means from each population is compared on a given variable.

The following tables for independent t-test of key factors influencing purchase of antacids with respect to gender of the respondents involve the mean, standard deviation, and standard error mean for the variables within them. Along with it the T value and significance p value is provided within the tables. If the p value is ≤ 0.05 , then alternate hypothesis is accepted, and if the p value is > 0.05 , then null hypothesis is accepted.

Null Hypothesis (H₀): There is no significant association between the key factors and between the gender of the respondents. **Alternate Hypothesis (H₁):** There is significant association between the key factors and between the gender of the respondents.

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
Price	1	129	3.09	1.219	0.107
	2	126	2.83	1.094	0.097
Ingredients	1	129	3.97	1.015	0.089
	2	126	3.41	1.31	0.117
Flavour	1	129	3.36	1.287	0.113
	2	126	3.72	1.164	0.104
Color	1	129	2.48	1.358	0.12
	2	126	2.79	1.256	0.112
Dosage form	1	129	3.81	1.102	0.097
	2	126	3.75	1.063	0.095
Efficacy	1	129	4.47	0.781	0.069
	2	126	4.39	0.81	0.072
Company	1	129	3.71	1.169	0.103
	2	126	3.79	1.157	0.103

Table XV. Independent t-test

Independent Samples Test								
		t-test for equality of means						
		t	df	Sig.	Mean Difference	Std. Error Difference	95% Confidence Interval of the difference	
							Lower	Upper
Price	Equal variances assumed	1.736	253	0.118	0.252	0.145	-0.034	0.538
	Equal variances not assumed	1.738	251.217		0.252	0.145	-0.033	0.537
Ingredients	Equal variances assumed	3.796	253	<0.001	0.556	0.147	0.268	0.845
	Equal variances not assumed	3.784	235.494		0.556	0.147	0.267	0.846
Flavour	Equal variances assumed	-2.328	253	0.246	-0.358	0.154	-0.661	-0.055
	Equal variances not assumed	-2.331	251.527		-0.358	0.154	-0.66	-0.055
Color	Equal variances assumed	-1.861	253	0.127	-0.305	0.164	-0.628	0.018

Independent Samples Test								
		t-test for equality of means						
		t	df	Sig.	Mean Difference	Std. Error Difference	95% Confidence Interval of the difference	
							Lower	Upper
Price	Equal variances assumed	1.736	253	0.118	0.252	0.145	-0.034	0.538
	Equal variances not assumed	1.738	251.217		0.252	0.145	-0.033	0.537
Ingredients	Equal variances assumed	3.796	253	<0.001	0.556	0.147	0.268	0.845
	Equal variances not assumed	3.784	235.494		0.556	0.147	0.267	0.846
Flavour	Equal variances assumed	-2.328	253	0.246	-0.358	0.154	-0.661	-0.055
	Equal variances not assumed	-2.331	251.527		-0.358	0.154	-0.66	-0.055
Color	Equal variances assumed	-1.861	253	0.127	-0.305	0.164	-0.628	0.018

Interpretation: $p > 0.05$ for all key factors except ingredients, where p value is < 0.001 . So, for all the factors except ingredients null hypothesis is accepted, while for ingredients alternate hypothesis is accepted.

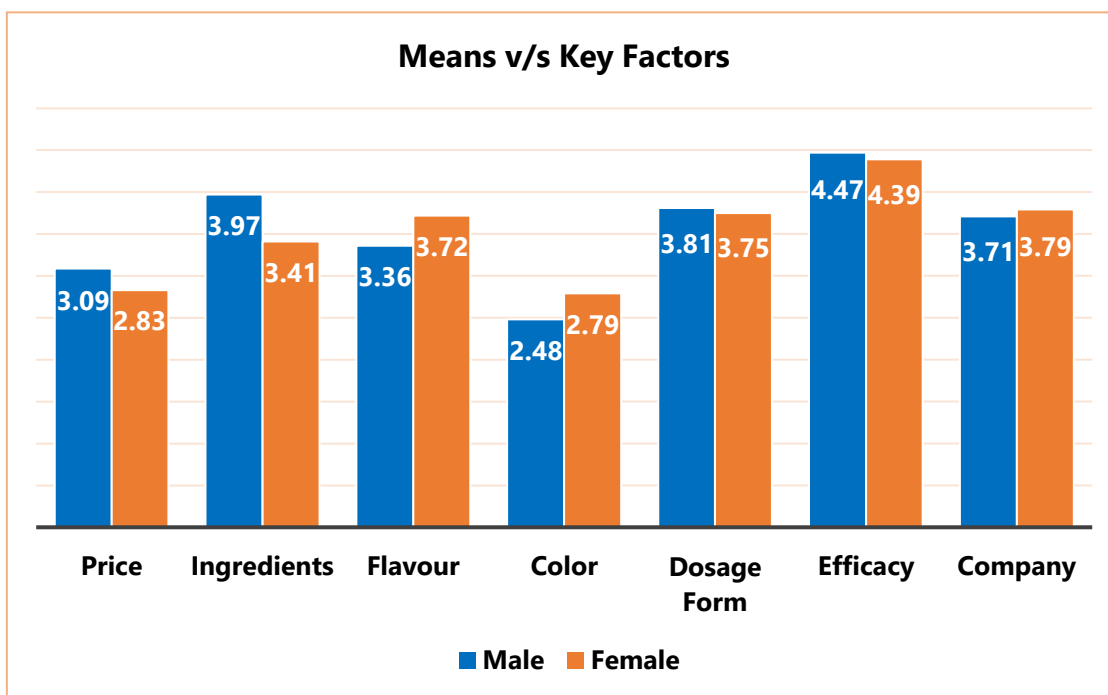


Figure 11. Means (Gender) and Key factors influencing purchase of the antacids

Table XVI. Means (Gender) and Key factors influencing purchase of the antacids

	Price	Ingredients	Flavour	Color	Dosage Form	Efficacy	Company
Male	3.09	3.97	3.36	2.48	3.81	4.47	3.71
Female	2.83	3.41	3.72	2.79	3.75	4.39	3.79

Hence, it can be said that males give more importance to the ingredients while for all other factors no gender association was found

Anova: Hypothesis concerning the equality of two population means can be tested using independent t-test. However, if there are more than two populations, the test for the equality of means could be carried out by considering two populations at a time. This would be a very cumbersome procedure. One easy way out could be to use the analysis of variance (ANOVA) technique. ANOVA is a general technique that can be used to test the hypothesis that the means among two or more groups are equal, under the assumption that the sampled populations are

normally distributed. The following tables for **ANOVA** of variables of **key factors with respect to income of the respondents**

Null Hypothesis (H₀): There is no significant association between the key factors and between the income of the respondents.

Alternate Hypothesis (H₁): There is significant association between the key factors and between the income of the respondents.

Table XVII. One-way ANOVA (w.r.t. Monthly Income)

ANOVA						
		Sum of Squares	Df	Mean Square	F	Sig.
Price	Between Groups	20.028	2	10.014	7.799	<.001
	Within Groups	323.58	252	1.284		
	Total	343.608	254			
Ingredients	Between Groups	49.651	2	24.826	19.767	<.001
	Within Groups	316.49	252	1.256		
	Total	366.141	254			
Flavour	Between Groups	7.514	2	3.757	2.48	0.086
	Within Groups	381.804	252	1.515		
	Total	389.318	254			
Color	Between Groups	3.749	2	1.875	1.084	0.34
	Within Groups	435.6	252	1.729		
	Total	439.349	254			
Dosage Form	Between Groups	0.981	2	0.49	0.417	0.659
	Within Groups	296.157	252	1.175		
	Total	297.137	254			
Efficacy	Between Groups	1.104	2	0.552	0.872	0.419
	Within Groups	159.445	252	0.633		
	Total	160.549	254			
Company	Between Groups	2.482	2	1.241	0.92	0.4
	Within Groups	339.949	252	1.349		
	Total	342.431	254			

Interpretation: $p > 0.05$ for all factors except price and ingredients. So, null hypothesis is accepted for all factors except price and ingredients. For price and ingredients, the alternate hypothesis is accepted.

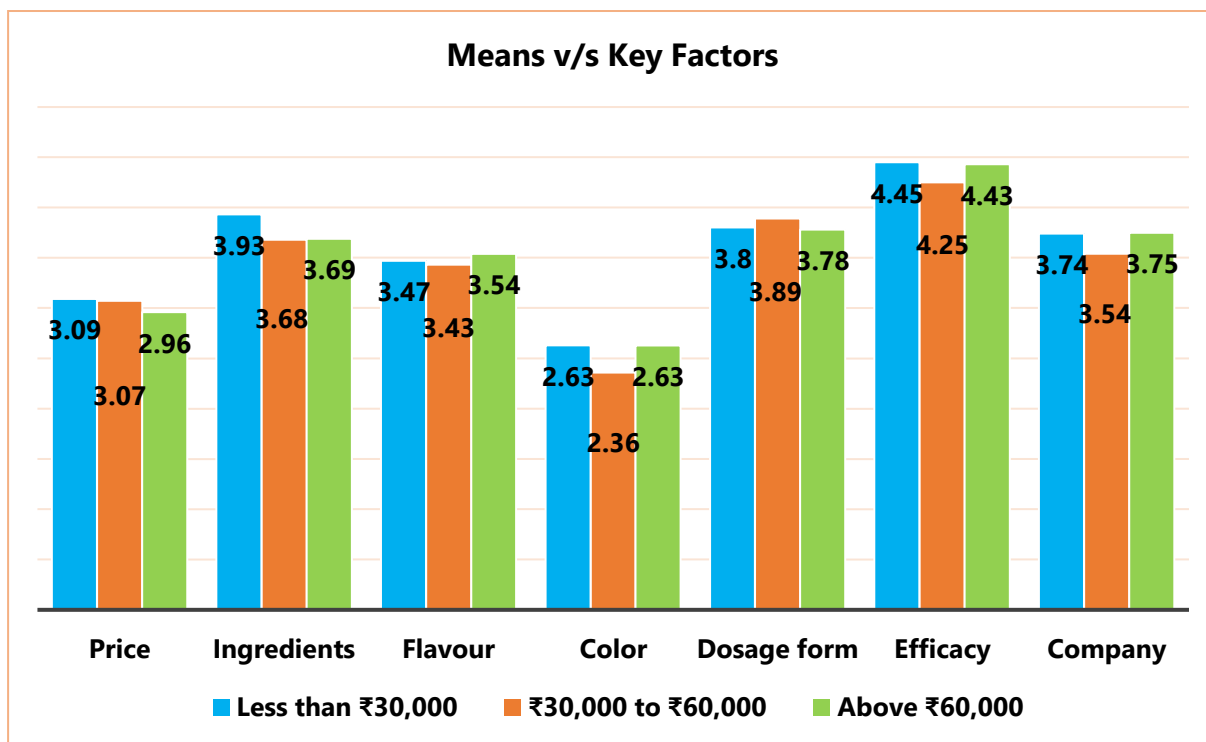


Figure 12. Means (Monthly Income) and Key factors influencing purchase of the antacids

Table XVIII. Means (Monthly Income) and Key factors influencing purchase of the antacids

	Price	Ingredients	Flavour	Color	Dosage Form	Efficacy	Company
Less than ₹30,000	3.09	3.93	3.47	2.63	3.8	4.45	3.74
₹30,000 to ₹60,000	3.07	3.68	3.43	2.36	3.89	4.25	3.54
Above ₹60,000	2.96	3.69	3.54	2.63	3.78	4.43	3.75

The income group earning less than ₹30,000 was found to be more sensitive towards price and ingredients

ANOVA of variables of **key factors with respect to age of the respondents**

Null Hypothesis (H₀): There is no significant association between the key factors and between the age of the respondents.

Alternate Hypothesis (H₁): There is significant association between the key factors and between the age of the respondents.

Table XIX. One- way ANOVA (w.r.t. Age)

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Price	Between Groups	21.811	3	7.270	5.671	<.001
	Within Groups	321.797	251	1.282		
	Total	343.608	254			
Ingredients	Between Groups	105.674	3	35.225	33.944	<.001
	Within Groups	260.467	251	1.038		
	Total	366.141	254			
Flavour	Between Groups	40.842	3	13.614	9.806	<.001
	Within Groups	348.475	251	1.388		
	Total	389.318	254			
Color	Between Groups	15.520	3	5.173	3.064	.029
	Within Groups	423.829	251	1.689		
	Total	439.349	254			
Dosage Form	Between Groups	10.982	3	3.661	3.211	.024
	Within Groups	286.155	251	1.140		
	Total	297.137	254			
Efficacy	Between Groups	.175	3	.058	.091	.965
	Within Groups	160.374	251	.639		
	Total	160.549	254			
Company	Between Groups	2.688	3	.896	.662	.576
	Within Groups	339.744	251	1.354		
	Total	342.431	254			

Interpretation: $p > 0.05$ for color, dosage form, efficacy and company. Hence, the null hypothesis is accepted. For price, ingredients and flavour the p value is less than 0.05. Hence, the alternate hypothesis is accepted.

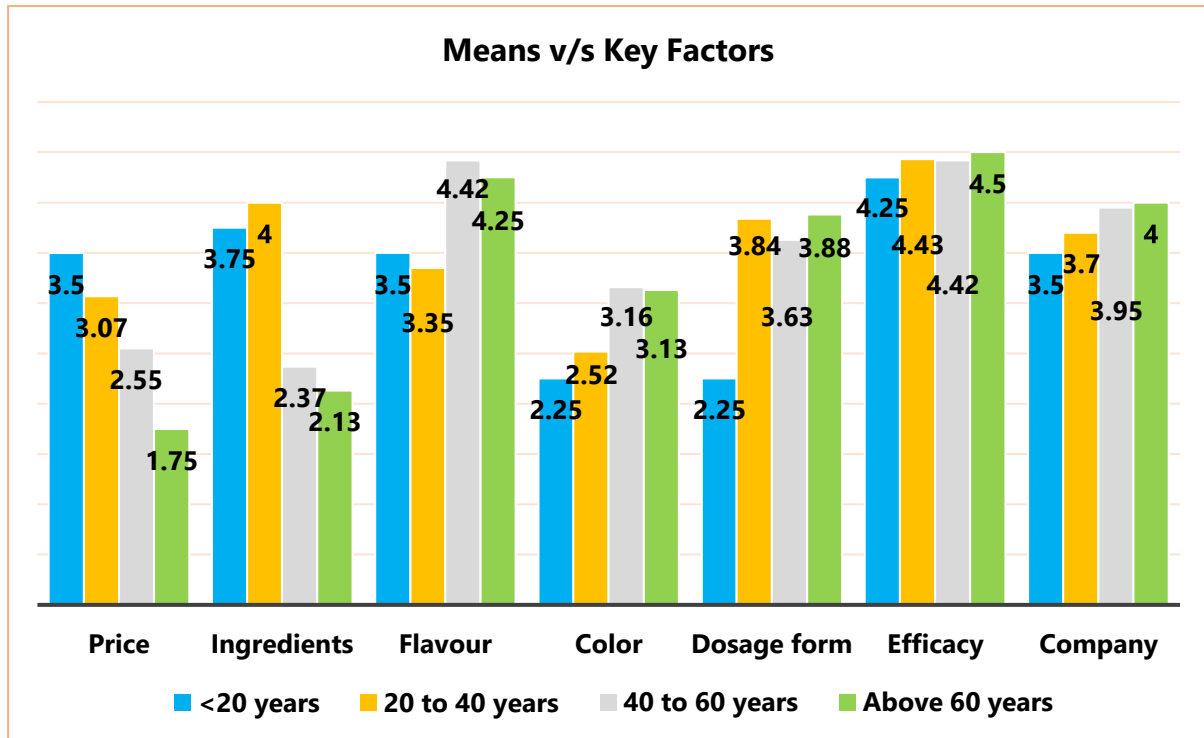


Figure 13. Means (Age) and Key factors influencing purchase of the antacids

Table XX. Means (Age) and Key factors influencing purchase of the antacids

	Price	Ingredients	Flavour	Color	Dosage Form	Efficacy	Company
<20 Years	3.5	3.75	3.5	2.25	2.25	4.25	3.5
20 to 40 years	3.07	4	3.35	2.52	3.84	4.43	3.7
40 to 60 years	2.55	2.37	4.42	3.16	3.63	4.42	3.95
Above 60 years	1.75	2.13	4.25	3.13	3.88	4.5	4

Age group <20 years was found to be more price sensitive, while the age group of 20 years to 40 years was more inclined towards ingredients. The age group of 40 years to 60 years was most inclined towards flavour

5. What is your primary source of information with respect to antacids?

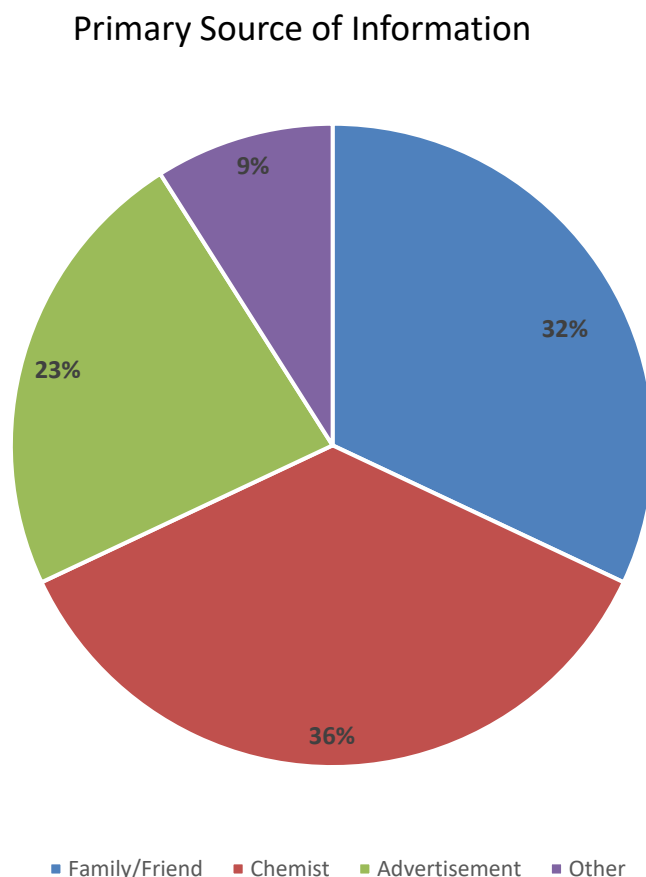


Figure 14. Primary source of information about antacids among the sample population

‘**Chemist**’ with **36%** was found to be the most common primary source of information. This was followed by the influence of ‘**Family/Friends**’ at **32%**, ‘**Advertisement**’ at **23%**. All the other sources of primary information were treated and added into the category of other.

The above finding can be explained by the fact that India is country where people heavily buy medicines from the chemist shop and during that interaction with the chemist, the consumers usually use the knowledge of the chemist to buy medications, in this case the OTC antacids.

6. Do you feel your primary source of information is reliable enough to choose an antacid?

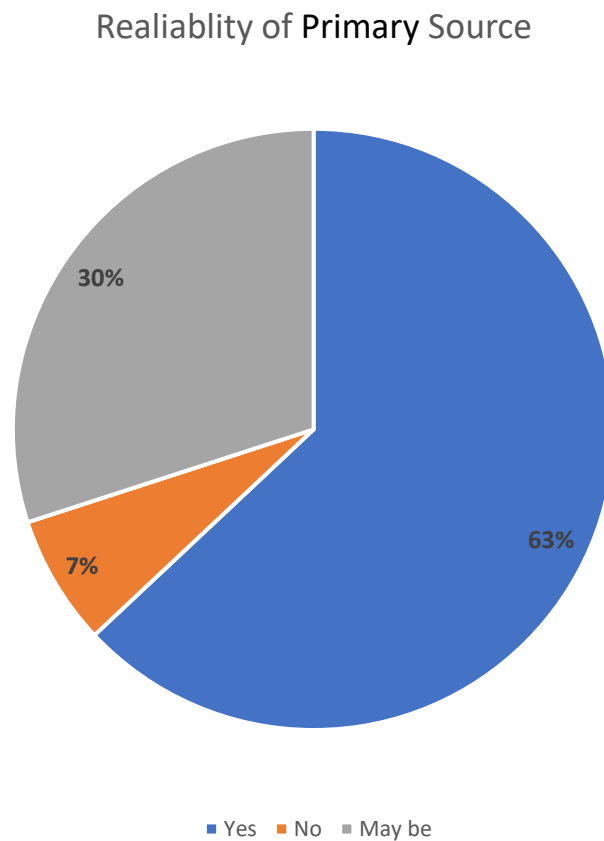


Figure 15. Reliability of Primary Source

63% believe that their primary source of information is reliable and responded with '**Yes**' while **30%** responded with '**Maybe**'. A minor fraction of **7%** said that they feel their primary source of information is not reliable and responded with '**No**'.

7. What dosage form of antacid do you prefer?

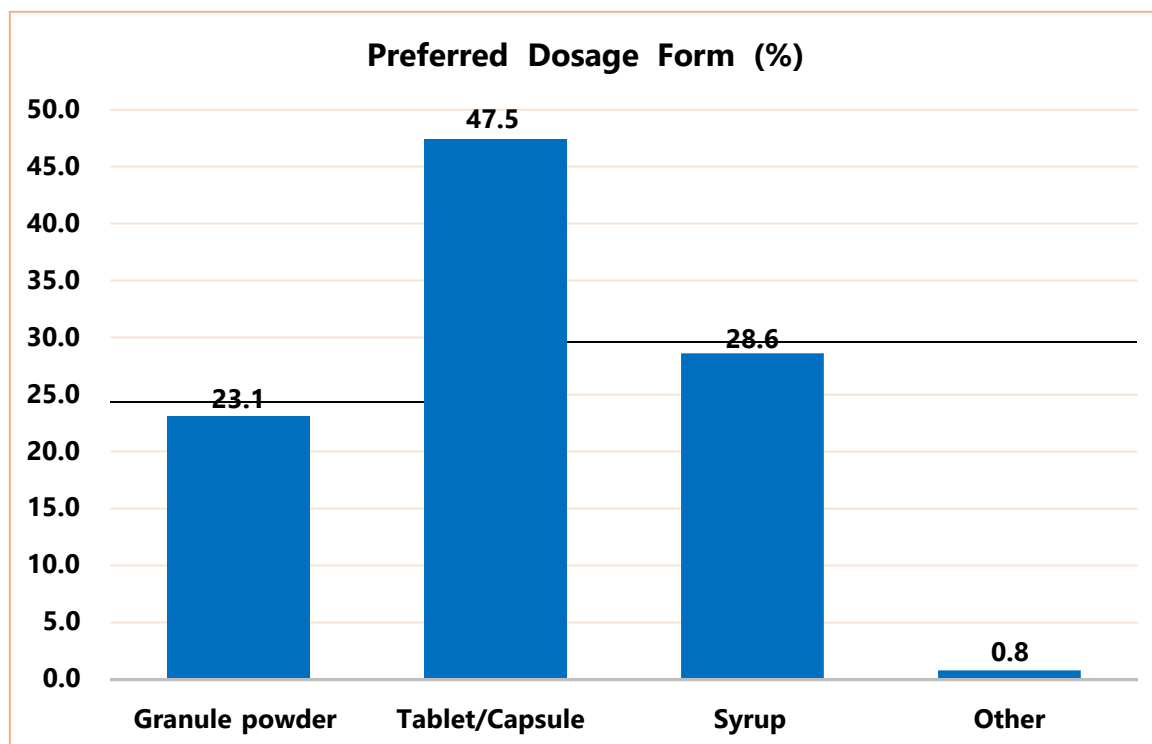


Figure 16. Preferred Dosage Form among the sample population

‘Tablet/Capsule’ was found to be the most preferred dosage form of an antacid with almost **47%** choosing it. This was followed by **‘Syrup’** at **29%** and **‘Granule Powder’** at **23%**. All other dosage forms received in the survey like gummies, suspensions etc. were treated and added into the category of **‘Other’** and accounted to **<1%**.

The Indian market is completely dominated by the above three dosage forms i.e., Tablet/Capsule, Syrup and Granule Powder. Other dosage forms like gummies, candies, suspensions etc. are quite popular in the western countries but the presence in the Indian market is almost negligible with only a few products present.

8. From where do you normally buy the antacids?

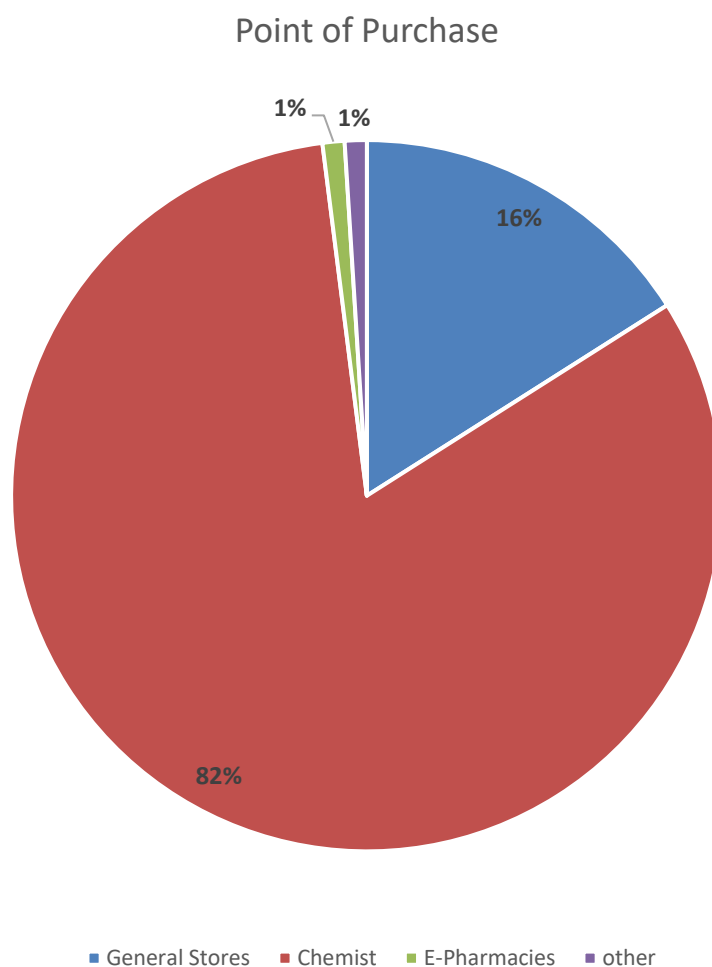


Figure 17. Point of Purchase w.r.t. Antacids among sample population

An antacid is product that is needed on the spot and hence the point of purchase can be adequately explained as to why **82%** respondents chose to buy antacids from the '**Chemist**'. The **16%** which corresponds to '**General stores**' also, re-establishes the above fact.

The current boom of E-pharmacy platforms selling medicines was not seen much in the case of antacids, as antacids are products needed on the spot and there is considerable amount of delivery time when it comes to the E-pharmacy platforms.

9. Please read the following statement and answer as either Yes or No

- Antacids have side effects if taken regularly
- Antacids are addictive
- Antacids develop resistance and do not work after some time
- Antacids do not treat the condition but offer only symptomatic relief

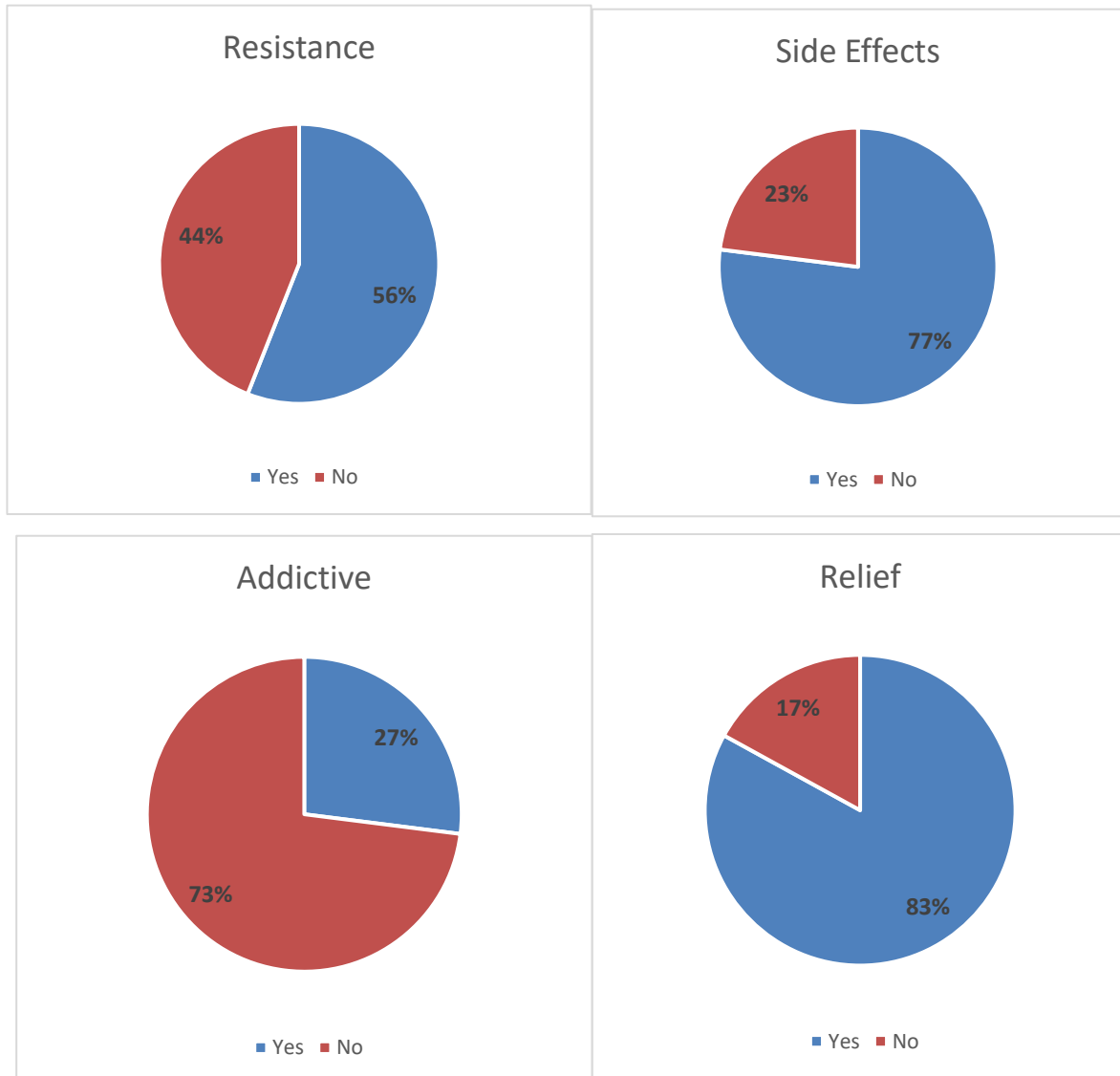


Figure 18. Sample population responses w.r.t. antacid statements given

Side effects: 77% respondents believe that antacids have side effects **if taken regularly**.

Addictive: 73% respondents believe that antacids are **not addictive**

Resistance: 56% respondents believe that antacids **develop resistance and do not work after some time**.

Relief: 83% respondents believe that antacids offer **only symptomatic relief**.

10. What would you do if experience any side effects?

Action upon experience of side effects

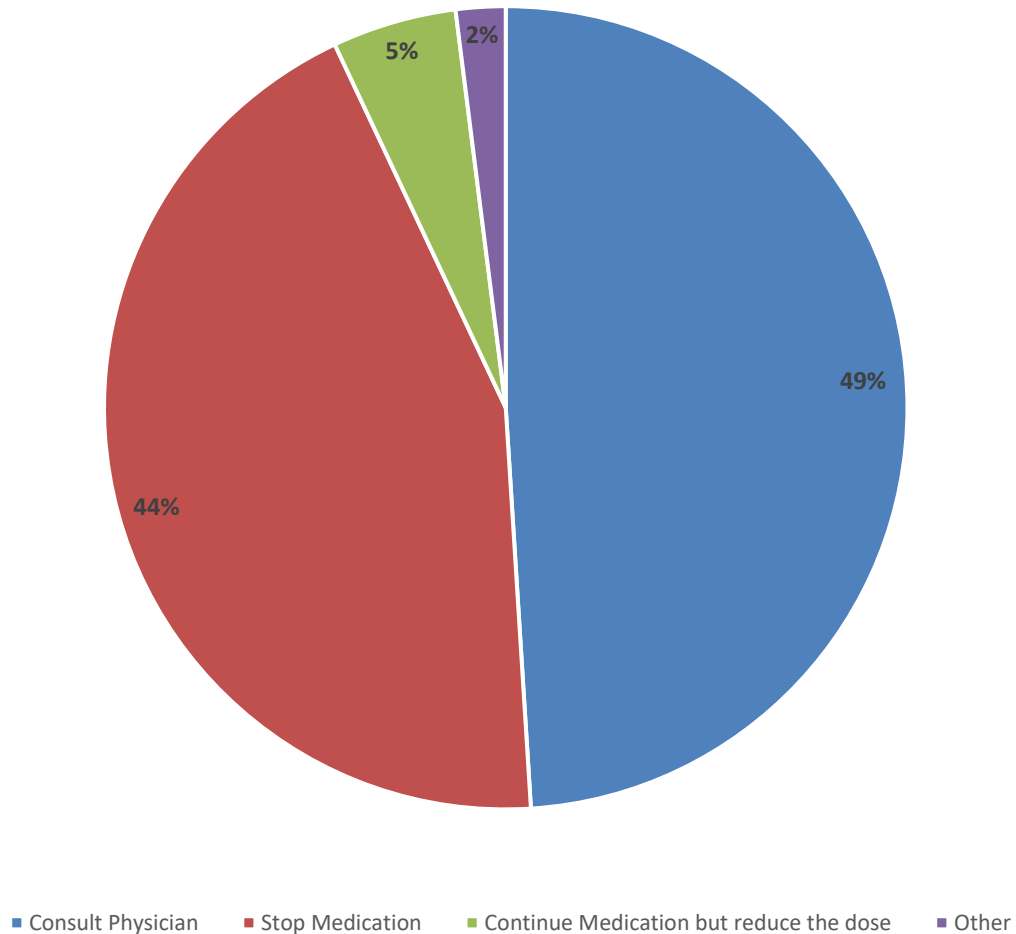


Figure 19. Action upon experience of side effects

Almost half of the sample population, **49%** said that they would '**Consult Physician**' if in case they experience any side effects through use of antacids. Antacids are usually OTC in nature and used to day-to-day problems. Hence, respondents wanting to see a physician is understandable. A major chunk of **44%** said they would simply '**Stop medication**' if they notice any side effects. About 5% said they would continue the use of medication but will use a reduced dose.

7. KEY FINDINGS AND RECOMMENDATIONS

Based on the analysis and tabulations, some of the major findings are as follows:

- **Acidity (76%)** was found to be the main reason behind the usage of antacids followed **heartburn (18%)**
- Close to **81%** of the respondents said that they normally use **OTC Antacids** while **16%** preferred **homemade remedies** and **3%** used **ayurvedic preparations**
- **Eno** was found to be the most popular brand of antacid as almost **50%** of the sample population recalled it upon being asked. It was followed by **Gelusil** at **47%** and **Digene** at **31%**
- Respondents varied in their responses towards the key factors that they consider while purchasing antacids. However, **efficacy** at **56%** and manufacturing **company** at **33%** were the two most important factors
- **Chemist (36%)** was found to be the primary source of information with to the antacids, this was followed by **family/friends** at **32%**
- **63%** respondents said that they **trusted their primary source of information**, **30%** responded as **maybe**, while only **7%** responded with a **no**
- **Tablet/capsule** was found to be the most preferred dosage form at **47%**, this was followed by **syrup** at **29%** and **granule powder** at **23%**
- Close to **82%** of sample population purchased antacids from the **chemist** and **16%** purchased antacids from the **general stores**. Only **1%** purchased antacids from **e-pharmacy platforms**
- On experience of any side effects **49%** of the sample population said they would **consult a physician** while **44%** said they would **stop the medication**

Recommendations: We've learned over time that two people might look at the same thing and see it in completely different ways. They can relate what they witnessed to others. As a result, opinions are formed. Our judgments are frequently coloured by our perceptions. Brand managers in the pharmaceutical business can utilise the study as a tool for comparative diagnostics and market performance modelling under various pricing and promotion scenarios. Pharmaceutical firms can use a calibrated strategy to identify and strengthen their strengths, ensuring that consumers regard them favourably.

Distribution: The current situation is quite difficult, and the level of competitiveness is high. The emergence of the retail sector has thrown all marketing approaches into disarray. Because OTC antacids are purchased to treat minor illnesses, the likelihood of a consumer being influenced by a retail chemist is substantially higher. The retail sector is not only developing as an influencer, but also as a potential market, necessitating a rethink.

Promotion: The products are promoted through various forms of mass media, with the goal of persuading the consumer to purchase the product at the right time. Given the variety of options available to consumers, odds are that, regardless of the media campaign, he or she will purchase the brand that is most readily available. At the retail location, some promotional actions for OTC antacids should be carried out. Merchandising and Below the Line Promotion are terms used to describe these actions. These are intended to persuade customers at the point of purchase. Some promotional actions are used in addition to media advertising. While media campaigns are intended to raise awareness and interest in a company's brand, Below the Line Promotion is intended to impact the consumer at the point of purchase.

Price: Consumers' price sensitivity to OTC antacids is heterogeneous; nonetheless, a greater price appears to be of little concern to most consumers, or even, as in the case of a significant section of the sample, is favourable to buy decision. Price promotions appear to have a minimal impact on sales in the examined category and can be attributed to a quality signal effect.

In the estimated valued carryover of perceived therapeutic efficacy, there is a lot of customer variation. Some brands are more known and salient after treatment, and they're more receptive to valuation updates following purchase, which could explain their improved market performance. Finally, pharmaceutical companies can develop strategies and target the segments most likely to profit from the peculiarities of a certain brand based on the difficulties highlighted by the research.

8. LIMITATIONS OF THE STUDY

- Because this is a convenience sample, the results may not accurately reflect the intended population. The sample size may have been much larger, but due to time constraints, cost constraints, and the current COVID scenario, this was not achievable.
- A major limitation of this study was the respondents' insufficient knowledge. This method could have resulted in some bias in the responses produced by respondents.
- Due to time and cost constraints, many deeper aspects of consumer behaviour, such as post-purchase behaviour, information processing regarding non-prescription antacids, lifestyle patterns influencing buyer behaviour, and so on, could not be explored in this study.
- Many prescription antacids are available as over-the-counter (OTC) antacids because to the lack of a stringent law enforcement authority and chemist laxity. This was a significant flaw because the respondents were unsure whether the medicine was a prescription or non-prescription substance.

9. REFERENCES

1. Aliwadi, K. L, Gedenk, K., Neslin S.,1999."Heterogeneity and purchase event feedback in choice models:An empirical analysis with implications for model building".Int.res.in Marketing, 16, 177-198.
2. Allenby,G.M., Lenk,P.J., 1994. Modeling Household Purchase Behavior with Logistic Normal Regression.J.Am. Stat.Assoc.89(428),1218-1231.
3. M.Tonga Akcura and Coworkers on "Consumer Learning and Brand Valuation:An application on OTC drugs gives deep insight on consumer perceptions on the purchase of the OTC drugs", Marketing Science,23(1),2004,156-169
4. Consumers' Expectations of Over-The-Counter (OTC) Medicines: Location of Sale". By Ya-Ning (Helen) Lo, August 2006, Marketing Science.28(3),198-210.
5. "Usage of Supplemental Alternative Medicine by Community-Based Patients with Gastroesophageal Reflux Disease (GERD)"By-Craig W. Hayden, Charles N.Berstein, Renée A. Hall, Nimish Vakil, Harinder S. Garewal and Ronnie Fass,Digestive Diseases and Sciences Volume 47, Number 1, 1-8, DOI: 10.1023/A:1013264730992
6. "Why Antacids Are Not a Good Source of Supplemental Calcium," by Schuyler Lininger, Jr., DC, a member of the "Let's Live" Medical Advisory Board and is a chiropractor practicing in Sandy, Oregon. Let's Live Magazine, Aug. 1990
7. What Guys Are Saying About Their Health," thirdage.com - Aug, 2002
8. "Rise of Indian Consumer Market", McKinsey Global Institute
9. Lajipathirai, H., & Sekhar, B. OVER THE COUNTER DRUG (OTC) MARKET IN INDIA: A STUDY. SAMSMRITI–The SAMS Journal, 43.
10. Khan, M. Y., Gupta, P., Goswami, D. D., Bihari, B., & Verma, V. K. (2013). A Review on Marketing of OTC Drugs. Asian J. Res. Pharm. Sci, 3(2), 72-78.
11. Kotler, P. (n.d.). Marketing Management (15th Edition). Pearson
12. Tripathi, K.D.,1999, Essentials of Pharmacology Jaypee brothers

13. Hoffmann J.,1995, pharmaceuticals '95:OTCS-A Remedy for growth Sr12-Sr14
14. Indian Pharmaceutical Industry. (n.d.). IBEF.Org. Retrieved May 5, 2021, from <https://www.ibef.org/industry/pharmaceutical-india.aspx>
15. Expected distribution of the U.S. over-the-counter (OTC) market in 2020, by major segment*. (n.d.). Statista.Com. Retrieved May 5, 2021, from <https://www.statista.com/statistics/296111/over-the-counter-market-us-pharmacies/>
16. Europe Over-The-Counter. (n.d.). Www.Envisionintelligence.Com. Retrieved May 5, 2021, from <https://www.envisionintelligence.com/industry-report/europe-over-the-counter-otc-drugs-market/>
17. Antacids - NHS. (n.d.). Nhs.Uk. Retrieved May 5, 2021, from <https://www.nhs.uk/conditions/antacids/#:~:text=Antacids%20are%20medicines%20that%20counteract,and%20shops%20without%20a%20prescription>
18. Products. (n.d.). Digeneindia.Com. Retrieved May 5, 2021, from <https://www.digeneindia.com/products/>
19. Gelusil MPS. (n.d.). Apollopharmacy.In. Retrieved May 5, 2021, from <https://www.apollopharmacy.in/otc/gelusil-mps-syrup-170ml>
20. Gelusil MPS Tablet. (n.d.). Practo.Com. Retrieved April 5, 2021, from <https://www.practo.com/medicine-info/gelusil-mps-tablet-55530>

10. ANNEXURE

Questionnaire:

A study on "Consumer Perception of Non-Prescriptive Antacids"

Dear Sir/ Ma'am,

I am doing a major research project on, "Consumer Perception of Non-Prescriptive Antacids." It would be grateful if you could spare few minutes of your valuable time to participate in it, your cooperation in this regard is sincerely appreciated. The information collected will be strictly used for academic purpose only.

Demographic Profile:

1. Name of the patient: _____
2. Age: ☐ <20yrs ☐ 20-40yrs ☐ 40-60yrs ☐ >60yrs
3. Gender: ☐ Male ☐ Female
4. Monthly Income: ☐ <30,000 ☐ 30,000-60,000 ☐ Above 60,000

1. For what purpose do you normally use an antacid?

- a) Heartburn ☐
- b) Acidity ☐
- c) Ulcers ☐
- d) Pain relief ☐

2. What kind of antacids do you normally use?

- a) Antacids that can be easily purchased from the market without any prescription ☐
- b) Ayurvedic Preparations ☐
- c) Home-made remedies ☐
- d) Other _____

3. Please name any two non-prescription antacids that you are most familiar with

4. Please rank the following parameters on a scale of 1 to 5 that you consider while purchasing Non-Prescriptive Antacids (1- not at all important, 2- slightly important, 3- neutral, 4- very important, 5- most important)

	1	2	3	4	5
Price					
Ingredients					
Flavour					
Color					
Dosage Form					
Efficacy					
Company					

5. What is your primary source of information with respect to antacids?

- a) Family/Friends ☐
- b) Chemist ☐
- c) Advertisement ☐
- d) Other _____

6. Do you feel your primary source of information is reliable enough to choose an antacid?

- a) Yes ☒ c) Maybe ☐
- b) No ☐

7. What dosage form of antacid do you prefer?

- a) Granule powder ☐
- b) Tablet/Capsule ☐
- c) Syrup ☐
- d) Other _____

8. From where do you normally buy the antacids?

- a) General stores ☐
- b) Chemist ☐
- c) E-pharmacy platforms ☐
- d) Other _____

9. Please read the following statements and answer as either Yes or No

	Yes	No
Antacids have side effects if taken regularly		
Antacids are addictive		
Antacids develop resistance and do not work after some time		
Antacids do not treat the condition but offer only symptomatic relief		

10. What would you normally do if you experience any side effects?

- a) Consult physician ☐
- b) Stop medication ☐
- c) Continue medication but reduce the dose ☐
- d) Other _____