

## **ANALYSING THE DYNAMICS OF THE INDIAN PHARMACEUTICAL INDUSTRY IN LIGHT OF THE COVID-19 PANDEMIC**

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### ***Abstract***

*The COVID-19 pandemic is a global crisis that caused economic disruptions. India faced challenges like limited resources and increasing demand for essentials, including medicines and supplies. To analyze this, time-series data was extracted to study the impact of the pandemic on India's major retail pharmaceutical companies. Net sales and total revenue significantly increased post-pandemic and were especially noticeable in the third quarter of 2020. This resulted from a spike in covid cases and price hikes on major drugs needed to treat the disease. While e-commerce has thrived in other areas, rising demand and growth opportunities are leading it to make its way to retail pharmacies. Restriction of movement led to increased users of e-pharmacy. A survey using an electronic questionnaire was conducted on 190 participants across tier 1, 2, and 3 cities to understand consumer behaviour towards e pharmacy. Common age groups were tech-savvy youth aged between 15 and 30 years. 55% of respondents were e-pharmacy users before lockdown restrictions. Other data points including feasibility and delivery time were positive in tier 1 and 2 cities as opposed to tier 3 cities which can be attributed to logistics challenges. 78.3% of the study participants are likely to recommend and use the service post the pandemic. The pandemic has had a small impact on E-Pharmacy, but a shift at its core has begun, which has a promising future as observed through primary research.*

**Keywords:** *Indian Pharmaceutical Industry, Online pharmacies, Covid-19, Consumer adoption and usage*

## 1 Introduction

2019 brought about a new widespread illness that has arisen, called COVID-19, which is a highly infectious disease uncovered as SARS-CoV-2. Tracing its origin back to Wuhan in 2019, it is still an ongoing pandemic. The WHO declared it a public health emergency of international concern on January 30, 2020 and the same was characterized as a pandemic on March 11, 2020 (Awucha et al., 2020). Till then, the virus had reached 113 countries with 118319 confirmed cases, and more than 4000 deaths reported globally (World Health Organisation [WHO], 2020). Since then, the COVID - 19 pandemic has reached a speculative stage and has toppled the economy of all worlds. After over a year since the emergence of COVID-19, the virus continues to take over the world, not only affecting the health of the masses but also the economies worldwide.

Even though India reported its first case on January 30, 2020, the virus spread much later across different parts of the country. The Ministry of Health and Family Welfare declared a health emergency in March 2020. India reported its first fatality due to Covid-19 on March 12, 2020. But due to the rapid spread of the virus in the South Indian states and with the number of confirmed cases in the country nearing 500, the Indian government imposed a 21-day lockdown from March 24, 2020, as a measure to prevent the citizens from contracting the virus and checking the epidemic. The output value of the Indian pharmaceutical industry ranks third in the world. The value of this industry is 41 billion U.S. dollars, of which the domestic market size of this industry is 13 billion U.S. dollars. (Equitymaster, 2020). With the global crisis being a medical emergency, the pharmaceutical industry has seen scope for growth. In May 2019, a leading consulting firm predicted that India's e-pharmacy market will grow by more than seven times between 2019 and 2023; it is expected to increase from US\$360 million (Rs. 26.5 billion) to 2.7 billion by 2023 USD (approximately 199 billion rupees), with a compound annual growth rate of 65.5% (India Brand Equity foundation, 2021). However, with re-adjustments and coping mechanisms seen across countries, India has observed a few fundamental shifts in its pharmaceutical industry.

In 2020, the threat of Covid-19 forced people to stay indoors, both through imposed lockdowns and the fear of the virus among the population. This led to a progression of e-commerce pharmacy or simply e-pharmacies (Jain, 2020). People reached out to online deliveries of almost all essential commodities, so was the case with medicines. As a result, medicine sales through e-pharmacies doubled in the first few months of the lockdown (The Federation of Indian Chambers of Commerce & Industry [FICCI], 2020). There were about three million users before the pandemic, which grew to more than 6 million new customers since then, according to a FICCI report. Thus, the pandemic has been an event to have stimulated the e-pharma business. Over the years, there has been a spread

of access to smartphones and the internet by leaps and bounds. At the end of 2019, the user base was reported at 500 million and is further expected to inflate to 820 million by 2022 (India Cellular & Electronics Association, 2020).

Additionally, the number of people using e-commerce platforms has also been rising rampantly. The E-Pharmacy market opportunity for India is expected to be greater than \$4 billion by 2025 and is still in its nascent stage of development (Research and Markets, 2020). E-pharmacies can prove to be a game-changer as most patients in the future would prefer the ease of use and accessibility to timely refills for their medications and therapeutics.

### **1.1 Purpose of the Study**

The main aim of this study is to analyze the growth of the Indian pharmaceutical companies' sales and revenues before and after the outbreak of the Covid-19 pandemic and consumer buying behavior concerning medicines. It does so by focusing on the growth of the e - pharma sector and its prospects, adaptation rate through primary research. This will give us insight into where a developing country, like India, the second-largest in the world, will change the dynamics of growth and consumption patterns among its consumers regarding pharmaceuticals.

### **1.2 Objectives**

- To analyze the growth trends of the Indian Pharmaceutical companies after the declaration of the pandemic in terms of their Revenue from Operations and Net Sales.
- To assess the consumer behaviour towards the procurement of pharmaceutical supplies during the pandemic from online pharmacies.
- To evaluate the consumers' perspectives on the services provided by the e-pharmacies and their intention to recommend them to others.

## **2 Data and Methods**

### *Time Series Growth Data*

To analyse growth in the pharmaceuticals, the Income from Operations and Net Sales of the top 50 listed and permitted companies have been taken. The same is taken for a period starting December 2019 (before COVID-19 in India) until December 2020 (after the emergence of the pandemic) from

the Centre for Monitoring Indian Economy (CMIE) database. This helped study trends in the sales and revenue of the Indian pharma companies by plotting the data into a graph.

### *Primary Data Collection*

To assess the consumers' behaviours and buying patterns, primary research has been conducted. The imposition of lockdown and the restriction on movement have induced buyers' tendency to purchase commodities online. For the same, a questionnaire was formulated which looked into the usage of e-pharmacy against physical retail pharmacies for acquiring medical supplies. The questionnaire looks into the use of the platforms, the comparison between online and offline pharmacies, and the consumer experience of e-pharma.

The respondents chosen for this study were 190 in number through the Non-Probability Purposive Sampling technique. Geographically, they were required to reside in India in tier 1, 2, or 3 cities and use the Indian pharmaceutical retail market to purchase medical commodities. Additionally, all those with access to the internet and acquainted with online purchases were eligible respondents for the study.

<b>Characteristics of the sample</b>	<b>Range</b>	<b>Frequency</b>
<b>Age group</b>	15-30	102
	30-50	64
	>50	24
<b>City tier</b>	Tier 1	75
	Tier 2	64
	Tier 3	51

Source: Primary survey, 2021

Table 1. Profile of the respondents

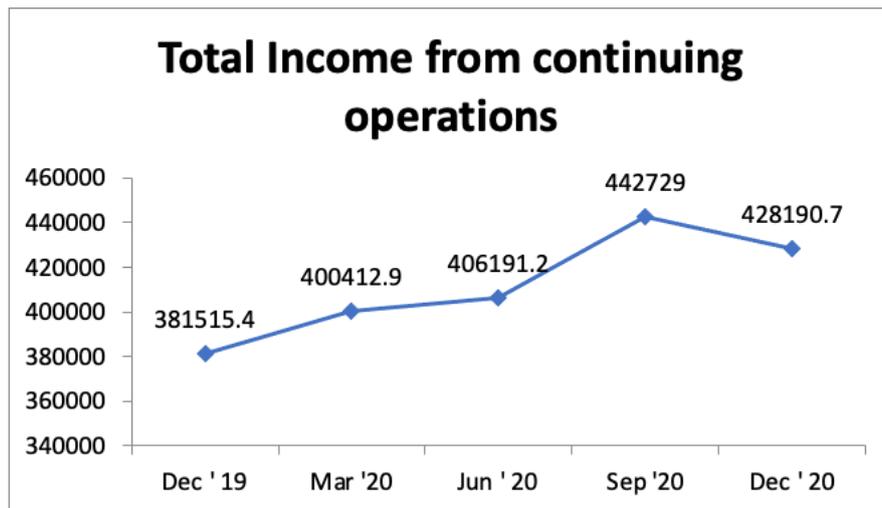
### *Questionnaire*

To study the platforms used by consumers for buying pharma supplies, an online well-structured survey was devised. The questionnaire was structured into three main parts wherein the first part was the respondents' demographic profile; the second part talks about the various aspects of the usage of e-pharmacy and its comparison against that of brick-and-mortar pharmacies. The last part talks about the consumers' perspectives and personal experiences concerning the use of online pharmacies in these unprecedented times.

The respondents' age was categorized into three groups: 18 to 30, 30 to 50, and above 50. This was done so that we could check which age group uses these pharmacies the most. To further understand the usage pattern of e-pharmacies, their access to the internet and their city tier was also noted.

### 3 Results and Discussion

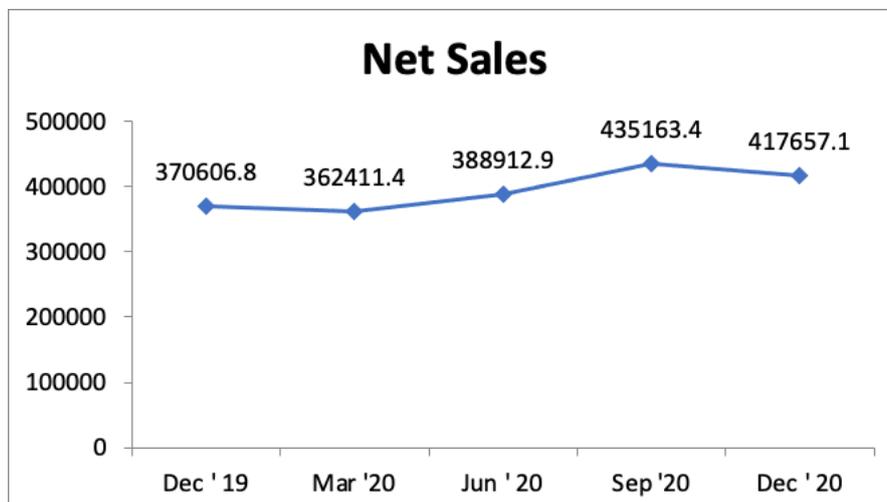
#### *Growth in the Pharmaceutical Companies*



Source: CMIE Database

Figure 1.1 Total income from continuing operations

Figure 1.1 illustrates the graph representing the total income from operations of the top 50 listed companies. It is clear from the figure that the revenue of the companies has increased throughout the stipulated period. Initially, the rise in the total income has been gradual, from December '19 to June '20. However, it is evident that the curve is particularly steep in the quarter starting June 2020, when there was rapid growth in COVID-19 cases.



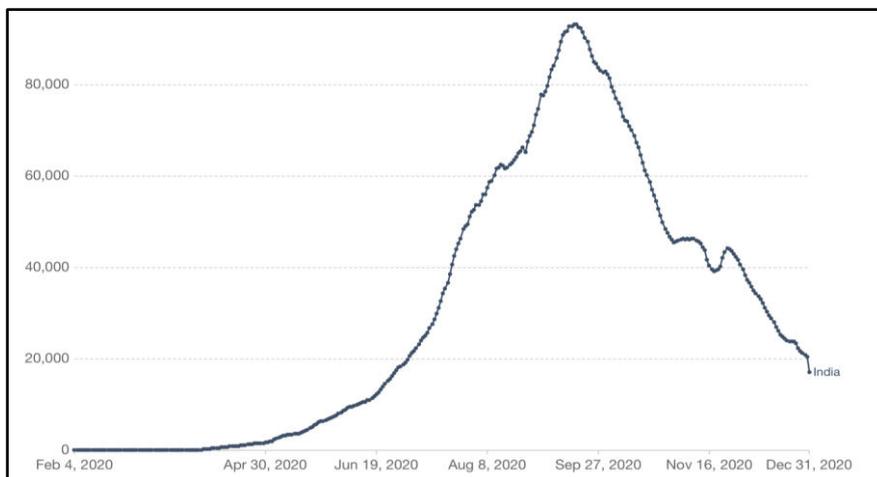
Source: CMIE Database

Figure 1.2 Net Sales

The following figure, Figure 1.2, depicts the total Net Sales for the pharmaceutical companies. Here, it is also indicative from the figure that the net sales have increased throughout the period. However, it is notable that much like the revenue, the net sales have also increased dramatically between June 2020 and September 2020.

As shown in the figures, the sales and income of the pharmaceutical companies have increased rapidly with the emergence and spread of the coronavirus pandemic. Even though the first case of the virus in India was discovered in January 2020, the spread of the disease was limited. Thus, the sales and income of the pharma companies were not affected much and showed merely a normal expansion in those parameters. After a lockdown was imposed in India due to the spread of the virus, the country successfully curbed the spread. Due to the lockdown, the market was sluggish due to less purchasing and limited doctor visits (Mukherjee, 2020). But at the same time, there was also a tendency among the co-morbid people to panic-buy their required medications. This led to a shortage of supply in the market in April 2020 (Sanjiv, 2020).

The highest rise in income and sales has been seen in the quarter starting September 2020. This was also the period where the highest number of cases were recorded. Considering the rampant increase in patients, the demand for medicines and supplies increased substantially by hospitals and individuals. This played a significant role in the rise in net sales of the company, leading to a subsequent increase in its revenue. During the same time period, the major pharmaceutical companies in the country implemented an increase in the prices of the major drugs which were principally required to treat the virus. This was among the causes leading to the rise in their income.



Source: John Hopkins University CSSE COVID-19 Data

Figure 1.3 New Daily Reported Covid Cases (For the year 2020)

*Consumers' Adoption of E-pharmacy*

The restrictions on movement have led people to resort to online buying of products, including medicines. As current findings suggest, the users of e-pharmacy have rampantly increased during the pandemic.

As per our primary findings, out of the total sample of 190, those who used e-pharmacy during the lockdown were 106, while the remaining 84 did not avail of it. Thus indicating that the majority (55.8%) used online pharmacies against the 44.2% who did not, though off a fine margin. Most of the users were found to be belonging to the age group of 15 to 30 years, which were 64 (60.38%). Those users aged between 30 and 50 were 27 (25.47%), and those above 50 were 15 (14.15%). However, it was noteworthy that out of the total respondents, those who used e-pharmacies from the 18-30 years' cohort were 62.75%, 42.19% of those between 30-50 years, and above 50 were 62.50%.

Geographically, the greater part of the users resided in tier 2 cities, followed by those in tier 1 cities, with the minority living in tier 3 cities. This parameter illustrates the fact that online pharmacies have an extended reach moving from tier 1 cities to tier 3.

<b>Characteristics of the Users</b>	<b>Item</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Age Group</b>	15-30	64	60.38
	30-50	27	25.47
	>50	15	14.15
<b>City tier</b>	Tier 1	32	30.19
	Tier 2	47	44.34
	Tier 3	27	25.47

Source: Primary survey, 2021

Table 2. Profile of the users of e-pharmacy

<b>Usage of E-pharmacy</b>	<b>Before pandemic</b>	<b>After the outbreak</b>	<b>Increase</b>
<b>Frequency</b>	66	106	40

**Percentage**

34.7

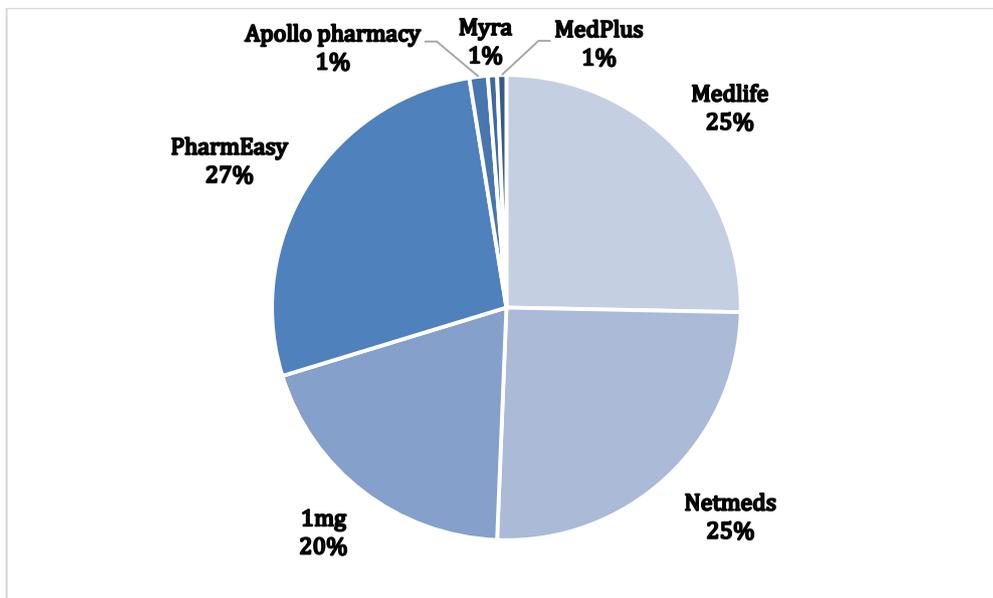
55.8

21.05

Source: Primary survey, 2021

Table 3. Period of usage of e-pharmacy

As per our survey, out of a total of 106 respondents who availed of the E-pharma services after the outbreak of the virus, 66 people have been beneficiaries of the E-pharma services since before the outbreak of the pandemic. The number of people who have been introduced to this service due to the lockdown has only been 40 (21.05%). This indicates that although there has been a shift from retail to online pharmacy, the rise is not significantly substantial.



Source: Primary survey, 2021

Figure 2. Most Used E-pharmacy Sites

The major online pharmacy sites are Medlife, Netmeds, 1mg, PharmEasy, Myramed, Apollo Pharmacy, mChemist, and MedPlus Mart. Among the prime ones, Medlife, Netmeds, 1mg, and PharmEasy are the ones that are used the most. These platforms gained popularity and saw an increase in demand during the pandemic due to their reach to all tier 1, 2, and 3 cities and the vast range of medicines available in these sites. Other ones like Myramed, MedPlus and the rest didn't reach a more extensive consumer base as they are mainly accessible only to residents of tier 1.

*Usage of E-pharmacy based on consumer experience*

A part of our questionnaire records the feasibility of using online pharmacy platforms from the users' standpoint. Four of the major parameters considered Prescription Verification, Delivery Time, Exchange Policy, and Convenience compared to physical Pharmacy. As per our findings, the majority of the people found the prescription verification process smooth, making e-pharmacies convenient to use. However, those who did not find it handy were those who faced problems with uploading prescriptions for validation. Others found the stringent verification process worth the time for a simple purchase of over-the-counter medications, which are readily available in retail pharmacies without prescriptions.

<b>How feasible an option was E-pharmacy during the lockdown?</b>					
<b>Variables</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Prescription Verification</b>					
No	0	1	7	12	12
Yes	3	0	14	29	24
<b>Speed of Delivery</b>					
Ill-timed	1	1	8	13	10
Well-timed	2	1	14	29	27
<b>Exchange Policy</b>					
No	1	0	1	8	6
Not tried	2	2	20	28	26
Yes	0	0	1	5	5
<b>Convenience in Comparison to Physical Pharmacy</b>					
No	0	1	7	15	6

Yes	3	1	15	27	31
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Source: Primary survey, 2021

Table 4. Feasibility in usage of E-pharmacy

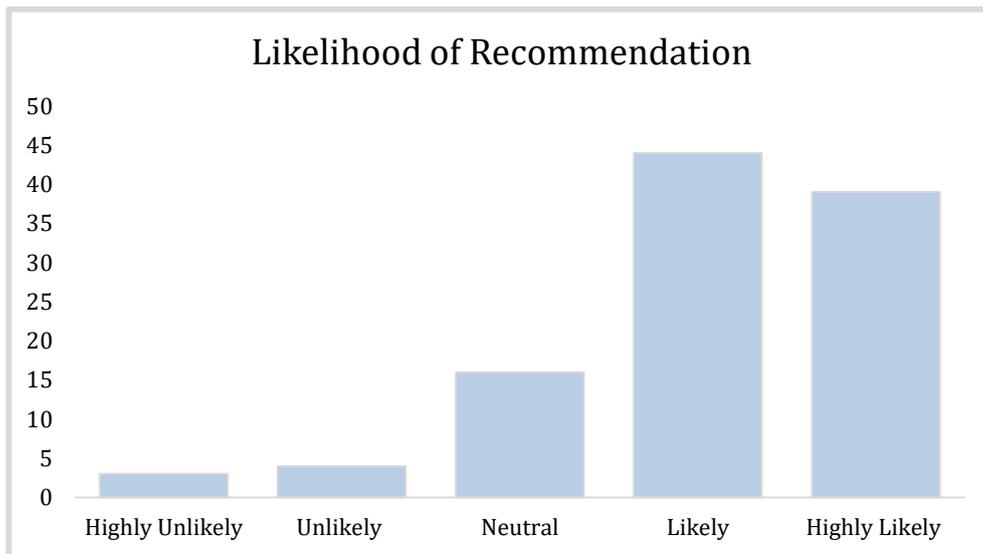
In terms of speed of delivery, most of the users found it feasible and timely. However, a significant number of users did find the same ill-timed, which is not agreeable during emergencies. Most of these people belonged to tier 3 cities where there is a shortage of warehouses and storage facilities, which results in a longer and more time-consuming supply chain.

Regarding the returns and exchange facility of the online pharmaceutical platforms, most users did not avail of this service. While those who used the return and exchange facilities, only a few found the exchange policies convenient. The others found it unfavourable due to delays in pickup and delivery of medicines and overall poor service quality.

The fourth parameter is a comparison between the feasibility of E-pharmacies and Retail pharmacies usage during the Covid-19 pandemic. Among the users of E-pharmacy, the majority found it to be a more convenient option during the lockdown period rather than physical medical stores. The primary reasons for the same were doorstep deliveries, ease of access during restrictions on movement, availability of a large spectrum of drugs and medicines, discounts ranging from 10% to 50%, which aren't available offline, and exchange services.

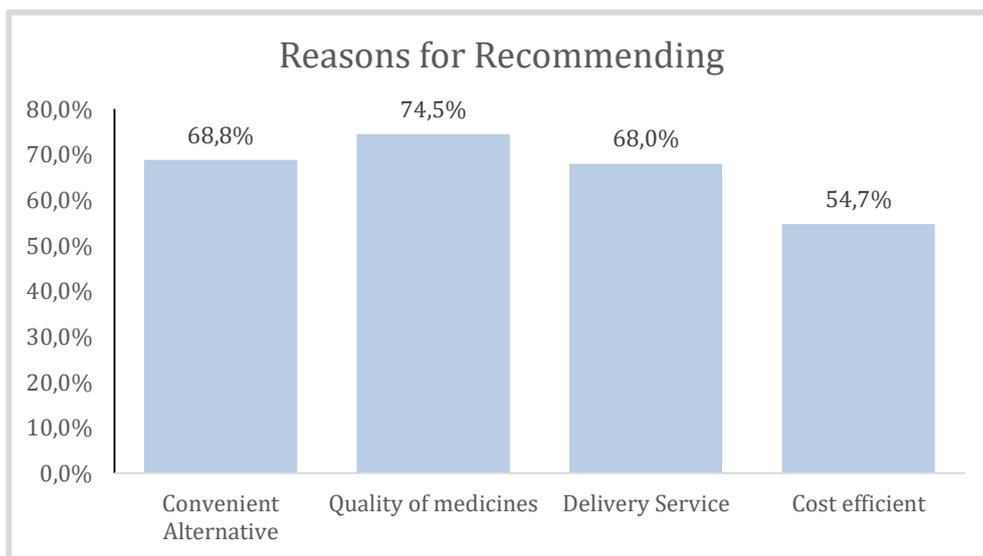
#### *Intention to Recommend*

The intention to recommend was recorded on a Likert scale with 5 as highly likely and 1 as least likely to recommend. Out of the total users of e-pharmacy, 78.3% are likely to recommend the same to others while merely 6.6% choose to not suggest these platforms to others. The most common reasons for recommending are seen to be the utility of online platforms during the pandemic wherein the service for door-to-door delivery is offered. Since the services are offered online, they are easily accessible to those equipped with the internet and a smartphone.



Source: Primary survey, 2021

Figure 3. Likelihood of recommendation by users



Source: Primary survey, 2021

Figure 4. Key reasons for recommendation

Of those who received discounts in e-pharmacies which weren't otherwise available, 54.7% would advocate the usage of online pharmacies to others. As per our survey, out of the total users of e-pharmacies, 68.8% of people found it convenient to purchase online medicines rather than physical pharmacies and hence would suggest the same to others. 74.5% of the respondents who purchased medicines from various online pharmacies found the quality of medicines to be up to the mark and hence approve of usage of online pharma platforms. 68.8% of users were satisfied with the quality of packaging and delivery services and thus would encourage non-users to try online pharmacies. However, of those who availed of discounts and other features, 17% would not recommend these

platforms to others. The most common reasons for the same are the time lags in delivery, which served as a bane in emergencies, and complicated user interfaces (mainly for the older age group).

### *How can Online Pharmacies be Ameliorated*

The pandemic has changed the trends revolving around the pharma sector, and it will not be wrong to say that e pharma has boomed a lot. Even with so many advantages that this newly emerging sector brings along, there are way too many things that could be improved to make the experience even better, making e pharma the go-to method for ordering prescription pills. The primary research revealed that almost 25 percent of the people believed that the delivery speed was the most significant hindrance and could be improved upon a lot. Nearly 1/5th of the people stated that a simpler and more interactive user interface could help increase the sales as older people could also use the services without depending upon their kids/grandkids. Another problem that the users experienced was that seldomly important information was missing from the medicines themselves, for example, the manufacturing date or expiry date, etc. A significant problem that e pharma companies are trying to eliminate is. The availability of these services in tier 3 cities. For this, companies need to open more warehouses or tie-up with various local community pharmacists. About 8 percent of the people also thought that a greater rate of discounts could help. Increase the sales. For these e pharmacies to improve the government needs to work with these companies and improvise the Pharmacy Act 1948 which was introduced way before the internet was introduced to the world.

### **3 Conclusion**

The Healthcare sector has continued to grow at a rapid pace after the Covid-19 pandemic. Considering the consumer end of the industry, we noticed a spike in net sales and total income of the Indian pharmaceutical companies after the pandemic took over the country. The increasing demand for drugs and medicines during the outbreak and stocking of medicines by the consumers has led to this significant rise in the net sales of medicines and thus the total revenue of the Indian pharmaceutical companies.

Induced by the restriction on movement, many consumers have sought to use e-pharmacy for procuring medicines. Our study concluded that there hadn't been a massive shift in consumer buying behaviour towards online pharmacy after the outbreak of the Covid-19 virus, wherein most were existing users from the past. Nevertheless, the increase in consumers has been significant, resulting in these platforms' growth. Additionally, among those introduced to e-pharmacy services

due to the pandemic, the majority would continue usage after the restrictions have been lifted. This has mainly been prompted by the delivery service and discounts that are provided. Lack of awareness and the required technology and competition from the retail pharmacies have affected the growth of the E-pharmaceutical platforms. Administering timely delivery, better user interface, and hiring industry professionals for guidance would attract more users towards online pharmacies, helping them grow further.

Nevertheless, due to the Covid-19 pandemic, moving from place to place to learn the consumption of individuals was not possible. Thus, the mode for conducting the survey was online. Only people in possession of a smartphone and continued internet access could be taken as a study sample. Consequently, people from tier 1, 2, and 3 cities with the facilities could be tapped while those without it could not. Conducting the survey offline would further the reach of the category of people and residing place of the sample, providing more scope for future research on the topic.

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