E-PHARMACY IMPACT ON SOCIETY AND PHARMA SECTOR

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Abstract: -
Over the past ten years, the pharmacy and larger healthcare community have struggled with the issue of internet drug purchases. People who are looking for medications online have more options, whether they have a prescription or not. Many commenters have outlined the hazards and advantages of doing so. An approximately 95% of E-pharmacies operate illegally, illicit e-pharmacies distribute counterfeit and expired medicines. Along with the risks there are many benefits of online pharmacy. E-pharmacy practice has revolutionized the way consumer access essential medication and healthcare products. Patients can conveniently browse a wide range of pharmaceutical products, compare prices, and access valuable information about medication, enabling informed decision making. E-pharmacies offer several advantages, including improved accessibility, reduced time travel and cost, enhanced medication adherence through automated refill reminders. However, the rapid growth of e-pharmacy also presents challenges that warrant careful consideration. These include concerns about patient privacy, counterfeit medications, regulatory compliance, and ensuring equitable access to healthcare services, particularly in underserved regions. Policymakers and stakeholders must collaborate to develop robust regulations and standards to address these issues and ensure the safe and responsible operation of e-pharmacy platforms. In conclusion, e-pharmacy services have the potential to significantly improve healthcare access and convenience for patients. Nevertheless, they also pose regulatory, ethical, and logistical challenges that must be addressed to realize their full potential while safeguarding patient safety and data security. The continued evolution of e-pharmacy services will play a crucial role in shaping the future of healthcare delivery and access.

Keywords: - e-pharmacy, e-consultation, e-prescription, drug abuse.

Introduction:
The use of internet worldwide has increased greatly for buying as well as for selling of products. Therefore, the interest of people in purchasing medicines online has also evolved [1]. Nowadays purchase of prescription medicine with the help of internet has become the global phenomenon with notable economic, social, and health related impacts [2]. Along with the benefits, there are several risks in purchasing medicines online [3]. Due to home delivery of medicines that too at discounted rate the online pharmacies are gaining popularity over conventional pharmacies. Convenience, cost-effectiveness and the availability of less commonly prescribed medicines and 24/7 access are all advantages that contribute to encouragement of online pharmacies. While the risks are disadvantages are counterfeit medicines, drug abuse, medication error etc. About 95% of all online pharmacies are

working unlawfully. Even so, there are problems with the quality of the prescription drugs which are sold online and the licitness of e-pharmacies. As most of the people use the internet to search for the medication online instead of consulting to doctors or physician. Therefore, to improve the future of pharmacy some guidelines and regulatory framework should be set [4].

Objective:
The objective of this article is to identify risks factors and benefits of online pharmacy. And to recognize the gap in knowledge and need of regulatory framework for online pharmacies.

What is E-Pharmacy:
E-pharmacies or online pharmacies are online platform through which consumers can order medicines online without the need for visiting pharmacies this makes the process more convenient for consumers and as result the demand for e- pharmacy is increasing globally. The internet has made things very convenient and easy to access. Application of e-commerce in medicines led to the beginning of online pharmacies which was first started in the united state in the year 1999. This includes the selling of prescription and non-prescription drugs. However, after China's food and drug authority published the provisional internet rules for review, the official clearance for online medication transaction services began on December 1, 2005.
An e-pharmacy fulfill no. of functions that are:
- The distribution or sale of medicine, including repeat prescription services
- The distribution of other healthcare articles
- Providing information about drug
- Providing advices about signs and symptoms of any disease.

Inadequate patient education and the sale of prescription only medications (PMOs) without a prescription are only two of the serious public health risks that have accompanied the e-pharmacy market's explosive growth. Consumer fraud and a lack of data privacy are additional concerns that are irrelevant to health. E-pharmacy does, however, offer prospective chances to improve access to medications. Online drug shopping can be fast, easy, convenient, and personal. As internet and smartphone use rises, e-pharmacy has the potential to expand accessibility for those with disabilities, the elderly, and those who live in rural locations [1].

Characteristics of online pharmacies:
1. Requirements for prescription: The online pharmacy received the prescriptions as a scanned copy through email. As some of the online pharmacies request for updated prescriptions also. Some consumers order prescription medicines online, without a prescription especially from a rouge pharmacy. The majority of pharmaceuticals products that are bought are used to treat chronic diseases like psychiatric or cardiac diseases. The patients who are suffering from mental illness mainly misuse the online pharmacies by stocking drugs which they believe are effective for their condition without a prescription. The Patients who have prescriptions also misuse online pharmacies by sending same prescription multiple times. The requirement of prescription is a main criterion should be strictly followed by online pharmacies. However, it is important to acquire prescribed drugs carefully. Reusing same prescription again and again can harm the consumer as it is risky to exploit any drug. Therefore, some rules and regulations should be made to prevent multiple use of same prescription [5].

2. Contact information: Numerous internet pharmacies give their contact information. So many pharmacies display their contact no. for costumers' enquiries. So, it is convenient for consumers to enquire any online pharmacy before the purchase any medicine or place order. some pharmacies had post the owners or directors details. To address this issue, it is advised that each nation's pharmacy board or regulating body look into all online pharmacies and thoroughly examine their websites to see whether the material presented is appropriate or not. [5].

3. Geographical details: People who frequently utilize online pharmacies end up importing these medications from other nations. However, they may or may not be legal given that the majority of nations lack adequate regulations to either permit or forbid internet pharmacies. [5].

4. Drug prices: One of the main causes of excessive exploitation and abuse of internet medications was the cost of the drugs. For instance, several online pharmacies provide discounts on medications to customers who purchase large quantities. This tempts consumers to purchase pharmaceuticals already on hand, which results in drug abuse that is hazardous to patients [5].

5. Marketing strategies: Some of the tricks or marketing strategies are decrease in prices as compared to "traditional pharmacies", offering free deliveries, providing points on every purchase, and giving special discounts. Pharmaceutical product or medication marketing is mostly based on promotional incentives made by businesses, such as price cuts that may raise the risk of drug abuse. Customers should be aware of the techniques and tactics employed by internet pharmacies to market their goods as a result. [5].

6. Quality of online pharmacies: some of the professional organisations has developed a certification and legitimation for the online pharmacies for better consumer safety. This regulation are set to distinguish between reliable online pharmacies from illegal websites. 17% of the selected online pharmacies, according to the national association of boards of pharmacy (NABP), are illegal. The Department of Justice and FDA were given the legal authority to take down websites that disobeyed the 1938 Food, Drug, and Cosmetic Act through legal means of enforcement. This rule applies to websites that advertise the non-prescription sale of medications with a narrow therapeutic index (NTI). To stop the online selling of pharmaceutical items by websites that are not accredited by the NABP approved online pharmacy practice program, the FDA should support legislative action as well.

7. Durations of websites' establishment and their privacy policies: The duration of time that an online pharmacy has been operating can be used to assess its legality. Limited patient and patient safety information sets apart e-pharmacies that operate non-prescription e-pharmacies. Such pharmacies ultimately end. [5].

Quality of drugs purchased:
1. Drug characteristics: The majority of the medicines that were purchased were pharmaceutical items that were prescribed drugs based on the qualities of the drugs. These drugs come under the law as protected drug and can only be given when prescribed by physician only. More often most of the e-pharmacies accept email or photocopy of prescription. As a single prescription can be used multiple times, these acts lead to drug abuse. In addition, due to their tendency to encourage self-medication, prescription drugs purchased via online pharmacies were misused [5].

2. Drug quality characteristics: Both the internal and exterior components of medications are analyzed to assess their quality. More over half of the medications were seen to have incorrect labels on their package. Most of the drugs which are purchased have damaged outer packaging or does not have leaflets. Other problems include lack of batch no., expiry date and other important information like special instructions, any allergy or side effects, or drug/excipient interaction. All these problems increase the risk of drug interaction with other medicine or can cause any side effect or allergy and patient can consume even expire medicine also. That's why it is necessary to check all the products according to good and manufacturing practices. Such type of checking's should be done by national agencies or regulatory authorities [5].

3. Consumer safety: Buying drugs online is riskier and most of the consumers are not aware about the risks. Other factors such as privacy and avoiding doctors' consultation as well as advertisement promoting benefits like lower prices, contribute to growing of online pharmacy. This is so common outside the United States [5].

Types of E-pharmacy:
E pharmacies are of 3 types.

1. **Type 1:** it is like a traditional pharmacy store which do not rely on any particular e-pharmacy company. It directly works by dispensing a medicine soon after receiving a prescription via mail [6].
2. **Type 2:** It is comparable to a brick-and-mortar pharmacy, with the branch network of a major drugstore acting as its actual showroom. In this type of e-pharmacy medicine is provided to consumer without any physical consultation. In this medicine given is totally dependent on the questionnaire prepared by physician [6].
3. **Type 3:** in this type the dispensing of medicine is done without a prescription. Type 1 pharmacy works with a certification received from a private organisation and license from the state in which they operate. The other 2 types raise public safety concern [6].
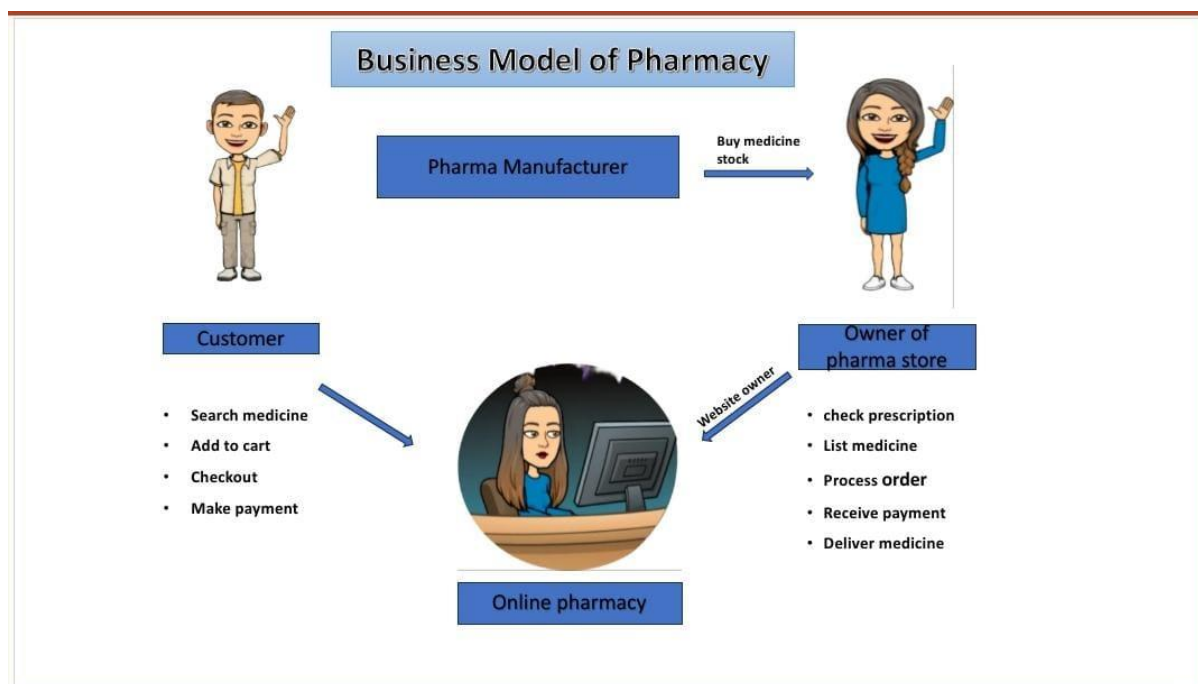

Fig.1

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.

Advantages of online pharmacy:
1. **Convenience:** It is so easier to order prescribed drugs via online pharmacy. People who live far from a traditional pharmacy, the aged, those with disabilities, those with busy daily schedules, everyone can get benefit by the ease of online pharmacy to order medicines from their comfort zone. And their delivery fee is are also less than the cost of travelling to a traditional pharmacy [7].
2. **Future Vision:** As nowadays people are more leaned towards the technology and adapting AI in their day-to-day life E-pharmacy will also grow with the time. Because in future generation maximum people will look forward to online stores only [7].
3. **Lower Price:** as online pharmacies offer so many offers of discount on many pharmaceutical products therefore, consumers can save a lot of money by using online pharmacy store [7].

4. **Privacy and Confidential:** One of the major benefits for people who find is difficult to communicate to doctor's face to face. It is also helpful for patients who are ashamed or embarrassed of their conditions such as erectile dysfunction, hair loss, acne, STDs, etc. such kind of patients can order the medicines through online pharmacies [7].

5. **Range of Choices:** There are multiple choices available for medicines on E-pharma channels and even if we compare it to a drug store, E-pharmacy is more convenient for availability of medications [7].

Disadvantages of online pharmacy:

1. **Lack of physical evaluation in place:** as the internet is not much concerned about the safety of consumers that's why these online stores does not have any rule of physical evaluation of in the online stores. And if in a case evaluation takes place it does not happen under the professional medical practitioner [7].

2. **Drug abuse:** some of the online pharmacies' sale schedule X drugs (includes narcotics and psychotropic drugs) which should get prohibited [7].

3. **Medication errors:** the pharmacists who are behind the screen should contact to pharmacists if they are having any inconvenience while reading the prescription [7].

4. **Counterfeit medicines:** consumer should check the receipt of all the medicines delivered from online stores. A receipt should have all the information which is necessary like pharmacist who dispense it, place of manufacture and batch no. [7].

5. **Substitution:** Internet pharmacies should decline the order if the brand which is prescribed is not available [7].

6. **Pharmacovigilance:** All the products which are supplied are recorded for easy tracking [7].

E- pharmacy impact on society: -

E-pharmacy, together with numerous other healthcare organizations, experts, and government agencies, helps people take care of themselves during pandemic situations. Because it is more practical and simpler to access in pandemic situations when clients are unable to leave due to lockdown and safety concerns, e-pharmacies have contributed value to the healthcare system. Because of the correctness of the costs and the plan for health care service providers, it is also a reachable service. "Evolving as a one-stop solution for all healthcare needs" is how we might describe e-pharmacy.

Our vision has always been to make our end-to-end healthcare offerings easily accessible to as many people as possible from the comfort of their homes," a representative for MEd Life once stated. Being the largest e-health company in the nation, the covid-19 epidemic has not changed this vision in any way and has really bolstered their offerings. Our primary offering is the delivery of medications online, but we've also observed an increase in demand for consultation services and home tests. We are sending our phlebotomists to people's doorsteps to make sure they don't skip their vital diagnostic tests because more and more people are choosing to stay indoors.

Among the reasons e-pharmacy is becoming more popular are According to the WHO, India has a high rate of early mortality from non-communicable diseases. In India, chronic diseases are growing quite quickly on a daily basis. Particularly among adults, sedentary lifestyles, increased motorization, automation, and rapid urbanization have an impact on these non-communicable diseases.

A brief comparison between online pharmacy and offline pharmacy:

Online pharmacy	Offline pharmacy
1. Rapid doorstep delivery of medications and ease of usage favoured by elderly and physically handicapped people taking chronic medicine.	To obtain medication, one must move around physically.
2. Improve the price and include additional discounts.	No discount, medicines are sold at MRP rate only.
3. E-pharmacy abides by the offline regulatory system because it lacks its own laws.	Offline pharmacies have its own proper rules and regulations for the sale and manufacture of drugs along the nation.
4. Due to the integration of numerous retail pharmacies onto a single platform, they may provide a large variety of medications and services.	In offline pharmacies the stock is limited that's why unavailability of medicines is a common problem, and an individual has to visit more than one medical store to get the desired medicine
5. A technology that connects a network of pharmacies decreases administrative costs and working capital while increasing profitability.	Offline pharmacies experience low industry margins as a result of increased rivalry among physical storefronts.
6. Data security can be an issue because patients are required to disclose personal information, like their address, phone number, and disease profile.	In offline pharmacies no personal information or any kind of data is asked at the time of purchasing.
7. E-pharmacies are expanding steadily. There are 250 online businesses at the moment, and in 2022, the industry is projected to develop at a CAGR (compound annual growth rate) of 63% and reach $3.6 billion.	Due to its extreme competition and intense price-control pressure, the retail pharmacy business faces uncertain stability and slow development.
8. E-pharmacies sell prescriptions as well as value-added services like e-consultations, e-diagnostics, details on medications and illnesses, and health insurance services.	Drugs are the only thing sold at offline pharmacies.

Regulation of online pharmacies: -
Laws of pharmacy: There are no such legislation or rules governing online pharmacies in India, to our knowledge. Although there are no regulations particularly governing online pharmacy, the following laws do apply:
- Drugs and cosmetic rules 1945
- Drug and cosmetic act 1940
- Pharmacy act 1948
- Indian medical at 1956]
- Laws related to e-commerce are defined under the information technology act 2000 [9]

Legality of e-pharmacy:
The Bombay high court, on October 15, in a public interest litigation (PIL) announces that the online pharmacies who are selling scheduled H drugs of the drugs rule without prescription and proper cash memo are illegal and told the state govt. to take strict action against these types of acts. After this in July 2016, the govt. of India gave support to internet pharmacies and central drug standard control organisation (CDSCO) circulated directions to all the regulatory authorities of state govt. that there is no offence to the internet pharmacies if they are not violating any law or act which are applicable to

pharmacy stores like drug and cosmetic act 1940 and its rules and information technology act 2000. In order to obtain a license for an online pharmacy, interested parties must submit Form 18 (AA) through the central government's internet portal to the central licensing body. The applicants must comply with the provisions of the Information Technology Act 2000 and pay INR 50,000 for e-pharmacy registration. The CDSCO, India's top pharmaceuticals regulator and central licensing agency, requires registration of all new online pharmacies. For e-pharmacies to offer medicines throughout the nation, a single state's license is all that is required. The validity of e-pharmacies license are only 3 years from the date of issue and after expiry it has to be renewed if one wants to continue to rum their online store [7].

Challenges of an online pharmacy:
In the absence of an accurate framework, a number of issues have been addressed; some of which are covered in this section [8].

1. Absence of regulatory infrastructure: - the overall growth of online pharmacy market has been affected because of the absence of rules and regulations in e-pharma sector and has kept the investors on hold. Now that pharmacists must obtain a valid license and a registered location in order to store and sell medications, the D and C Act, e-pharma companies can only conduct business if they have a physical location.

2. Inadequate logistics: - E-pharmacy companies are unable to deliver drugs which need cold logistics in rural population as there is poor chain for cold logistics and no temperature tracking.

3. Interstate drug sales:- Because the laws governing the interstate selling of pharmaceuticals were not clearly established, there is a great likelihood that drugs that are legal in one state may not be legal in another. Similar incidents have already been reported by the Mumbai Food and Drug Administration, and more are predicted to occur as e-Pharma businesses operate on a single platform with a wide network, making it difficult for regulatory authorities to regularly monitor the sources from which these medications are delivered. Taking advance payment before delivering the medicine is another uncertainty in Indian law. Some of the law says that the payment should be done only after the delivery of medicines and if it is not done like that then e-pharmacy companies are questionable for violating the law as they are not allowed to offer for other payment methods like payment via mobile application or by credit or debit card.

4. Absence of barcoding system: - There is currently no structure for barcoding at the assembly level, which can hinder the efficient supply of medications. To encourage transparency and accuracy in data management systems, the government should be interested in the issue and should enforce the barcoding system for the online form of medicine distribution.

5. Drug abuse/schedule H and X drugs: - For the marketing of pharmaceuticals on schedules H and X, suitable regulatory requirements are necessary. These medications can only be sold in the presence of a pharmacist with a valid prescription because they contain antibiotics and addictive medications.

Information on leading "E-pharma" companies in India: -
In 2015, 11 early start-up E-drug store organizations, including 1MG, Netmeds, BookMEDS, mChemist, Medlife, PharmEasy, Medi-Dart, MedStar, Zigy, SaveOnMedicals, and Savemymeds, established the Indian Internet Pharmacy Association. We shall briefly discuss these key central characters in this section.

1MG
One of the most well-known and reliable consumer healthcare platforms in India is 1MG. It offers economical healthcare services as well as affordable substitutes. Additionally, it gives the general public the chance to learn more about their prescription therapy through a variety of E-consultation and E-diagnostic services. In order to offer customers and caregivers the best healthcare products and services at the most reasonable cost, the company is committed to promoting public welfare.
- Headquarter: - Gurgaon
- Operation: - mobile application and mobile app available on Android and IOS.

- Founder: - Anurag Mundhada, Prashant Tondon, Vikas Chouchan, Gaurav Agrawal, Sameer Maheshwari.

PharmEasy

Since its launch in 2015, PharmEasy has worked to bring dependable healthcare products and services to more than 1000 cities and 22,000+ pin codes. They serve as a go-between for customers and their neighborhood pharmacy and provide diagnostic services for complicated medical needs. Every Indian citizen will be able to obtain high-quality pharmaceuticals swiftly and economically thanks to PharmEasy .Headquarter: - Mumbai

- Founder: - Dharmil Sheth, Mikhil Innani, Dhaval Shah

Care on Go

India's first mobile chain of co-branded pharmacies, provides local retail businesses with a platform for technology-driven stock management and control in an organized way and under one roof. With the ability to find cheaper prices, daily alerts and reminders, and alternative medications, users can purchase medications on their smartphones with additional benefits while keeping their privacy.

- Headquarter: - New Delhi
- Founders: - Ritu Singh, Aditya Kandoi, Yogesh Agrawal.

S.No.	Online Startup	Website	Target
1.	Healthkart	www.healthkart.com	It is an online store for health, sport, and supplements.
2.	1 mg	www.1mg.com	Online pharmacy with dr. consultancy and tele consultation services.
3.	Medlife	www.medlife.com	Medlife is an app for purchasing medicines.
4.	PharmEasy	www.pharmeasy.com	First mobile application for ordering medicines and diagnostic tests.
5.	NetMeds	www.netmeds.com	It is an pharmacy selling prescription and over the counter drugs and healthcare and wellness products.
6.	EMEDIX	www.emedix.in	This pharmacy gives better delivery and excellent services to the consumers nationwide.

Table 2

Conclusion: -

most of the online pharmacies working are selling schedule X drugs and are working illegally, therefore seeing these issues proper rules and regulations for online pharmacies should be their and government should take interest in topic of online pharmacy. Due to lack of regulatory framework online pharmacies are working illegally openly without any fear. Awareness among users of online pharmacy should be they're so that they can differentiate between right and wrong pharmacies. If patients are consuming medicines from online pharmacy, they should check the medicine before taking it because counterfeit medicines and expired medicines are also distributed by the online pharmacy stores. There are some major issues which are to be taken in account by the regulatory authorities or concerned officials like drug abuse, sell of prescription only medicines, sell of counterfeit medicines etc. so for resolving these issues frequent monitoring of the online stores and their license verification should be done time to time. This might reduce the no. of illegal pharmacies and their fraud practices. No doubt that online pharmacy is providing convenience and consumers are getting medicines in their comfort zone and fell protected with their privacy. The future of e-pharmacy will evolve if proper regulatory framework will be established for e-pharmacy. As during the covid-19 pandemic when everything was shut down many of the traditional pharmacies has switched to

online pharmacies because people are afraid to go outside to buy anything in that situation people opted online pharmacy. E-pharmacy is such a large industry around the world especially in China and Russia, specialized in fake drugs. They make pills who looks exactly like the real medicines but may contain toxic content like lead and arsenic and has no real Active Pharmaceutical Ingredient. There are some online pharmacies who don't even sell drugs they just take the credit card information or patients personal information and sell it. Therefore, selection of e-pharmacy or drugstore is really important some of the points are to be kept in mind while choosing online pharmacy. The points are as follows: -

1. Verify the website's prescription need and availability of a pharmacist for inquiries.
2. Buy only from pharmacies with a state license. More information about licensure and its program to certify internet pharmacies can be found at the National Association of Boards of Pharmacies. Only 338 of the 36,402 pharmaceutical websites that the Board examined were found to be true, and more than 96%, or 35,323, failed to meet board standards.
3. Unless you are certain that the website will protect your personal information, such as credit card details, do not submit it.

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