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A REVIEW ON ONLINE PHARMACY

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Abstract

E-pharmacy is a rapidly growing sector in India, driven by increasing internet penetration and consumer demand for convenient access to medicines. Online pharmacies offer numerous benefits, including home delivery, cost savings, and improved medication adherence. However, they also present challenges such as the risk of self-medication, drug abuse, counterfeit medicines, and regulatory concerns, particularly for Schedule H and X drugs. The COVID-19 pandemic further accelerated the adoption of e-pharmacies, highlighting their importance in ensuring access to essential medicines while raising concerns about patient safety and data security. Despite these risks, e-pharmacies provide significant advantages, such as enhanced accessibility, reduced travel time and costs, and informed decision-making for consumers. However, approximately 95% of online pharmacies operate illegally, distributing counterfeit and expired medicines. The rapid expansion of e-pharmacies requires stringent regulatory frameworks to ensure quality, safety, and ethical compliance. Policymakers must address challenges such as patient privacy, regulatory adherence, and equitable healthcare access, especially in underserved regions. The Indian government has taken initiatives to Due to the COVID-19 lockdown; a significant number of consumers have shifted to purchasing medications online. Governments are implementing crucial measures to safeguard lives, including lockdowns, testing, isolation, and treatment efforts. As the infection continues to spread globally, people are limiting their outdoor activities. E-commerce is steadily expanding in both wholesale and retail sectors. E-commerce businesses have observed a surge in orders, with customer activity increasing by around 20-30%.

Keywords: E-pharmacy, offline pharmacy, types of pharmacy, e-prescription, pandemic situation, pharmaceutical sector, economy growth.

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Introduction

The global use of the internet has significantly risen, both for purchasing and selling products. As a result, people's interest in buying medications online has also grown [1]. In recent times, buying prescription medications online has become a worldwide trend, bringing significant economic, social, and health-related effects [2]. While there are advantages, purchasing medications online also comes with multiple potential hazards [3]. With the convenience of home delivery and discounted prices, online pharmacies are becoming more popular than traditional pharmacies. The ease of access, affordability, availability of less frequently prescribed medications, and round-the-clock service are some of the key factors driving the growth of online pharmacies. However, risks

such as counterfeit drugs, substance misuse, and medication errors exist. Around 95% of online pharmacies operate illegally. Furthermore, concerns remain about the quality of prescription drugs sold online and the legality of e-pharmacies. Since many people turn to the internet for medications rather than consulting healthcare professionals, it is crucial to establish guidelines and a regulatory framework to enhance the future of the pharmacy sector [4].

Pharmacy

E-pharmacies, or online pharmacies, are digital platforms that allow consumers to order medications online without the need to visit a physical pharmacy, making the process more convenient. As a result, the demand for e-pharmacies is rising globally. The internet has simplified and streamlined access to services and the introduction of e-commerce in pharmaceuticals led to the emergence of online pharmacies, which first began in the United States in 1999. These platforms sell both prescription and over-

the-counter drugs. However, after China's food and drug authority released provisional internet regulations, official approval for online pharmaceutical transactions was granted on December 1, 2005[5].

An e-pharmacy performs several key functions,

- Dispensing or selling medications, including services for repeat prescriptions
- Offering information about medication
- Offering guidance on the signs and symptoms of various illnesses.

Types of e-pharmacy

A. Organized E-pharmacy

- Market place model
The official organized connected with community accredited pharmacy store to the end –customer.
- Inventory based model
E-pharmacy which is a network service from the off-line certified pharmacy.

B. Unregulated E-pharmacy

In this category of pharmacies, prescription medications are ordered with unverified prescriptions. There is no assurance of the order's reliability due to the lack of qualified pharmacists overseeing the process.

How e-pharmacy model works

1. A prescriptions scan copy is uploaded to a web-based or mobile application for medications.
2. A team of registered pharmacists check all the prescription which are uploaded and verify them before delivery.
3. Then the prescriptions which are valid sent to pharmacy store by registered pharmacist from where medicines are dispensed.
4. All the activities of pharmacy store and consumers are governed by IT act 2000 on the website or mobile applications [2].



Fig 01: How online pharmacy works

Regulation of e-pharmacy

According to the World Health Organization (WHO), it recognizes both the opportunities and challenges associated with online prescribing. In 1997, the World Health Assembly (WHA) encouraged the Global Network to collaborate in regulating the advertising and sale of unlicensed medications that could potentially harm public health. During a meeting in May 1998, the WHA urged Member States to "review existing laws, regulations, and policies to address, develop, evaluate, and regulate the advertising, promotion, and sale of health products online"

and to implement monitoring, supervision, and enforcement strategies.

In conclusion, the WHA recommended that the WHO Director-General encourage Member States to identify and document cross-border issues and report problematic cases to the WHO. The WHA also advised extending the guidance for Internet consumers to access "reliable, impartial, and accurate" information about scientific products. This led to the publication of the WHO Handbook titled "Medical Devices and the Internet: A Guide to Finding Reliable Information [6].

Pharmaceutical sector in pandemic situation

The Covid-19 pandemic has affected every industry, creating significant disruptions in the global economy, and the pharmaceutical sector is no exception. The pharmaceutical industry in India is the third-largest producer of drugs by volume, and the country manufactures 60% of the world's vaccines.

- The prices of raw materials and drugs have risen globally due to the lockdown. For instance, in India, the price of paracetamol increased from 250-300 Rs per kg to 400-450 Rs per kg. Similarly, the costs of vitamins and penicillin saw a rise of 40-50%.
- India is a key supplier of Active Pharmaceutical Ingredients (APIs) for generic drug manufacturing worldwide, contributing around 30% of the generic APIs used in the United States. However, the production of drug formulations in India relies heavily on Chinese APIs, with approximately 70% of them sourced from China. A recent survey highlighted that drugs used in emergency care, anesthesia, and pain management were particularly affected due to the shortage caused by the pandemic[7,8,20].

Factors of attraction to buy medicine online

- Choice of delivery time and address (18.56%).
- Reduce visits to pharmacy (26.94%).
- Attractive discounts on prices and offers (32.63%).
- Freedom to choose any brand of drugs of given generic name (14.67%).
- Sometimes they sell drugs without prescription (7.18%) [10-19].

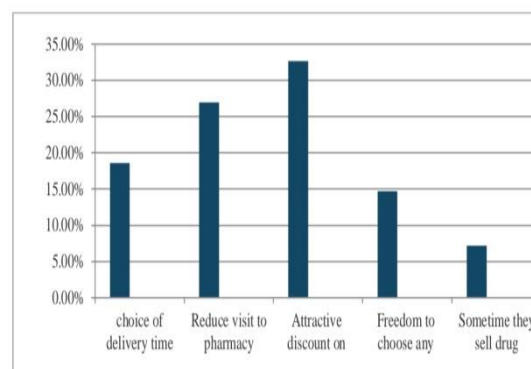


Fig 02: Factors of attraction

Comparison between online pharmacy and offline pharmacy

Table 01: Comparison between online pharmacy and offline pharmacy [9].

Sr. no.	Online Pharmacy	Offline Pharmacy
1.	More convenient as one can order drug online from anywhere	Less convenient as patient need to go to a store to buy medicine
2.	Save time	Time consuming
3.	Offer lower prices by passing the saving on the bulk buying to customer in the form of discount	Margin are lower so they are not in position to offer discount like online pharmacy
4.	Larger inventory and procurement ability	Limited inventory
5.	Many provide suggestion on substitutes and have a great range.	Limited range
6.	Maintain confidentiality and privacy of patient about drug and disease	Since patient ask for drug while standing at store they find it hard to describe their need.

Information on leading e-pharma companies

1. Tata 1MG



Fig 03: Tata 1mg company [11-14]

2. Pharmeasy



Fig 04: Pharm easy company

- Founder: - Dharmil Sheth, Mikhil Innani, Dhaval Shah
- Location- Mumbai, Maharashtra, India

3. Netmeds



Fig 05: Netmeds Company

- Founder and CEO-Pardeep Dadha
- Headquarter- chennai ,Tamil Nadu, INDIA

4. Practo



Fig 06: Practo company

- Location: Bangalore Karnataka India

5. Apollo pharmacy



Fig 07: Apollo Pharmacy Company

- Location : Chennai ,Tamil Nadu ,India
- Founder : prathap Chandra Reddy[12].

Some online pharmacy start-up companies

Table 02: Some online pharmacy start-up companies

Online Startup	Location	Website	Target
1 mg 2015	India	www.1mg.com	Online pharmacy market-region with health practitioner list and tele session service.
Healthkart 2011	India	www.healthkart.com	Online keep for health, sports activities and dietary supplements.
Medlife 2014	India	www.medlife.com	Medlife gives an app for getting medicines
Emedix 2016	India	www.emedix.com	It offers higher transport and high quality carrier to the customers nation wide.
Netmeds 2015	India	www.netmeds.com	It gives a online platform selling prescription, non-prescription drug and healthcare and well-being product..
PharmEasy 2015	India	www.pharmeasy.com	Mobile-first hyper-local platform for drug ordering and diagnostic testing.

Advantages

- Money saving.
- Time saving.
- Consumer comfort is increased.
- Medicines accessibility is improved.
- Easy accessibility to medicine.
- 24/7 available possibility.
- Policy of refund.
- One can without problems examine drugs in terms of cost.
- Grows in purchaser facts & facts interchange.
- Privacy on buy of medicine.

- Delivery of drugs at favored area at favored time possible.
- Increased distribution.
- Increased desire as wider kind of drugs accessible.
- Convenient for a few sufferers and vintage age those who can't go away their home[15,16,17].
- Better best of medicine because of desire of many brands.
- Discounts and offers on prices
- Freedom to select tablets of any brands.
- Helps to avoid nuisances such as going out in bad weather, parking hassles, standing in line, etc.
- Offer perks not found in traditional market.
- Easy deals possible.
- More job opportunities for modern generation pharmacists.
- Provides media alerts [11, 13, 18]

Disadvantages

- Chances of drug abuse.
- Lack of patient counselling.
- Counterfeit/fake/outdated medicines.
- Probability of drug abuse.
- Misdiagnosis of drug is a possibility.
- Encourage people to self-medicate.
- The clarity and quality of drugs are not guaranteed.
- Economic privacy concerns.
- There is a risk associated with purchasing drugs online.
- Some e-pharmacies sell drugs without a prescription, which can have dangerous consequences.
- Illegal substances are easily accessible.
- Without consulting a doctor, an electronic prescription is issued.
- Affects the offline pharmacist's commercial enterprise.
- Online physician and pharmacist confirmation does not address labeling and packaging issues.
- Temperature touchy drug delivery is complicated.
- Differentiation among valid and illegitimate web sites for e-pharmacy is tough.
- Chances of drug resistance and interaction
- Medical privacy is a major concern.
- Easy availability of illegal substances.
- Sale of drugs without prescription by some e-pharmacies which lead to harmful consequence [13, 14, 17].

E.Pharmacy impact on society

E-pharmacy, in collaboration with numerous healthcare organizations, experts, and government agencies, plays a crucial role in supporting individuals during pandemic situations. It provides a practical and accessible solution, especially when people are unable to leave their homes due to lockdowns and safety concerns. The convenience and accessibility of e-pharmacies have made them a valuable addition to the healthcare system. Furthermore, their transparency in pricing and the availability of healthcare services make them an easy-to-reach option for many.

E-pharmacies have evolved into a comprehensive solution for all healthcare needs. As a representative of Med Life mentioned, their vision has always been to make healthcare services available to as many people as possible from the comfort of their homes. Despite the challenges posed by the COVID-19 pandemic, this vision remains unchanged and has, in fact, strengthened their services. While the primary service remains the delivery of medications, there has been a notable increase in demand for online consultations and home-based tests. To ensure that people don't miss important diagnostic tests, phlebotomists are sent directly to customers' doorsteps, acknowledging the increasing preference for staying at home [6, 15].

E-Pharmacy impact on economy growth

In 2016, the e-pharmacy market was valued at USD 33.03 billion and is projected to expand at a CAGR of 14.8% over the forecast period. The growing internet usage has positively impacted the enhancement of healthcare infrastructure, the rapid aging population, and the rise of e-commerce. Additionally, the increasing adoption of e-commerce and digital technologies within the healthcare industry is anticipated to drive further growth.

The online pharmacy market in India is still in the early stages compared to more developed economies and other major emerging economies. In recent years, around 250 online pharmacies have emerged across the country. According to Frost & Sullivan, the e-pharmacy market in India is expected to grow at a remarkable CAGR of 63%, reaching \$3.6 billion by 2022, up from \$512 million in 2018[6, 15].

Conclusion

Online pharmacies offer convenience, lower costs, and a wider selection of medications, making healthcare more accessible. They are especially beneficial for individuals in remote areas or those with mobility issues. However, the lack of regulation and potential for counterfeit drugs poses a significant risk. Consumers must be cautious and ensure the pharmacy is licensed and reputable. Online platforms may not provide personalized healthcare advice, limiting patient support. Additionally, the ease of access could lead to misuse of medications. Despite these challenges, online pharmacies can be a valuable resource when used responsibly. To ensure safety, it's crucial to verify the legitimacy of the service. Overall, online pharmacies have the potential to improve healthcare access if used wisely. Vigilance is key to preventing harm.

Author Contributions

All authors are contributed equally

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Declaration of Competing Interest

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